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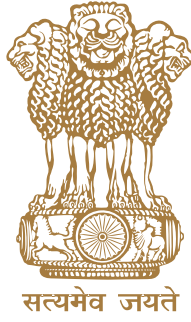
CENTRAL PUBLIC WORKS DEPARTMENT



**DELHI ANALYSIS
OF RATES
(E&M) (Volume- II) -2025**

2025

महानिदेशक, के. लो. नि. वि., नई दिल्ली के प्राधिकार के अधीन प्रकाशित
PUBLISHED UNDER THE AUTHORITY OF DIRECTOR GENERAL, CPWD, NEW DELHI



GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT

DELHI ANALYSIS OF RATES
(E & M) VOLUME-II

2025



PUBLISHED UNDER THE AUTHORITY OF
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A GOVERNMENT OF INDIA PUBLICATION

**Published under the authority of
Director General**

Central Public Works Department
Nirman Bhawan
New Delhi-110011



Satinder Pal Singh
Director General



भारत सरकार
Government of India



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FOREWORD

The Delhi Analysis of Rates (E&M) (Vol-II) 2025 is specially prepared with items of Energy Efficient Materials/ Technologies used in E&M services. This has been prepared by CPWD with the help of Bureau of Energy Efficiency (BEE) to achieve Energy Efficiency in Buildings, with compliance of Energy Conservation and Sustainable Building Code (ECSBC) – 2024 and Eco Niwas Samhita (ENS)- 2024 norms developed by BEE.

I acknowledge the hard work put in by Sh. Chita Ranjan Nanda, ADG (Tech), Sh. Ram Raj Meena, CE CSQ (E), Sh. Ramayan Prasad Gupta, SE (E) TAS, Sh. Santosh Kumar Dhangar, SE (E) TLQA, Sh. Himanshu Phulwaria, EE (E), Sh. Sandeep Kumar Das, AE (E) and Sh. Harjeet Singh, AE (E) and other staff. I also acknowledge the work and inputs by Sh. Naimuddin E-in-C, PWD, Sh. Vikas Rana, CE (E) and Sh. Vimal Kumar CE (E) during their tenure in the Technical Unit of Directorate.

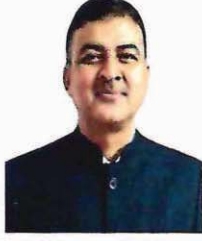
I also acknowledge the guidance and inputs to the team by Sh. Mohd. Kamal Ahmad, Special DG (HQ), CPWD, during the preparation of the DAR.

I am sure that this Analysis of Rates for Energy Efficient materials/ Technology will be useful to all Engineers of CPWD and also to many other Engineering Organizations of Central and State governments, as well as practicing Architects and E&M Consultants.

(Satinder Pal Singh)
Director General, CPWD

Place: New Delhi

Dated: 29-04-2025



Mohd Kamal Ahmad
Spl. Director General (HQ)



भारत सरकार
Government of India



केन्द्रीय लोक निर्माण विभाग
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MESSAGE

Delhi Analysis of Rates (E&M) (Vol-II) 2025 is a meticulously crafted document focused on promoting energy efficiency in the built environment. This comprehensive resource has been prepared by CPWD in close collaboration with the Bureau of Energy Efficiency (BEE), ensuring adherence to the latest Energy Conservation and Sustainable Building Code (ECSBC) – 2024 and Eco Niwas Samhita (ENS)- 2024 norms.

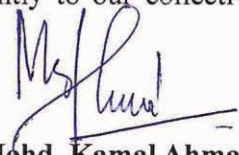
This edition specifically emphasizes Energy Efficient Materials and Technologies across various E&M services. The rates provided are based on realistic assessments, incorporating the updated minimum wage rates for labour in Delhi (effective October 1, 2024) and recent material costs observed in the local market over the past six months.

The DAR (E&M) (Vol-II) 2025 covers a wide array of essential components, including advanced LED lighting (categorized by lumen efficacy), energy-efficient BLDC fans, BEE star-rated transformers, Automatic Power Factor Correction Panels with hybrid systems, high-efficiency UPS systems, and Diesel Generator sets and HVAC etc.

I extend my sincere appreciation to Shri Satinder Pal Singh, Director General, CPWD for his trust and support. My heartfelt thanks go to and Shri Chita Ranjan Nanda, Shri R. R. Meena, CE CSQ (E), and the dedicated team for their rigorous market research, thorough analysis, and precise drafting, ensuring alignment with the most current standards and energy efficiency norms. The valuable inputs of Sh. Naimuddin E-in-C, PWD, Sh. Vimal Kumar CE (E), and Sh. Vikas Rana, CE (E) during their tenure are also gratefully acknowledged.

I am confident that this Analysis of Rates for Energy Efficient Materials and Technologies will serve as an indispensable tool for engineers within CPWD, other government organizations, practicing architects, and E&M consultants, contributing significantly to our collective pursuit of energy-efficient and sustainable buildings.

Place: New Delhi
Dated:


(Mohd. Kamal Ahmad)
Special Director General (HQ), CPWD



Chita Ranjan Nanda
Additional Director General



भारत सरकार
Government of India



केन्द्रीय लोक निर्माण विभाग
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PREFACE

This Delhi Analysis of Rates (E&M) (Vol-II) 2025 is a comprehensive and useful document. The input of materials, labour and machinery is based on realistic assessments. The rates of all the items have been revised based on minimum wage rates of labour issued by Government of India for Delhi w.e.f. 01-10-2024 and material collected during last six months in Delhi. This Delhi Analysis of Rates (E&M) (Vol -II)-2025 is specially prepared with items of Energy Efficient Material/ Technologies used in E&M services. This has been prepared by CPWD with the help of Bureau of Energy Efficiency (BEE) to achieve Energy Efficiency in Buildings, with compliance of Energy Conservation and Sustainable Building Code (ECSBC) - 2024 and Eco Niwas Samhita (ENS)- 2024 norms developed by BEE.

The Delhi Analysis of Rates (E&M) (Vol-II) -2025 contains the following chapters:-

1. Fitting Fixtures and Fans

- Chapter -1 LED Lights including down lighters, LED panels, smart street light, Flood light. The LED lights are divided into three categories according to system lumen efficacy.
- Chapter-2 The BLDC fans.

2. Sub-Station Equipment

- Chapter-3 BEE star rated transformer (Oil and Dry Type).
- Chapter-4 Automatic Power Factor Correction Panel i/c HYBRID System.
- Chapter-5 UPS with 96% efficiency.

3. DG Sets

- Chapter-6 Diesel Generator (DG) Set.

4. Heating Ventilation and Air Conditioning

- Chapter-7 VRV/VRF Air conditioning System.
- Chapter-8 Unitary Air conditioning System.
- Chapter-9 Chillers for Central Air conditioning.
- Chapter-10 Cooling Tower.
- Chapter-11 Air Handling Unit (AHU) & Fan Coil Unit (FCU)
- Chapter-12 Evaporative Cooling
- Chapter-13 Air Cooled Heat Pump for Hot Water.

5. Other works

- Chapter-14 Solar Water Heating system
- Chapter-15 EV Charging System.

This edition supersedes the Item for BEE 5 star rated ceiling fan with Brush Less Direct Current (BLDC) Motor – 2019 and Items for VRF/VRV Air-Conditioning System – 2019.

The rate is inclusive of carriage, installation, testing and commissioning, contractor's profit and OH and GST on works contract in all the items of this DAR(E&M) (Vol.-II)-2025.

1. The Basic Rates of Labour and Materials (without any taxes etc.) have been provided in Appendix – I & II.
2. The Rates in this DAR are for working height upto 4.5 m from floor level wherever height is not specified.
3. The Rates of Materials are for reputed brands, factory fabricated works part-IV Sub-Station shall be applicable.
4. The cost Index of Delhi i.e. 103 (as on 01.10.2024) having base 100 as on 01.04.2023 is considered.

I am grateful to Shri Satinder Pal Singh, Director General, CPWD for reposing trust in our team to undertake this work. I convey my sincere thanks to Shri Mohd Kamal Ahmed SDG(HQ) for his guidance and support throughout the preparation of this document. I also express my deep appreciation for Shri R. R. Meena, CE CSQ (E) and the team for market research, preparation of analysis and drafting this DAR taking into account the updated standards, Codes and Energy Efficiency norms of related items.

I compliment Shri Ramayan Prasad Gupta SE (E) TAS, Sh. Santosh Kumar Dhangar SE (E) TLQA, Sh. Himanshu Phulwaria, EE (E) TAS, Sh. Sandeep Kumar Das AE (E) and Sh. Harjeet Singh AE (E) who made their sincere efforts to prepare the DAR and making the publication available in a very short time.

Errors or Omissions and suggestion for improvement, if any, may kindly be brought to the notice of the Superintending Engineer (E) TAS in the office of the Chief Engineer (E) CSQ CPWD New Delhi- 110011 (Tel No. 01123061418, Email: delceecsq.cpwd@nic.in & delseetas.cpwd@nic.in).

Place: New Delhi
Dated: 30/04/2025


(Chita Ranjan Nanda)
Additional Director General, (Tech) CPWD

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GENERAL NOTE

The Analysis of Rate (E&M)-Vol.-II 2025 has been prepared on the following

1. The items of works are to be executed as per CPWD General Specifications for Electrical Works Part-I Internal, Part-II External, Part-IV Sub-Station and CPWD General Specifications for HVAC Works, with up to date amendments/correction slips and latest ECSBC 2024.
2. The Basic Rates of labour and materials have been provided in Appendix-I & II. The effect of GST on works contract has been incorporated in all the items.
3. The rates are complete i.e. including all material, labour, taxes & duties (in Delhi), T&P etc. And Overhead & profit as per orders of the department applicable as on date.
4. The rates in this DAR are for working height upto 4.5m from floor level wherever height is not specified.
5. The Rating of APFC Panel shall be selected by the NIT approving authority so as achieve average power factor ideally up to unity including considering the depreciation. Hybrid type of APFC panel shall be used where requirement of APFC and building has complex type load using electronics ballast/VFD Drives etc.
6. The rates of materials are from reputed brands, factory fabricated and tested where ever available from manufactures. This edition supersedes the Item for BEE 5 star rated ceiling fan with Brush Less Direct Current (BLDC) Motor – 2019 and Items for VRF/VRV Air-Conditioning System – 2019.
7. This edition aims to incorporate latest technology to achieve Energy Efficiency in Buildings by implementation of Energy conservation Sustainable building code-2024 & Eco-Niwas Samhita (ENS) 2024 developed by BEE. Three levels of energy performance standards i.e. ECSBC, ECSBC plus and super ECSBC are existing in above code will show approximately 25% saving in ECSBC building, 35% saving in ECSBC plus building and will show 50% energy saving in super ECSBC building compared to conventional building.
8. To adopt modern technology and Energy Efficient material for faster, ecofriendly and quality Contribution to buildings the NIT approving authority have to analyze for any change in parameter.
9. VRV System shall meet or exceeds the efficiency requirement in ECSBC-2024. The NIT approving authority may decide the item according to the energy efficiency requirement of the building.
10. The Unitary system certified under BEE Star levelling program has been considered.
11. The rates of Ceiling Suspended AHUs have been incorporated only for four rows deep cooling coils. For any change in parameter, the rates have to be analyzed by the NIT approving authority.
12. BEE 4 star /level 4 and BEE 5star /level 5 rated equipment shall be used for ECSBC plus & ECSBC Super compliant buildings.
13. Evaporative cooling shall be used being environment and human body friendly comfort application with proper exhaust system to avoid suffocation.

CHAPTER-1-LED LIGHT

- 1.1 LED Down lighter (SMD Type) (System lumen efficacy $\geq 105 < 120$ lm/Watt) Supplying, installation, Testing & Commissioning of LED Recessed/ surface Down lighter (Round/ square/ Rectangular) SMD type of following body material with PMMA and prismatic diffuser and construction as per IS : 10322 with driver as per the requirement with Driver efficiency $>85\%$, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD $< 10\%$, P. F. ≥ 0.95 , IP20, CRI >80 , UGR (Unified Glare Rating) < 19 , Flicker free (flicker should be below 5%), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends , CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3 , Maximum power consumption should not more than the specified rating and Fixture shall be confirming to relevant BIS standards and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing Complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 105 and <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C)**

**1.1.1 5 - 7 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4201	5 - 7 watt Fittings	each	1.00	185.59	185.59
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= $0.30 + 0.02$ (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				195.85
	Cartage @ 1 % of A1				1.96
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallas	day	0.10	783.00	78.30
	TOTAL				371.51
	OVERHEADS & PROFIT @ 15 %				55.73
	TOTAL				427.24
	Labours cess@1%				4.27
	Total				431.51
	Add 18% GST				77.67
	TOTAL				509.18
	Rate per Each				509.18
	Say				509.00

**1.1.2 5 - 7 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4202	8 - 10 watt Fittings	each	1.00	239.41	239.41
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				249.67
	Cartage @ 1 % of A1				2.50
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				425.87
	OVERHEADS & PROFIT @ 15 %				63.88
	TOTAL				489.75
	Labours cess@1%				4.90
	Total				494.64
	Add 18% GST				89.04
	TOTAL				583.68
	Rate per Each				583.68
	Say				584.00

**1.1.3 12 -15 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4203	12 -15 watt Fittings	each	1.00	299.15	299.15
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				309.41
	Cartage @ 1 % of A1				3.09
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				486.20
	OVERHEADS & PROFIT @ 15 %				72.93
	TOTAL				559.13
	Labours cess@1%				5.59
	Total				564.73

Add 18% GST	101.65
TOTAL	666.38
Rate per Each	666.38
Say	666.00

1.1.4 18 watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4204	18 watt Fittings	each	1.00	434.32	434.32
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				444.58
	Cartage @ 1 % of A1				4.45
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				622.73
	OVERHEADS & PROFIT @ 15 %				93.41
	TOTAL				716.14
	Labours cess@1%				7.16
	Total				723.30
	Add 18% GST				130.19
	TOTAL				853.49
	Rate per Each				853.49
	Say				853.00

1.1.5 22 watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4204	22 watt Fittings	each	1.00	466.68	466.68
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				476.94
	Cartage @ 1 % of A1				4.45
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30

TOTAL	655.41
OVERHEADS & PROFIT @ 15 %	98.31
TOTAL	753.72
Labours cess@1%	7.54
Total	761.26
Add 18% GST	137.03
TOTAL	898.28
Rate per Each	898.28
Say	898.00

**1.1.6 30 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4206	30 watt Fittings	each	1.00	775.00	775.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				785.26
	Cartage @ 1 % of A1				7.85
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				966.81
	OVERHEADS & PROFIT @ 15 %				145.02
	TOTAL				1111.83
	Labours cess@1%				11.12
	Total				1122.95
	Add 18% GST				202.13
	TOTAL				1325.08
	Rate per Each				1325.08
	Say				1325.00

1.2 LED Down lighter (SMD Type) (System lumen efficacy ≥ 120 <135 lm/Watt) Supplying, installation, Testing & Commissioning of LED Recessed/surface Down lighter (Round / square/ Rectangular) SMD type of following body material with PMMA and prismatic diffuser and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F. ≥ 0.95 , IP20, CRI >80 , UGR (Unified Glare Rating) < 19, Flicker free (flicker should be below 5 %), life time (LED, Driver & electrical circuitary), life time of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends , CCT 3000°K / 4000°K / 5700°K/6000°K/6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3, Maximum power consumption

should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. "complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 120 <135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

1.2.1 5 - 7 watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4207	5 - 7 watt Fittings	each	1.00	204.15	204.15
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				214.41
	Cartage @ 1 % of A1				2.14
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallas	day	0.10	783.00	78.30
	TOTAL				390.25
	OVERHEADS & PROFIT @ 15 %				58.54
	TOTAL				448.79
	Labours cess@1%				4.49
	Total				453.28
	Add 18% GST				81.59
	TOTAL				534.87
	Rate per Each				534.87
	Say				535.00

1.2.2 8 - 10 watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4208	8 - 10 watt Fittings	each	1.00	263.35	263.35
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				273.61
	Cartage @ 1 % of A1				2.14
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				450.05
	OVERHEADS & PROFIT @ 15 %				67.51
	TOTAL				517.56
	Labours cess@1%				5.18
	Total				522.73
	Add 18% GST				94.09
	TOTAL				616.82
	Rate per Each				616.82
	Say				617.00

1.2.3 12 -15 watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4209	12 -15 watt Fittings	each	1.00	329.07	329.07
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				339.33
	Cartage @ 1 % of A1				3.39
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				516.42
	OVERHEADS & PROFIT @ 15 %				77.46
	TOTAL				593.88
	Labours cess@1%				5.94
	Total				599.82
	Add 18% GST				107.97
	TOTAL				707.79
	Rate per Each				707.79
	Say				708.00

1.2.4 18 watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4210	18 watt Fittings	each	1.00	493.60	493.60

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				503.86
	Cartage @ 1 % of A1				5.04
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				682.60
	OVERHEADS & PROFIT @ 15 %				102.39
	TOTAL				784.99
	Labours cess@1%				7.85
	Total				792.84
	Add 18% GST				142.71
	TOTAL				935.55
	Rate per Each				935.55
	Say				936.00

**1.2.5 22 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4211	22 watt Fittings	each	1.00	511.55	511.55
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				521.81
	Cartage @ 1 % of A1				3.39
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				700.73
	OVERHEADS & PROFIT @ 15 %				105.11
	TOTAL				805.84
	Labours cess@1%				8.06
	Total				813.90
	Add 18% GST				146.50
	TOTAL				960.40
	Rate per Each				960.40
	Say				960.00

**1.2.6 30 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4212	30 watt Fittings	each	1.00	925.00	925.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				935.26
	Cartage @ 1 % of A1				3.39
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1118.31
	OVERHEADS & PROFIT @ 15 %				167.75
	TOTAL				1286.06
	Labours cess@1%				12.86
	Total				1298.92
	Add 18% GST				233.81
	TOTAL				1532.73
	Rate per Each				1532.73
	Say				1533.00

1.3 LED Down lighter (SMD Type) (System lumen efficacy >135 lm/Watt) Supplying, installation, Testing & Commissioning of LED Recessed/surface Down lighter (Round /square/Rectangular) SMD type of following body material with PMMA and prismatic diffuser and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range - 15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD < 10%, P. F. ≥ 0.95, IP20, CRI > 80, UGR (Unified Glare Rating) < 19, Flicker free, (flicker should be below 5 %), life time (LED, Driver & electrical circuitry), life time of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin) , SDCM (Standard Deviation Color Matching) < 3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

**1.3.1 5 - 7 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4213	5 - 7 watt Fittings	each	1.00	222.71	222.71
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				232.97
	Cartage @ 1 % of A1				3.39
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				409.00
	OVERHEADS & PROFIT @ 15 %				61.35
	TOTAL				470.35
	Labours cess@1%				4.70
	Total				475.05
	Add 18% GST				85.51
	TOTAL				560.56
	Rate per Each				560.56
	Say				561.00

**1.3.2 8 - 10 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4214	8 - 10 watt Fittings	each	1.00	287.29	287.29
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				297.55
	Cartage @ 1 % of A1				2.98
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				474.23
	OVERHEADS & PROFIT @ 15 %				71.13
	TOTAL				545.36
	Labours cess@1%				5.45
	Total				550.81
	Add 18% GST				99.15

TOTAL	649.95
Rate per Each	649.95
Say	650.00

**1.3.3 12 -15 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4215	12 -15 watt Fittings	each	1.00	358.98	358.98
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					369.24
Cartage @ 1 % of A1					3.39
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					546.63
OVERHEADS & PROFIT @ 15 %					81.99
TOTAL					628.62
Labours cess@1%					6.29
Total					634.91
Add 18% GST					114.28
TOTAL					749.19
Rate per Each					749.19
Say					749.00

**1.3.4 18 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4216	18 watt Fittings	each	1.00	538.47	538.47
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					548.73
Cartage @ 1 % of A1					5.49
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					727.92
OVERHEADS & PROFIT @ 15 %					109.19
TOTAL					837.11

Labours cess@1%	8.37
Total	845.48
Add 18% GST	152.19
TOTAL	997.66
Rate per Each	997.66
Say	998.00

**1.3.5 22 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4217	22 watt Fittings	each	1.00	556.42	556.42
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					566.68
Cartage @ 1 % of A1					5.67
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					746.05
OVERHEADS & PROFIT @ 15 %					111.91
TOTAL					857.96
Labours cess@1%					8.58
Total					866.54
Add 18% GST					155.98
TOTAL					1022.51
Rate per Each					1022.51
Say					1023.00

**1.3.6 30 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4218	30 watt Fittings	each	1.00	953.39	953.39
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					963.65
Cartage @ 1 % of A1					9.64
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30

TOTAL	1146.99
OVERHEADS & PROFIT @ 15 %	172.05
TOTAL	1319.04
Labours cess@1%	13.19
Total	1332.23
Add 18% GST	239.80
TOTAL	1572.03
Rate per Each	1572.03
Say	1572.00

- 1.4 LED Down lighter (COB Type) (System lumen efficacy ≥ 105 < 120 lm/Watt) Supplying, installation, Testing & Commissioning of LED Recessed/ surface Down lighter (Round/ square/ Rectangular) COB Type of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD < 10% , P. F. ≥ 0.95 , IP20, CRI >80 , UGR (Unified Glare Rating) < 19, Flicker free (flicker should be below 5%), life time (LED, Driver & electrical circuitary), of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends , CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be confirming to relevant BIS standards and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing Complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 105 and <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C)**

Powder coated die cast /Extruded aluminium Body including trim with Aluminium Reflector

**1.4.1 5 - 7 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4219	5 - 7 watt Fittings	each	1.00	409.50	409.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					419.76
Cartage @ 1 % of A1					4.20
LABOUR					
1001	Wireman	day	0.10	954.00	95.40

1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				597.66
	OVERHEADS & PROFIT @ 15 %				89.65
	TOTAL				687.31
	Labours cess@1%				6.87
	Total				694.18
	Add 18% GST				124.95
	TOTAL				819.13
	Rate per Each				819.13
	Say				819.00

**1.4.2 8 - 10 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4220	8 - 10 watt	each	1.00	447.29	447.29
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				457.55
	Cartage @ 1 % of A1				4.58
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				635.83
	OVERHEADS & PROFIT @ 15 %				95.37
	TOTAL				731.20
	Labours cess@1%				7.31
	Total				738.51
	Add 18% GST				132.93
	TOTAL				871.44
	Rate per Each				871.44
	Say				871.00

**1.4.3 12 - 15 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4221	12 - 15 watt	each	1.00	565.50	565.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				575.76
	Cartage @ 1 % of A1				5.76
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				755.22
	OVERHEADS & PROFIT @ 15 %				113.28
	TOTAL				868.50
	Labours cess@1%				8.68
	Total				877.18
	Add 18% GST				157.89
	TOTAL				1035.08
	Rate per Each				1035.08
	Say				1035.00

1.4.4 18 watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4222	18 watt	each	1.00	666.25	666.25
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				676.51
	Cartage @ 1 % of A1				6.77
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				856.98
	OVERHEADS & PROFIT @ 15 %				128.55
	TOTAL				985.53
	Labours cess@1%				9.86
	Total				995.38
	Add 18% GST				179.17
	TOTAL				1174.55
	Rate per Each				1174.55
	Say				1175.00

1.4.5 22 watt

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4223	22 watt	each	1.00	773.50	773.50

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				783.76
	Cartage @ 1 % of A1				7.84
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				965.30
	OVERHEADS & PROFIT @ 15 %				144.79
	TOTAL				1110.09
	Labours cess@1%				11.10
	Total				1121.19
	Add 18% GST				201.81
	TOTAL				1323.00
	Rate per Each				1323.00
	Say				1323.00

1.4.6 30 watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4224	30 watt	each	1.00	1007.50	1007.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1017.76
	Cartage @ 1 % of A1				10.18
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1201.64
	OVERHEADS & PROFIT @ 15 %				180.25
	TOTAL				1381.89
	Labours cess@1%				13.82
	Total				1395.71
	Add 18% GST				251.23
	TOTAL				1646.93
	Rate per Each				1646.93
	Say				1647.00

- 1.5 LED Down lighter (COB Type) (System lumen efficacy ≥ 120 lm/Watt) Supplying, installation, Testing & Commissioning of LED Recessed / surface Down lighter (Round / square/ Rectangular) COB Type of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency $>85\%$, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD $< 10\%$, P. F. ≥ 0.95 , IP20, CRI >80 , UGR (Unified Glare Rating) < 19 , Flicker free (flicker should be below 5 %), life time (LED, Driver & electrical circuitary), life time of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) < 3 , Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. "complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 120 < 135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).**

Powder coated die cast /Extruded aluminium Body including trim with Aluminium Reflector

1.5.1 5 - 7 watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4225	5 - 7 watt	each	1.00	481.69	481.69
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable = 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				491.95
	Cartage @ 1 % of A1				4.92
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				670.57
	OVERHEADS & PROFIT @ 15 %				100.59
	TOTAL				771.16
	Labours cess@1%				7.71
	Total				778.87
	Add 18% GST				140.20
	TOTAL				919.07
	Rate per Each				919.07
	Say				919.00

**1.5.2 8 - 10 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4226	8 - 10 watt	each	1.00	495.46	495.46
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				505.72
	Cartage @ 1 % of A1				5.06
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				684.48
	OVERHEADS & PROFIT @ 15 %				102.67
	TOTAL				787.15
	Labours cess@1%				7.87
	Total				795.02
	Add 18% GST				143.10
	TOTAL				938.12
	Rate per Each				938.12
	Say				938.00

**1.5.3 12 -15 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4227	12 -15 watt	each	1.00	670.34	670.34
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				680.60
	Cartage @ 1 % of A1				6.81
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				861.11
	OVERHEADS & PROFIT @ 15 %				129.17
	TOTAL				990.28
	Labours cess@1%				9.90
	Total				1000.18
	Add 18% GST				180.03

TOTAL	1180.21
Rate per Each	1180.21
Say	1180.00

**1.5.4 18 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4228	18 watt	each	1.00	875.00	875.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				885.26
	Cartage @ 1 % of A1				8.85
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1067.81
	OVERHEADS & PROFIT @ 15 %				160.17
	TOTAL				1227.98
	Labours cess@1%				12.28
	Total				1240.26
	Add 18% GST				223.25
	TOTAL				1463.51
	Rate per Each				1463.51
	Say				1464.00

**1.5.5 22 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4229	22 watt	each	1.00	900.51	900.51
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				910.77
	Cartage @ 1 % of A1				9.11
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1093.58
	OVERHEADS & PROFIT @ 15 %				164.04

TOTAL	1257.62
Labours cess@1%	12.58
Total	1270.19
Add 18% GST	228.63
TOTAL	1498.83
Rate per Each	1498.83
Say	1499.00

**1.5.6 30 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4230	30 watt	each	1.00	1295.00	1295.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1305.26
	Cartage @ 1 % of A1				13.05
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallas	day	0.10	783.00	78.30
	TOTAL				1492.01
	OVERHEADS & PROFIT @ 15 %				223.80
	TOTAL				1715.81
	Labours cess@1%				17.16
	Total				1732.97
	Add 18% GST				311.93
	TOTAL				2044.91
	Rate per Each				2044.91
	Say				2045.00

1.6 LED Panel light 2x2 ft. (System lumen efficacy ≥ 105 <120 lm/Watt) Supplying, installation, Testing & Commissioning of Panel light 2x2 ft., of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD < 10% , P. F. ≥ 0.95 , IP20, CRI >80, UGR (Unified Glare Rating) < 19, Flicker free, (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with, 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K /6000°K / 6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC

insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 105 <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

**1.6.1 15 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4231	15 watt	each	1.00	902.54	902.54
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				912.80
	Cartage @ 1 % of A1				9.13
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1095.63
	OVERHEADS & PROFIT @ 15 %				164.34
	TOTAL				1259.97
	Labours cess@1%				12.60
	Total				1272.57
	Add 18% GST				229.06
	TOTAL				1501.63
	Rate per Each				1501.63
	Say				1502.00

**1.6.2 18 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4232	18 watt	each	1.00	1300.85	1300.85
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1311.11
	Cartage @ 1 % of A1				13.11
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30

TOTAL	1497.92
OVERHEADS & PROFIT @ 15 %	224.69
TOTAL	1722.61
Labours cess@1%	17.23
Total	1739.84
Add 18% GST	313.17
TOTAL	2053.01
Rate per Each	2053.01
Say	2053.00

**1.6.3 22 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4233	22 watt	each	1.00	1525.00	1525.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1535.26
	Cartage @ 1 % of A1				15.35
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1724.31
	OVERHEADS & PROFIT @ 15 %				258.65
	TOTAL				1982.96
	Labours cess@1%				19.83
	Total				2002.79
	Add 18% GST				360.50
	TOTAL				2363.29
	Rate per Each				2363.29
	Say				2363.00

**1.6.4 36 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4234	36 watt	each	1.00	1625.00	1625.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1635.26
	Cartage @ 1 % of A1				16.35
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1825.31
	OVERHEADS & PROFIT @ 15 %				273.80
	TOTAL				2099.11
	Labours cess@1%				20.99
	Total				2120.10
	Add 18% GST				381.62
	TOTAL				2501.72
	Rate per Each				2501.72
	Say				2502.00

**1.6.5 40 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4235	40 watt	each	1.00	1750.00	1750.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1760.26
	Cartage @ 1 % of A1				15.35
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1951.56
	OVERHEADS & PROFIT @ 15 %				292.73
	TOTAL				2244.29
	Labours cess@1%				22.44
	Total				2266.74
	Add 18% GST				408.01
	TOTAL				2674.75
	Rate per Each				2674.75
	Say				2675.00

**1.6.6 45 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4235	45 watt	each	1.00	2100.00	2100.00

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				2110.26
	Cartage @ 1 % of A1				21.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2305.06
	OVERHEADS & PROFIT @ 15 %				345.76
	TOTAL				2650.82
	Labours cess@1%				26.51
	Total				2677.33
	Add 18% GST				481.92
	TOTAL				3159.25
	Rate per Each				3159.25
	Say				3159.00

CRCA Sheet Body (Thickness > 0.50 mm)

1.6.7 15 watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4237	15 watt	each	1.00	815.68	815.68
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				825.94
	Cartage @ 1 % of A1				9.13
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1007.90
	OVERHEADS & PROFIT @ 15 %				151.18
	TOTAL				1159.08
	Labours cess@1%				11.59
	Total				1170.67
	Add 18% GST				210.72
	TOTAL				1381.39
	Rate per Each				1381.39
	Say				1381.00

**1.6.8 18 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4238	18 watt	each	1.00	1200.00	1200.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1210.26
	Cartage @ 1 % of A1				12.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1396.06
	OVERHEADS & PROFIT @ 15 %				209.41
	TOTAL				1605.47
	Labours cess@1%				16.05
	Total				1621.53
	Add 18% GST				291.87
	TOTAL				1913.40
	Rate per Each				1913.40
	Say				1913.00

**1.6.9 22 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4239	22 watt	each	1.00	1220.00	1220.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1230.26
	Cartage @ 1 % of A1				12.30
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1416.26
	OVERHEADS & PROFIT @ 15 %				212.44
	TOTAL				1628.70
	Labours cess@1%				16.29
	Total				1644.99
	Add 18% GST				296.10

TOTAL	1941.09
Rate per Each	1941.09
Say	1941.00

**1.6.10 36 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4240	36 watt	each	1.00	1300.00	1300.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1310.26
	Cartage @ 1 % of A1				13.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1497.06
	OVERHEADS & PROFIT @ 15 %				224.56
	TOTAL				1721.62
	Labours cess@1%				17.22
	Total				1738.84
	Add 18% GST				312.99
	TOTAL				2051.83
	Rate per Each				2051.83
	Say				2052.00

**1.6.11 40 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4241	40 watt	each	1.00	1400.00	1400.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1410.26
	Cartage @ 1 % of A1				14.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1598.06
	OVERHEADS & PROFIT @ 15 %				239.71
	TOTAL				1837.77

Labours cess@1%	18.38
Total	1856.15
Add 18% GST	334.11
TOTAL	2190.26
Rate per Each	2190.26
Say	2190.00

**1.6.12 45 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4242	45 watt	each	1.00	1638.31	1638.31
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1648.57
	Cartage @ 1 % of A1				16.49
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1838.76
	OVERHEADS & PROFIT @ 15 %				275.81
	TOTAL				2114.57
	Labours cess@1%				21.15
	Total				2135.71
	Add 18% GST				384.43
	TOTAL				2520.14
	Rate per Each				2520.14
	Say				2520.00

- 1.7 LED Panel light 2x2 ft. (System lumen efficacy ≥ 120 <135 lm/Watt) Supplying, installation, Testing & Commissioning of Panel light 2x2 ft., of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F. ≥ 0.95 , IP20, CRI >80, UGR (Unified Glare Rating) < 19, Flicker free, (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends,CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty.**

System lumen efficacy ≥ 120 <135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

Powder coated die cast /Extruded aluminium Body (Thickness > 1.20 mm)

**1.7.1 15 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4243	15 watt	each	1.00	992.80	992.80
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1003.06
	Cartage @ 1 % of A1				10.03
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallas	day	0.10	783.00	78.30
	TOTAL				1186.79
	OVERHEADS & PROFIT @ 15 %				178.02
	TOTAL				1364.81
	Labours cess@1%				13.65
	Total				1378.46
	Add 18% GST				248.12
	TOTAL				1626.58
	Rate per Each				1626.58
	Say				1627.00

**1.7.2 18 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4244	18 watt	each	1.00	1430.93	1430.93
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1441.19
	Cartage @ 1 % of A1				14.41
	LABOUR				

1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1629.30
	OVERHEADS & PROFIT @ 15 %				244.40
	TOTAL				1873.70
	Labours cess@1%				18.74
	Total				1892.44
	Add 18% GST				340.64
	TOTAL				2233.08
	Rate per Each				2233.08
	Say				2233.00

**1.7.3 22 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4245	22 watt	each	1.00	1760.00	1760.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1770.26
	Cartage @ 1 % of A1				17.70
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1961.66
	OVERHEADS & PROFIT @ 15 %				294.25
	TOTAL				2255.91
	Labours cess@1%				22.56
	Total				2278.47
	Add 18% GST				410.12
	TOTAL				2688.60
	Rate per Each				2688.60
	Say				2689.00

**1.7.4 36 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4246	36 watt	each	1.00	1952.50	1952.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1962.76
	Cartage @ 1 % of A1				19.63
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2156.09
	OVERHEADS & PROFIT @ 15 %				323.41
	TOTAL				2479.50
	Labours cess@1%				24.79
	Total				2504.29
	Add 18% GST				450.77
	TOTAL				2955.07
	Rate per Each				2955.07
	Say				2955.00

**1.7.5 40 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4247	40 watt	each	1.00	2475.00	2475.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				2485.26
	Cartage @ 1 % of A1				24.85
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2683.81
	OVERHEADS & PROFIT @ 15 %				402.57
	TOTAL				3086.38
	Labours cess@1%				30.86
	Total				3117.25
	Add 18% GST				561.10
	TOTAL				3678.35
	Rate per Each				3678.35
	Say				3678.00

**1.7.6 45 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4248	45 watt	each	1.00	2640.00	2640.00

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				2650.26
	Cartage @ 1 % of A1				26.50
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2850.46
	OVERHEADS & PROFIT @ 15 %				427.57
	TOTAL				3278.03
	Labours cess@1%				32.78
	Total				3310.81
	Add 18% GST				595.95
	TOTAL				3906.76
	Rate per Each				3906.76
	Say				3907.00

CRCA Sheet Body (Thickness > 0.50 mm)

1.7.7 15 watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4249	15 watt	each	1.00	932.20	932.20
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				942.46
	Cartage @ 1 % of A1				9.42
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1125.58
	OVERHEADS & PROFIT @ 15 %				168.84
	TOTAL				1294.42
	Labours cess@1%				12.94
	Total				1307.37
	Add 18% GST				235.33
	TOTAL				1542.70
	Rate per Each				1542.70
	Say				1543.00

**1.7.8 18 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4250	18 watt	each	1.00	1200.00	1200.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1210.26
	Cartage @ 1 % of A1				12.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1396.06
	OVERHEADS & PROFIT @ 15 %				209.41
	TOTAL				1605.47
	Labours cess@1%				16.05
	Total				1621.53
	Add 18% GST				291.87
	TOTAL				1913.40
	Rate per Each				1913.40
	Say				1913.00

**1.7.9 22 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4251	22 watt	each	1.00	1280.00	1280.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1290.26
	Cartage @ 1 % of A1				12.90
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1476.86
	OVERHEADS & PROFIT @ 15 %				221.53
	TOTAL				1698.39
	Labours cess@1%				16.98
	Total				1715.38
	Add 18% GST				308.77

TOTAL	2024.14
Rate per Each	2024.14
Say	2024.00

**1.7.10 36 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4252	36 watt	each	1.00	1420.00	1420.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1430.26
	Cartage @ 1 % of A1				14.30
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1618.26
	OVERHEADS & PROFIT @ 15 %				242.74
	TOTAL				1861.00
	Labours cess@1%				18.61
	Total				1879.61
	Add 18% GST				338.33
	TOTAL				2217.94
	Rate per Each				2217.94
	Say				2218.00

**1.7.11 40 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4253	40 watt	each	1.00	1638.31	1638.31
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1648.57
	Cartage @ 1 % of A1				14.30
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1838.76
	OVERHEADS & PROFIT @ 15 %				275.81
	TOTAL				2114.57

Labours cess@1%	21.15
Total	2135.71
Add 18% GST	384.43
TOTAL	2520.14
Rate per Each	2520.14
Say	2520.00

**1.7.12 45 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4254	45 watt	each	1.00	1679.26	1679.26
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1689.52
	Cartage @ 1 % of A1				16.90
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1880.12
	OVERHEADS & PROFIT @ 15 %				282.02
	TOTAL				2162.14
	Labours cess@1%				21.62
	Total				2183.76
	Add 18% GST				393.08
	TOTAL				2576.83
	Rate per Each				2576.83
	Say				2577.00

- 1.8 LED Panel light 2x2 ft., (System lumen efficacy >135 lm/Watt) Supplying, installation, Testing & Commissioning of Panel light 2x2 ft., of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD < 10% , P. F. ≥ 0.95, IP20, CRI >80, UGR (Unified Glare Rating) < 19, Flicker free, (flicker should be below 5 %), life time (LED, Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K/ 5700°K/6000°K/6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135**

lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

Powder coated die cast /Extruded aluminium Body (Thickness > 1.20 mm)

**1.8.1 15 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4255	15 watt	each	1.00	1083.05	1083.05
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1093.31
	Cartage @ 1 % of A1				10.93
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1277.94
	OVERHEADS & PROFIT @ 15 %				191.69
	TOTAL				1469.63
	Labours cess@1%				14.70
	Total				1484.33
	Add 18% GST				267.18
	TOTAL				1751.51
	Rate per Each				1751.51
	Say				1752.00

**1.8.2 18 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4256	18 watt	each	1.00	1561.02	1561.02
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1571.28
	Cartage @ 1 % of A1				15.71
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30

TOTAL	1760.69
OVERHEADS & PROFIT @ 15 %	264.10
TOTAL	2024.79
Labours cess@1%	20.25
Total	2045.04
Add 18% GST	368.11
TOTAL	2413.15
Rate per Each	2413.15
Say	2413.00

**1.8.3 22 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4257	22 watt	each	1.00	2400.00	2400.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				2410.26
	Cartage @ 1 % of A1				10.93
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2608.06
	OVERHEADS & PROFIT @ 15 %				391.21
	TOTAL				2999.27
	Labours cess@1%				29.99
	Total				3029.27
	Add 18% GST				545.27
	TOTAL				3574.53
	Rate per Each				3574.53
	Say				3575.00

**1.8.4 36 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4258	36 watt	each	1.00	2700.00	2700.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				2710.26
	Cartage @ 1 % of A1				27.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2911.06
	OVERHEADS & PROFIT @ 15 %				436.66
	TOTAL				3347.72
	Labours cess@1%				33.48
	Total				3381.20
	Add 18% GST				608.62
	TOTAL				3989.82
	Rate per Each				3989.82
	Say				3990.00

**1.8.5 40 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4259	40 watt	each	1.00	2880.00	2880.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				2890.26
	Cartage @ 1 % of A1				28.90
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				3092.86
	OVERHEADS & PROFIT @ 15 %				463.93
	TOTAL				3556.79
	Labours cess@1%				35.57
	Total				3592.36
	Add 18% GST				646.62
	TOTAL				4238.99
	Rate per Each				4238.99
	Say				4239.00

**1.8.6 45 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4260	45 watt	each	1.00	3300.00	3300.00

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				3310.26
	Cartage @ 1 % of A1				33.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				3517.06
	OVERHEADS & PROFIT @ 15 %				527.56
	TOTAL				4044.62
	Labours cess@1%				40.45
	Total				4085.07
	Add 18% GST				735.31
	TOTAL				4820.38
	Rate per Each				4820.38
	Say				4820.00

CRCA Sheet Body (Thickness > 0.50 mm)

1.8.7 15 watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4261	15 watt	each	1.00	1048.73	1048.73
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1058.99
	Cartage @ 1 % of A1				10.59
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1243.28
	OVERHEADS & PROFIT @ 15 %				186.49
	TOTAL				1429.77
	Labours cess@1%				14.30
	Total				1444.07
	Add 18% GST				259.93
	TOTAL				1704.00
	Rate per Each				1704.00
	Say				1704.00

**1.8.8 18 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4262	18 watt	each	1.00	1800.00	1800.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1810.26
	Cartage @ 1 % of A1				10.59
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2002.06
	OVERHEADS & PROFIT @ 15 %				300.31
	TOTAL				2302.37
	Labours cess@1%				23.02
	Total				2325.40
	Add 18% GST				418.57
	TOTAL				2743.97
	Rate per Each				2743.97
	Say				2744.00

**1.8.9 22 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4263	22 watt	each	1.00	1830.51	1830.51
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1840.77
	Cartage @ 1 % of A1				18.41
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2032.88
	OVERHEADS & PROFIT @ 15 %				304.93
	TOTAL				2337.81
	Labours cess@1%				23.38
	Total				2361.19

Add 18% GST	425.01
TOTAL	2786.20
Rate per Each	2786.20
Say	2786.00

**1.8.10 18 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4264	18 watt	each	1.00	1868.64	1868.64
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1878.90
	Cartage @ 1 % of A1				18.79
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2071.39
	OVERHEADS & PROFIT @ 15 %				310.71
	TOTAL				2382.10
	Labours cess@1%				23.82
	Total				2405.92
	Add 18% GST				433.07
	TOTAL				2838.99
	Rate per Each				2838.99
	Say				2839.00

**1.8.11 40 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4265	40 watt	each	1.00	1884.05	1884.05
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1894.31
	Cartage @ 1 % of A1				18.94
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2086.95
	OVERHEADS & PROFIT @ 15 %				313.04

TOTAL	2399.99
Labours cess@1%	24.00
Total	2423.99
Add 18% GST	436.32
TOTAL	2860.31
Rate per Each	2860.31
Say	2860.00

**1.8.12 45 watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4266	45 watt	each	1.00	1925.01	1925.01
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1935.27
	Cartage @ 1 % of A1				18.79
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2128.32
	OVERHEADS & PROFIT @ 15 %				319.25
	TOTAL				2447.57
	Labours cess@1%				24.48
	Total				2472.05
	Add 18% GST				444.97
	TOTAL				2917.02
	Rate per Each				2917.02
	Say				2917.00

- 1.9 LED Batten light (System lumen efficacy ≥ 105 <120 lm/Watt) Supplying, installation, Testing & Commissioning of LED surface mounted Batten light of following body material and construction as per IS : 10322 with driver (Replaceable) as per the requirement with Driver efficiency >85% ,Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F. ≥ 0.95 , IP20, CRI >80, Flicker free, (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends,CCT 3000°K /4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing.complete in all respect i/c connections with 1.5 sq mm FRLS, PVC**

insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy $\geq 105 < 120$ lm/Watt output. LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

Powder coated die cast /Extruded aluminium Body (Thickness > 1.20 mm)

1.9.1 18- 22 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4267	18- 22 Watt Fittings	each	1.00	305.08	305.08
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				315.34
	Cartage @ 1 % of A1				3.15
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallas	day	0.10	783.00	78.30
	TOTAL				492.19
	OVERHEADS & PROFIT @ 15 %				73.83
	TOTAL				566.02
	Labours cess@1%				5.66
	Total				571.68
	Add 18% GST				102.90
	TOTAL				674.59
	Rate per Each				674.59
	Say				675.00

1.9.2 24 -26watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4268	24 -26 watt Fittings	each	1.00	312.71	312.71
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				322.97
	Cartage @ 1 % of A1				3.15
	LABOUR				

1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				499.90
	OVERHEADS & PROFIT @ 15 %				74.98
	TOTAL				574.88
	Labours cess@1%				5.75
	Total				580.63
	Add 18% GST				104.51
	TOTAL				685.14
	Rate per Each				685.14
	Say				685.00

**1.9.3 36 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4269	36 watt Fittings	each	1.00	322.03	322.03
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				332.29
	Cartage @ 1 % of A1				3.32
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				509.31
	OVERHEADS & PROFIT @ 15 %				76.40
	TOTAL				585.71
	Labours cess@1%				5.86
	Total				591.57
	Add 18% GST				106.48
	TOTAL				698.05
	Rate per Each				698.05
	Say				698.00

**1.9.4 40 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4270	40 watt Fittings	each	1.00	333.90	333.90
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				344.16
	Cartage @ 1 % of A1				3.44
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				521.30
	OVERHEADS & PROFIT @ 15 %				78.20
	TOTAL				599.50
	Labours cess@1%				6.00
	Total				605.50
	Add 18% GST				108.99
	TOTAL				714.49
	Rate per Each				714.49
	Say				714.00

CRCA Sheet Body (Thickness > 0.50 mm)

1.9.5 18- 22 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4271	18- 22 Watt	each	1.00	266.95	266.95
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				277.21
	Cartage @ 1 % of A1				2.77
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				453.68
	OVERHEADS & PROFIT @ 15 %				68.05
	TOTAL				521.73
	Labours cess@1%				5.22
	Total				526.95
	Add 18% GST				94.85
	TOTAL				621.80
	Rate per Each				621.80
	Say				622.00

**1.9.6 18- 22 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4272	24 -26watt	each	1.00	274.58	274.58
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				284.84
	Cartage @ 1 % of A1				2.85
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				461.39
	OVERHEADS & PROFIT @ 15 %				69.21
	TOTAL				530.60
	Labours cess@1%				5.31
	Total				535.90
	Add 18% GST				96.46
	TOTAL				632.37
	Rate per Each				632.37
	Say				632.00

**1.9.7 36 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4273	36 watt	each	1.00	281.78	281.78
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				292.04
	Cartage @ 1 % of A1				2.92
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				468.66
	OVERHEADS & PROFIT @ 15 %				70.30
	TOTAL				538.96
	Labours cess@1%				5.39
	Total				544.35
	Add 18% GST				97.98

TOTAL	642.33
Rate per Each	642.33
Say	642.00

**1.9.8 40 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4274	40 watt	each	1.00	292.16	292.16
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				302.42
	Cartage @ 1 % of A1				3.02
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				479.14
	OVERHEADS & PROFIT @ 15 %				71.87
	TOTAL				551.01
	Labours cess@1%				5.51
	Total				556.52
	Add 18% GST				100.17
	TOTAL				656.70
	Rate per Each				656.70
	Say				657.00

- 1.10 LED Batten light (System lumen efficacy $\geq 120 < 135$ lm/Watt)**
Supplying, installation, Testing & Commissioning of LED surface mounted Batten light of following body material and construction as per IS : 10322 with driver (Replaceable) as per the requirement with Driver efficiency $> 85\%$, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD $< 10\%$, P. F. ≥ 0.95 , IP20, CRI > 80 , Flicker free (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends,CCT 3000°K /4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) < 3 , Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy $\geq 120 < 135$ lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing

required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

Powder coated die cast /Extruded aluminium Body (Thickness > 1.20 mm)

**1.10.1 18- 22 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4275	18- 22 Watt Fittings	each	1.00	343.22	343.22
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				353.48
	Cartage @ 1 % of A1				3.53
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				530.71
	OVERHEADS & PROFIT @ 15 %				79.61
	TOTAL				610.32
	Labours cess@1%				6.10
	Total				616.43
	Add 18% GST				110.96
	TOTAL				727.39
	Rate per Each				727.39
	Say				727.00

**1.10.2 24 -26 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4276	24- 26 Watt Fittings	each	1.00	350.85	350.85
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				361.11
	Cartage @ 1 % of A1				3.61
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40

1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				538.42
	OVERHEADS & PROFIT @ 15 %				80.76
	TOTAL				619.18
	Labours cess@1%				6.19
	Total				625.37
	Add 18% GST				112.57
	TOTAL				737.94
	Rate per Each				737.94
	Say				738.00

1.10.3 36 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4277	36 watt Fittings	each	1.00	362.29	362.29
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				372.55
	Cartage @ 1 % of A1				3.73
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				549.98
	OVERHEADS & PROFIT @ 15 %				82.50
	TOTAL				632.48
	Labours cess@1%				6.32
	Total				638.80
	Add 18% GST				114.98
	TOTAL				753.78
	Rate per Each				753.78
	Say				754.00

1.10.4 40 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4278	40 watt Fittings	each	1.00	375.64	375.64
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				385.90
	Cartage @ 1 % of A1				3.73
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				563.46
	OVERHEADS & PROFIT @ 15 %				84.52
	TOTAL				647.98
	Labours cess@1%				6.48
	Total				654.46
	Add 18% GST				117.80
	TOTAL				772.26
	Rate per Each				772.26
	Say				772.00

**1.10.5 18- 22 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4279	18- 22 Watt	each	1.00	305.08	305.08
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				315.34
	Cartage @ 1 % of A1				3.15
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				492.19
	OVERHEADS & PROFIT @ 15 %				73.83
	TOTAL				566.02
	Labours cess@1%				5.66
	Total				571.68
	Add 18% GST				102.90
	TOTAL				674.59
	Rate per Each				674.59
	Say				675.00

**1.10.6 24 -26 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4280	24- 26 Watt	each	1.00	312.71	312.71

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				322.97
	Cartage @ 1 % of A1				3.23
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				499.90
	OVERHEADS & PROFIT @ 15 %				74.98
	TOTAL				574.88
	Labours cess@1%				5.75
	Total				580.63
	Add 18% GST				104.51
	TOTAL				685.14
	Rate per Each				685.14
	Say				685.00

**1.10.7 36 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4281	36 Watt	each	1.00	322.03	322.03
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				332.29
	Cartage @ 1 % of A1				3.32
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				509.31
	OVERHEADS & PROFIT @ 15 %				76.40
	TOTAL				585.71
	Labours cess@1%				5.86
	Total				591.57
	Add 18% GST				106.48
	TOTAL				698.05
	Rate per Each				698.05
	Say				698.00

**1.10.8 40 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4282	40 Watt	each	1.00	333.90	333.90
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				344.16
	Cartage @ 1 % of A1				3.44
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				521.30
	OVERHEADS & PROFIT @ 15 %				78.20
	TOTAL				599.50
	Labours cess@1%				6.00
	Total				605.50
	Add 18% GST				108.99
	TOTAL				714.49
	Rate per Each				714.49
	Say				714.00

- 1.11 LED Batten light (System lumen efficacy >135 lm/Watt)**
Supplying, installation, Testing & Commissioning of LED surface mounted Batten light of following body material and construction as per IS : 10322 with driver (Replaceable) as per the requirement with Driver efficiency >85% ,Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P.F.≥0.95, IP20, CRI >80 , Flicker free (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends, CCT 3000°K /4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

Powder coated die cast / Extruded aluminium Body (Thickness > 1.20 mm)

**1.11.1 18- 22 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4283	18- 22 Watt Fittings	each	1.00	381.36	381.36
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				391.62
	Cartage @ 1 % of A1				3.92
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				569.24
	OVERHEADS & PROFIT @ 15 %				85.39
	TOTAL				654.63
	Labours cess@1%				6.55
	Total				661.17
	Add 18% GST				119.01
	TOTAL				780.18
	Rate per Each				780.18
	Say				780.00

**1.11.2 24 -26 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4284	24 -26 Watt Fittings	each	1.00	388.98	388.98
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				399.24
	Cartage @ 1 % of A1				3.99
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				576.93
	OVERHEADS & PROFIT @ 15 %				86.54
	TOTAL				663.47
	Labours cess@1%				6.63
	Total				670.11
	Add 18% GST				120.62

TOTAL	790.73
Rate per Each	790.73
Say	791.00

**1.11.3 36 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4285	36 Watt Fittings	each	1.00	402.54	402.54
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					412.80
Cartage @ 1 % of A1					4.13
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					590.63
OVERHEADS & PROFIT @ 15 %					88.59
TOTAL					679.22
Labours cess@1%					6.79
Total					686.01
Add 18% GST					123.48
TOTAL					809.49
Rate per Each					809.49
Say					809.00

**1.11.4 40 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4286	40 Watt Fittings	each	1.00	417.37	417.37
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					427.63
Cartage @ 1 % of A1					4.13
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					605.61
OVERHEADS & PROFIT @ 15 %					90.84

TOTAL	696.45
Labours cess@1%	6.96
Total	703.41
Add 18% GST	126.61
TOTAL	830.02
Rate per Each	830.02
Say	830.00

CRCA Sheet Body (Thickness > 0.50 mm)

1.11.5 36 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4287	36 Watt Fittings	each	1.00	343.22	343.22
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					353.48
Cartage @ 1 % of A1					3.53
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallas	day	0.10	783.00	78.30
TOTAL					530.71
OVERHEADS & PROFIT @ 15 %					79.61
TOTAL					610.32
Labours cess@1%					6.10
Total					616.43
Add 18% GST					110.96
TOTAL					727.39
Rate per Each					727.39
Say					727.00

1.11.6 24 -26 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4288	24 -26 Watt	each	1.00	350.85	350.85
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					361.11
Cartage @ 1 % of A1					3.61
LABOUR					

1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				538.42
	OVERHEADS & PROFIT @ 15 %				80.76
	TOTAL				619.18
	Labours cess@1%				6.19
	Total				625.37
	Add 18% GST				112.57
	TOTAL				737.94
	Rate per Each				737.94
	Say				738.00

**1.11.7 36 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4289	36 Watt Fittings	each	1.00	362.29	362.29
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				372.55
	Cartage @ 1 % of A1				3.73
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				549.98
	OVERHEADS & PROFIT @ 15 %				82.50
	TOTAL				632.48
	Labours cess@1%				6.32
	Total				638.80
	Add 18% GST				114.98
	TOTAL				753.78
	Rate per Each				753.78
	Say				754.00

**1.11.8 40 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4290	40 Watt	each	1.00	375.64	375.64
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				385.90
	Cartage @ 1 % of A1				3.86
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				563.46
	OVERHEADS & PROFIT @ 15 %				84.52
	TOTAL				647.98
	Labours cess@1%				6.48
	Total				654.46
	Add 18% GST				117.80
	TOTAL				772.26
	Rate per Each				772.26
	Say				772.00

- 1.12 LED Batten light (System lumen efficacy >135 lm/Watt)**
Supplying, installation, Testing & Commissioning of LED surface mounted Batten light of following body material and construction as per IS : 10322 with driver (Replaceable) as per the requirement with Driver efficiency >85% ,Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80 , Flicker free (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends, CCT 3000°K /4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

1.12.1 10 Watt
COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4291	10 Watt Street Light LED Fixture	each	1.00	375.00	375.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				385.26
	Cartage @ 1 % of A1				3.85
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				562.81
	OVERHEADS & PROFIT @ 15 %				84.42
	TOTAL				647.23
	Labours cess@1%				6.47
	Total				653.70
	Add 18% GST				117.67
	TOTAL				771.37
	Rate per Each				771.37
	Say				771.00

**1.12.2 14 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4292	14 watt Street Light LED Fixture	each	1.00	475.00	475.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				485.26
	Cartage @ 1 % of A1				4.85
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				663.81
	OVERHEADS & PROFIT @ 15 %				99.57
	TOTAL				763.38
	Labours cess@1%				7.63
	Total				771.02
	Add 18% GST				138.78
	TOTAL				909.80
	Rate per Each				909.80
	Say				910.00

**1.12.3 15 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4293	15 Watt Street Light LED Fixture	each	1.00	484.50	484.50

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				494.76
	Cartage @ 1 % of A1				4.95
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				673.41
	OVERHEADS & PROFIT @ 15 %				101.01
	TOTAL				774.42
	Labours cess@1%				7.74
	Total				782.16
	Add 18% GST				140.79
	TOTAL				922.95
	Rate per Each				922.95
	Say				923.00

1.12.4 18 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4294	18 Watt Street Light LED Fixture	each	1.00	516.00	516.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				526.26
	Cartage @ 1 % of A1				5.26
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				705.22
	OVERHEADS & PROFIT @ 15 %				105.78
	TOTAL				811.00
	Labours cess@1%				8.11
	Total				819.11
	Add 18% GST				147.44
	TOTAL				966.55
	Rate per Each				966.55
	Say				967.00

**1.12.5 18 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4295	20 Watt Street Light LED Fixture	each	1.00	522.50	522.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				532.76
	Cartage @ 1 % of A1				5.33
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				711.79
	OVERHEADS & PROFIT @ 15 %				106.77
	TOTAL				818.56
	Labours cess@1%				8.19
	Total				826.74
	Add 18% GST				148.81
	TOTAL				975.56
	Rate per Each				975.56
	Say				976.00

**1.12.6 18 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4296	24 Watt Street Light LED Fixture	each	1.00	525.00	525.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				535.26
	Cartage @ 1 % of A1				5.35
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				714.31
	OVERHEADS & PROFIT @ 15 %				107.15
	TOTAL				821.46
	Labours cess@1%				8.21
	Total				829.68
	Add 18% GST				149.34

TOTAL	979.02
Rate per Each	979.02
Say	979.00

**1.12.7 25 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4297	25 Watt Street Light LED Fixture	each	1.00	535.50	535.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				545.76
	Cartage @ 1 % of A1				5.46
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				724.92
	OVERHEADS & PROFIT @ 15 %				108.74
	TOTAL				833.66
	Labours cess@1%				8.34
	Total				841.99
	Add 18% GST				151.56
	TOTAL				993.55
	Rate per Each				993.55
	Say				994.00

**1.12.8 30 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4298	30 Watt Street Light LED Fixture	each	1.00	550.00	550.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				560.26
	Cartage @ 1 % of A1				5.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				739.56
	OVERHEADS & PROFIT @ 15 %				110.93

TOTAL	850.49
Labours cess@1%	8.50
Total	859.00
Add 18% GST	154.62
TOTAL	1013.62
Rate per Each	1013.62
Say	1014.00

1.12.9 36 Watt
COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4299	36 Watt Street Light LED Fixture	each	1.00	700.00	700.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				710.26
	Cartage @ 1 % of A1				7.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				891.06
	OVERHEADS & PROFIT @ 15 %				133.66
	TOTAL				1024.72
	Labours cess@1%				10.25
	Total				1034.97
	Add 18% GST				186.29
	TOTAL				1221.26
	Rate per Each				1221.26
	Say				1221.00

1.12.10 40 Watt
COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4300	40 Watt Street Light LED Fixture	each	1.00	750.00	750.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				760.26
	Cartage @ 1 % of A1				7.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40

1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				941.56
	OVERHEADS & PROFIT @ 15 %				141.23
	TOTAL				1082.79
	Labours cess@1%				10.83
	Total				1093.62
	Add 18% GST				196.85
	TOTAL				1290.47
	Rate per Each				1290.47
	Say				1290.00

**1.12.11 45 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4301	45 Watt Street Light LED Fixture	each	1.00	800.00	800.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				810.26
	Cartage @ 1 % of A1				8.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				992.06
	OVERHEADS & PROFIT @ 15 %				148.81
	TOTAL				1140.87
	Labours cess@1%				11.41
	Total				1152.28
	Add 18% GST				207.41
	TOTAL				1359.69
	Rate per Each				1359.69
	Say				1360.00

**1.12.12 50 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4302	50 Watt Street Light LED Fixture	each	1.00	1100.00	1100.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1110.26
	Cartage @ 1 % of A1				11.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1295.06
	OVERHEADS & PROFIT @ 15 %				194.26
	TOTAL				1489.32
	Labours cess@1%				14.89
	Total				1504.22
	Add 18% GST				270.76
	TOTAL				1774.97
	Rate per Each				1774.97
	Say				1775.00

1.12.13 72 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4303	72 Watt Street Light LED Fixture	each	1.00	1200.00	1200.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1210.26
	Cartage @ 1 % of A1				12.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1396.06
	OVERHEADS & PROFIT @ 15 %				209.41
	TOTAL				1605.47
	Labours cess@1%				16.05
	Total				1621.53
	Add 18% GST				291.87
	TOTAL				1913.40
	Rate per Each				1913.40
	Say				1913.00

1.12.14 90 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4304	90 Watt Street Light LED Fixture	each	1.00	1375.00	1375.00

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1385.26
	Cartage @ 1 % of A1				13.85
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1572.81
	OVERHEADS & PROFIT @ 15 %				235.92
	TOTAL				1808.73
	Labours cess@1%				18.09
	Total				1826.82
	Add 18% GST				328.83
	TOTAL				2155.65
	Rate per Each				2155.65
	Say				2156.00

1.12.15 100 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4305	100 Watt Street Light LED Fixture	each	1.00	1650.00	1650.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1660.26
	Cartage @ 1 % of A1				16.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1850.56
	OVERHEADS & PROFIT @ 15 %				277.58
	TOTAL				2128.14
	Labours cess@1%				21.28
	Total				2149.42
	Add 18% GST				386.90
	TOTAL				2536.32
	Rate per Each				2536.32
	Say				2536.00

1.12.16 120 Watt
COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4306	120 Watt Street Light LED Fixture	each	1.00	1700.00	1700.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1710.26
	Cartage @ 1 % of A1				17.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1901.06
	OVERHEADS & PROFIT @ 15 %				285.16
	TOTAL				2186.22
	Labours cess@1%				21.86
	Total				2208.08
	Add 18% GST				397.46
	TOTAL				2605.54
	Rate per Each				2605.54
	Say				2606.00

1.12.17 150 Watt
COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4307	150 Watt Street Light LED Fixture	each	1.00	2250.00	2250.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				2260.26
	Cartage @ 1 % of A1				22.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2456.56
	OVERHEADS & PROFIT @ 15 %				368.48
	TOTAL				2825.04
	Labours cess@1%				28.25
	Total				2853.29
	Add 18% GST				513.59

TOTAL	3366.89
Rate per Each	3366.89
Say	3367.00

**1.12.18 180 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4308	180 Watt Street Light LED Fixture	each	1.00	3100.00	3100.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					3110.26
Cartage @ 1 % of A1					31.10
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					3315.06
OVERHEADS & PROFIT @ 15 %					497.26
TOTAL					3812.32
Labours cess@1%					38.12
Total					3850.45
Add 18% GST					693.08
TOTAL					4543.53
Rate per Each					4543.53
Say					4544.00

**1.12.19 200 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4309	200 Watt Street Light LED Fixture	each	1.00	3200.00	3200.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					3210.26
Cartage @ 1 % of A1					32.10
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					3416.06
OVERHEADS & PROFIT @ 15 %					512.41

TOTAL	3928.47
Labours cess@1%	39.28
Total	3967.76
Add 18% GST	714.20
TOTAL	4681.95
Rate per Each	4681.95
Say	4682.00

- 1.13 LED Street light fixture, powder coated pressure die cast aluminium body (System lumen efficacy $\geq 120 < 135$ lm/Watt)**
Supplying, installation, Testing & Commissioning of Street light LED fixture powder coated pressure die cast aluminium body with driver as per the requirement with Driver efficiency $> 85\%$, Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency $> 85\%$, THD $< 10\%$ as per IEC 61000-3-2, P.F. ≥ 0.95 , IP-66, IK-10, CRI > 80 , under voltage and over voltage protection, EMI-EMC As per CISPR 15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time (LED, Driver & electrical circuitary) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) < 5 , Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy $\geq 120 < 135$ lm/Watt output. LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

**1.13.1 10 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4310	10 Watt Street Light LED Fixture	each	1.00	412.50	412.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable = 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					422.76
Cartage @ 1 % of A1					4.23
LABOUR					
1001	Wireman	day	0.10	954.00	95.40

1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				600.69
	OVERHEADS & PROFIT @ 15 %				90.10
	TOTAL				690.79
	Labours cess@1%				6.91
	Total				697.70
	Add 18% GST				125.59
	TOTAL				823.28
	Rate per Each				823.28
	Say				823.00

1.13.2 14 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4311	14 watt Street Light LED Fixture	each	1.00	522.50	522.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				532.76
	Cartage @ 1 % of A1				5.33
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				711.79
	OVERHEADS & PROFIT @ 15 %				106.77
	TOTAL				818.56
	Labours cess@1%				8.19
	Total				826.74
	Add 18% GST				148.81
	TOTAL				975.56
	Rate per Each				975.56
	Say				976.00

1.13.3 15 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4312	15 Watt Street Light LED Fixture	each	1.00	543.40	543.40
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				553.66
	Cartage @ 1 % of A1				5.54
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				732.90
	OVERHEADS & PROFIT @ 15 %				109.93
	TOTAL				842.83
	Labours cess@1%				8.43
	Total				851.25
	Add 18% GST				153.23
	TOTAL				1004.48
	Rate per Each				1004.48
	Say				1004.00

**1.13.4 18 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4313	18 Watt Street Light LED Fixture	each	1.00	660.00	660.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				670.26
	Cartage @ 1 % of A1				6.70
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				850.66
	OVERHEADS & PROFIT @ 15 %				127.60
	TOTAL				978.26
	Labours cess@1%				9.78
	Total				988.05
	Add 18% GST				177.85
	TOTAL				1165.89
	Rate per Each				1165.89
	Say				1166.00

**1.13.5 20 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4314	20 watt Street Light LED Fixture	each	1.00	750.00	750.00

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				760.26
	Cartage @ 1 % of A1				13.85
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				941.56
	OVERHEADS & PROFIT @ 15 %				141.23
	TOTAL				1082.79
	Labours cess@1%				10.83
	Total				1093.62
	Add 18% GST				196.85
	TOTAL				1290.47
	Rate per Each				1290.47
	Say				1290.00

1.13.6 24 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4315	24 watt Street Light LED Fixture	each	1.00	880.00	880.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				890.26
	Cartage @ 1 % of A1				8.90
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1072.86
	OVERHEADS & PROFIT @ 15 %				160.93
	TOTAL				1233.79
	Labours cess@1%				12.34
	Total				1246.13
	Add 18% GST				224.30
	TOTAL				1470.43
	Rate per Each				1470.43
	Say				1470.00

**1.13.7 25 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4316	25 Watt Street Light LED Fixture	each	1.00	915.20	915.20
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				925.46
	Cartage @ 1 % of A1				9.25
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1108.41
	OVERHEADS & PROFIT @ 15 %				166.26
	TOTAL				1274.67
	Labours cess@1%				12.75
	Total				1287.42
	Add 18% GST				231.74
	TOTAL				519.16
	Rate per Each				1519.16
	Say				1519.00

**1.13.8 30 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4317	30 Watt Street Light LED Fixture	each	1.00	935.00	935.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				945.26
	Cartage @ 1 % of A1				9.45
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1128.41
	OVERHEADS & PROFIT @ 15 %				169.26
	TOTAL				1297.67
	Labours cess@1%				12.98
	Total				1310.65
	Add 18% GST				235.92

TOTAL	1546.57
Rate per Each	1546.57
Say	1547.00

**1.13.9 36 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4318	36 Watt Street Light LED Fixture	each	1.00	990.00	990.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					1000.26
Cartage @ 1 % of A1					10.00
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					1183.96
OVERHEADS & PROFIT @ 15 %					177.59
TOTAL					1361.55
Labours cess@1%					13.62
Total					1375.17
Add 18% GST					247.53
TOTAL					1622.70
Rate per Each					1622.70
Say					1623.00

**1.13.10 40 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4319	40 Watt Street Light LED Fixture	each	1.00	1000.00	1000.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					1010.26
Cartage @ 1 % of A1					10.10
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					1194.06
OVERHEADS & PROFIT @ 15 %					179.11

TOTAL	1373.17
Labours cess@1%	13.73
Total	1386.90
Add 18% GST	249.64
TOTAL	1636.55
Rate per Each	1636.55
Say	1637.00

1.13.11 45 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4320	45 Watt Street Light LED Fixture	each	1.00	1072.50	1072.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1082.76
	Cartage @ 1 % of A1				10.83
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1267.29
	OVERHEADS & PROFIT @ 15 %				190.09
	TOTAL				1457.38
	Labours cess@1%				14.57
	Total				1471.95
	Add 18% GST				264.95
	TOTAL				1736.90
	Rate per Each				1736.90
	Say				1737.00

1.13.12 50 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4321	50 Watt Street Light LED Fixture	each	1.00	1210.00	1210.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1220.26
	Cartage @ 1 % of A1				10.83
	LABOUR				

1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1406.16
	OVERHEADS & PROFIT @ 15 %				210.92
	TOTAL				1617.08
	Labours cess@1%				16.17
	Total				1633.25
	Add 18% GST				293.99
	TOTAL				1927.24
	Rate per Each				1927.24
	Say				1927.00

1.13.13 72 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4322	72 Watt Street Light LED Fixture	each	1.00	1350.00	1350.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1360.26
	Cartage @ 1 % of A1				13.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1547.56
	OVERHEADS & PROFIT @ 15 %				232.13
	TOTAL				1779.69
	Labours cess@1%				17.80
	Total				1797.49
	Add 18% GST				323.55
	TOTAL				2121.04
	Rate per Each				2121.04
	Say				2121.00

1.13.14 90 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4323	90 Watt Street Light LED Fixture	each	1.00	1500.00	1500.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1699.06
	Cartage @ 1 % of A1				15.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1547.56
	OVERHEADS & PROFIT @ 15 %				254.86
	TOTAL				1953.92
	Labours cess@1%				19.54
	Total				1973.46
	Add 18% GST				355.22
	TOTAL				2328.68
	Rate per Each				2328.68
	Say				2329.00

**1.13.15 100 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4324	100 Watt Street Light LED Fixture	each	1.00	1750.00	1750.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1760.26
	Cartage @ 1 % of A1				17.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1951.56
	OVERHEADS & PROFIT @ 15 %				292.73
	TOTAL				2244.29
	Labours cess@1%				22.44
	Total				2266.74
	Add 18% GST				408.01
	TOTAL				2674.75
	Rate per Each				2674.75
	Say				2675.00

**1.13.16 120 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4325	120 watt Street Light LED Fixture	each	1.00	1950.00	1950.00

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1960.26
	Cartage @ 1 % of A1				19.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2153.56
	OVERHEADS & PROFIT @ 15 %				323.03
	TOTAL				2476.59
	Labours cess@1%				24.77
	Total				2501.36
	Add 18% GST				450.24
	TOTAL				2951.60
	Rate per Each				2951.60
	Say				2952.00

1.13.17 150 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4326	150 watt Street Light LED Fixture	each	1.00	2300.00	2300.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				2310.26
	Cartage @ 1 % of A1				8.90
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2507.06
	OVERHEADS & PROFIT @ 15 %				376.06
	TOTAL				2883.12
	Labours cess@1%				28.83
	Total				2911.95
	Add 18% GST				524.15
	TOTAL				3436.11
	Rate per Each				3436.11
	Say				3436.00

1.13.18 180 Watt
COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4327	180 watt Street Light LED Fixture	each	1.00	3300.00	3300.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				3310.26
	Cartage @ 1 % of A1				33.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				3517.06
	OVERHEADS & PROFIT @ 15 %				527.56
	TOTAL				4044.62
	Labours cess@1%				40.45
	Total				4085.07
	Add 18% GST				735.31
	TOTAL				4820.38
	Rate per Each				4820.38
	Say				4820.00

1.13.19 200 Watt
COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4328	200 watt Street Light LED Fixture	each	1.00	3450.00	3450.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				3460.26
	Cartage @ 1 % of A1				34.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				3668.56
	OVERHEADS & PROFIT @ 15 %				550.28
	TOTAL				4218.84
	Labours cess@1%				42.19
	Total				4261.03
	Add 18% GST				766.99

TOTAL	5028.02
Rate per Each	5028.02
Say	5028.00

- 1.14 LED Street light fixture, powder coated pressure die cast aluminium body (System lumen efficacy >135 lm/Watt)**
Supplying, installation, Testing & Commissioning of Street light LED fixture, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement with Driver efficiency >85%, Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%, THD < 10% as per IEC 61000-3-2, P.F. ≥ 0.95, IP-66, IK-10, CRI >80, under voltage and over voltage protection, EMI-EMC as per CISPR-15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time (LED, Driver & electrical circuitry) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output. LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

**1.14.1 10 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4329	10 watt Street Light LED Fixture	each	1.00	474.38	474.38
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable = 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					484.64
Cartage @ 1 % of A1					4.85
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					663.19
OVERHEADS & PROFIT @ 15 %					99.48
TOTAL					762.67
Labours cess@1%					7.63
Total					770.29
Add 18% GST					138.65

TOTAL	908.95
Rate per Each	908.95
Say	909.00

**1.14.2 14 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4330	14 watt Street Light LED Fixture	each	1.00	575.00	575.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					585.26
Cartage @ 1 % of A1					5.85
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					764.81
OVERHEADS & PROFIT @ 15 %					114.72
TOTAL					879.53
Labours cess@1%					8.80
Total					888.33
Add 18% GST					159.90
TOTAL					1048.23
Rate per Each					1048.23
Say					1048.00

**1.14.3 15 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4331	15 watt Street Light LED Fixture	each	1.00	598.00	598.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					608.26
Cartage @ 1 % of A1					6.08
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					788.04
OVERHEADS & PROFIT @ 15 %					118.21
TOTAL					906.25

Labours cess@1%	9.06
Total	915.32
Add 18% GST	164.76
TOTAL	1080.07
Rate per Each	1080.07
Say	1080.00

1.14.4 18 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4332	18 watt Street Light LED Fixture	each	1.00	675.00	675.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					685.26
Cartage @ 1 % of A1					6.85
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					865.81
OVERHEADS & PROFIT @ 15 %					129.87
TOTAL					995.68
Labours cess@1%					9.96
Total					1005.64
Add 18% GST					181.02
TOTAL					1186.65
Rate per Each					1186.65
Say					1187.00

1.14.5 20 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4333	20 watt Street Light LED Fixture	each	1.00	700.00	700.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					710.26
Cartage @ 1 % of A1					7.10
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30

TOTAL	891.06
OVERHEADS & PROFIT @ 15 %	133.66
TOTAL	1024.72
Labours cess@1%	10.25
Total	1034.97
Add 18% GST	186.29
TOTAL	1221.26
Rate per Each	1221.26
Say	1221.00

**1.14.6 24 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4334	24 watt Street Light LED Fixture	each	1.00	925.00	925.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					935.26
Cartage @ 1 % of A1					9.35
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					1118.31
OVERHEADS & PROFIT @ 15 %					167.75
TOTAL					1286.06
Labours cess@1%					12.86
Total					1298.92
Add 18% GST					233.81
TOTAL					1532.73
Rate per Each					1532.73
Say					1533.00

**1.14.7 25 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4335	25 watt Street Light LED Fixture	each	1.00	962.00	962.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				972.26
	Cartage @ 1 % of A1				9.72
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1155.68
	OVERHEADS & PROFIT @ 15 %				173.35
	TOTAL				1329.03
	Labours cess@1%				13.29
	Total				1342.32
	Add 18% GST				241.62
	TOTAL				1583.94
	Rate per Each				1583.94
	Say				1584.00

**1.14.8 30 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4336	30 watt Street Light LED Fixture	each	1.00	1025.00	1025.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1035.26
	Cartage @ 1 % of A1				10.35
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1219.31
	OVERHEADS & PROFIT @ 15 %				182.90
	TOTAL				1402.21
	Labours cess@1%				14.02
	Total				1416.23
	Add 18% GST				254.92
	TOTAL				1671.16
	Rate per Each				1671.16
	Say				1671.00

**1.14.9 36 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4337	36 watt Street Light LED Fixture	each	1.00	1075.00	1075.00

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1085.26
	Cartage @ 1 % of A1				10.85
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1269.81
	OVERHEADS & PROFIT @ 15 %				190.47
	TOTAL				1460.28
	Labours cess@1%				14.60
	Total				1474.89
	Add 18% GST				265.48
	TOTAL				1740.36
	Rate per Each				1740.36
	Say				1740.00

1.14.10 40 Watt
COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4338	40 watt Street Light LED Fixture	each	1.00	1175.00	1175.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1185.26
	Cartage @ 1 % of A1				11.85
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1370.81
	OVERHEADS & PROFIT @ 15 %				205.62
	TOTAL				1576.43
	Labours cess@1%				15.76
	Total				1592.20
	Add 18% GST				286.60
	TOTAL				1878.79
	Rate per Each				1878.79
	Say				1879.00

1.14.11 45 Watt**COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4339	45 watt Street Light LED Fixture	each	1.00	1233.38	1233.38
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					1243.64
Cartage @ 1 % of A1					12.44
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					1429.78
OVERHEADS & PROFIT @ 15 %					214.47
TOTAL					1644.25
Labours cess@1%					16.44
Total					1660.69
Add 18% GST					298.92
TOTAL					1959.61
Rate per Each					1959.61
Say					1960.00

1.14.12 50 Watt**COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4340	50 watt Street Light LED Fixture	each	1.00	1391.50	1391.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					1401.76
Cartage @ 1 % of A1					14.02
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					1589.48
OVERHEADS & PROFIT @ 15 %					238.42
TOTAL					1827.90
Labours cess@1%					18.28
Total					1846.18
Add 18% GST					332.31

TOTAL	2178.49
Rate per Each	2178.49
Say	2178.00

1.14.13 72 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4341	72 watt Street Light LED Fixture	each	1.00	1675.00	1675.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1685.26
	Cartage @ 1 % of A1				16.85
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1875.81
	OVERHEADS & PROFIT @ 15 %				281.37
	TOTAL				2157.18
	Labours cess@1%				21.57
	Total				2178.75
	Add 18% GST				392.18
	TOTAL				2570.93
	Rate per Each				2570.93
	Say				2571.00

1.14.14 90 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4342	90 watt Street Light LED Fixture	each	1.00	1850.00	1850.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1860.26
	Cartage @ 1 % of A1				18.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2052.56
	OVERHEADS & PROFIT @ 15 %				307.88
	TOTAL				2360.44

Labours cess@1%	23.60
Total	2384.05
Add 18% GST	429.13
TOTAL	2813.18
Rate per Each	2813.18
Say	2813.00

**1.14.15 100 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4343	100 watt Street Light LED Fixture	each	1.00	2250.00	2250.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					2260.26
Cartage @ 1 % of A1					22.60
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					2456.56
OVERHEADS & PROFIT @ 15 %					368.48
TOTAL					2825.04
Labours cess@1%					28.25
Total					2853.29
Add 18% GST					513.59
TOTAL					3366.89
Rate per Each					3366.89
Say					3367.00

**1.14.16 120 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4344	120 watt Street Light LED Fixture	each	1.00	2750.00	2750.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					2760.26
Cartage @ 1 % of A1					27.60
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30

TOTAL	2961.56
OVERHEADS & PROFIT @ 15 %	444.23
TOTAL	3405.79
Labours cess@1%	34.06
Total	3439.85
Add 18% GST	619.17
TOTAL	4059.02
Rate per Each	4059.02
Say	4059.00

1.14.17 150 Watt
COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4345	150 watt Street Light LED Fixture	each	1.00	3490.00	3490.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				3500.26
	Cartage @ 1 % of A1				35.00
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				3708.96
	OVERHEADS & PROFIT @ 15 %				556.34
	TOTAL				4265.30
	Labours cess@1%				42.65
	Total				4307.96
	Add 18% GST				775.43
	TOTAL				5083.39
	Rate per Each				5083.39
	Say				5083.00

1.14.18 180 Watt
COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4346	180 watt Street Light LED Fixture	each	1.00	3750.00	3750.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				3500.26
	Cartage @ 1 % of A1				37.60
	LABOUR				

1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				3971.56
	OVERHEADS & PROFIT @ 15 %				595.73
	TOTAL				4567.29
	Labours cess@1%				45.67
	Total				4612.97
	Add 18% GST				830.33
	TOTAL				5443.30
	Rate per Each				5443.30
	Say				5443.00

1.14.19 200 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4347	200 watt Street Light LED Fixture	each	1.00	4250.00	4250.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				4260.26
	Cartage @ 1 % of A1				42.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				4476.56
	OVERHEADS & PROFIT @ 15 %				671.48
	TOTAL				5148.04
	Labours cess@1%				51.48
	Total				5199.52
	Add 18% GST				935.91
	TOTAL				6135.44
	Rate per Each				6135.44
	Say				6135.00

- 1.15 LED Flood Light, powder coated pressure die cast aluminium (System lumen efficacy 105 <120 lm/Watt)**
Supplying, installation, Testing & Commissioning of Flood Light, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement with Driver efficiency >85%, Input voltage: Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2 , P. F.≥0.95, IP-66,IK-10, CRI >80 , under voltage and over voltage protection,EMI-EMC as per CISPR -15 , lenses for beam angle 30 deg-120deg as per the application and the project requirementdeg.,

suitable tilt able fitting, life time (LED,Driver & electrical circuitary) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , SDCM(Standard Deviation Color Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy 105 <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

**1.15.1 50 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4348	50 watt LED Flood Light	each	1.00	850.00	850.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				860.26
	Cartage @ 1 % of A1				8.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallas	day	0.10	783.00	78.30
	TOTAL				1042.56
	OVERHEADS & PROFIT @ 15 %				156.38
	TOTAL				1198.94
	Labours cess@1%				11.99
	Total				1210.93
	Add 18% GST				217.97
	TOTAL				1428.90
	Rate per Each				1428.90
	Say				1429.00

**1.15.2 70 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4349	70 watt LED Flood Light	each	1.00	1340.00	1340.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1326.26
	Cartage @ 1 % of A1				13.50
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1537.46
	OVERHEADS & PROFIT @ 15 %				230.62
	TOTAL				1768.08
	Labours cess@1%				17.68
	Total				1785.76
	Add 18% GST				321.44
	TOTAL				2107.20
	Rate per Each				2107.20
	Say				2107.00

1.15.3 100 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4350	100 watt LED Flood Light	each	1.00	1450.00	1450.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1426.26
	Cartage @ 1 % of A1				14.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1648.56
	OVERHEADS & PROFIT @ 15 %				247.28
	TOTAL				1895.84
	Labours cess@1%				18.96
	Total				1914.80
	Add 18% GST				344.66
	TOTAL				2259.47
	Rate per Each				2257.47
	Say				2259.00

1.15.4 150 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4351	150 watt LED Flood Light	each	1.00	2100.00	2100.00

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				2110.26
	Cartage @ 1 % of A1				21.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2305.06
	OVERHEADS & PROFIT @ 15 %				345.76
	TOTAL				2650.82
	Labours cess@1%				26.51
	Total				2677.33
	Add 18% GST				481.92
	TOTAL				3159.25
	Rate per Each				3159.25
	Say				3159.00

1.15.5 200 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4352	200 watt LED Flood Light	each	1.00	3100.00	3100.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				3110.26
	Cartage @ 1 % of A1				31.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				3315.06
	OVERHEADS & PROFIT @ 15 %				497.26
	TOTAL				3812.32
	Labours cess@1%				38.12
	Total				3850.45
	Add 18% GST				693.08
	TOTAL				4543.53
	Rate per Each				4543.53
	Say				4544.00

**1.15.6 250 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4353	250 watt LED Flood Light	each	1.00	3750.00	3750.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				3760.26
	Cartage @ 1 % of A1				37.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				3971.56
	OVERHEADS & PROFIT @ 15 %				595.73
	TOTAL				4567.29
	Labours cess@1%				45.67
	Total				4612.97
	Add 18% GST				830.33
	TOTAL				5443.30
	Rate per Each				5443.30
	Say				5443.00

- 1.16 LED Flood Light, powder coated pressure die cast aluminium (System lumen efficacy ≥ 120 and < 135 lm/Watt)**
Supplying, installation, Testing & Commissioning of Flood Light, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement with Driver efficiency $> 85\%$, Input voltage: Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency $> 85\%$, THD $< 10\%$ as per IEC 61000-3-2, P. F. ≥ 0.95 , IP-66, IK-10, CRI > 80 , under voltage and over voltage protection, EMI-EMC as per CISPR-15, lenses for beam angle 30 deg-120deg as per the application and the project requirement deg, suitable tilt able fitting, life time (LED, Driver & electrical circuitary) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) < 5 , Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 120 and < 135 lm/Watt output. LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

**1.16.1 50 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4354	50 watt LED Flood Light	each	1.00	1264.50	1264.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1274.76
	Cartage @ 1 % of A1				12.75
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1461.21
	OVERHEADS & PROFIT @ 15 %				219.18
	TOTAL				1680.39
	Labours cess@1%				16.80
	Total				1697.19
	Add 18% GST				305.49
	TOTAL				2002.69
	Rate per Each				2002.69
	Say				2003.00

**1.16.2 70 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4355	70 watt LED Flood Light	each	1.00	1474.00	1474.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1484.26
	Cartage @ 1 % of A1				14.84
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1672.80
	OVERHEADS & PROFIT @ 15 %				250.92
	TOTAL				1923.72
	Labours cess@1%				19.24
	Total				1942.96
	Add 18% GST				349.73

TOTAL	2292.69
Rate per Each	2292.69
Say	2293.00

**1.16.3 100 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4356	100 watt LED Flood Light	each	1.00	1595.00	1595.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1605.26
	Cartage @ 1 % of A1				16.05
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1795.01
	OVERHEADS & PROFIT @ 15 %				269.25
	TOTAL				2064.26
	Labours cess@1%				20.64
	Total				2084.91
	Add 18% GST				375.28
	TOTAL				2460.19
	Rate per Each				2460.19
	Say				2460.00

**1.16.4 150 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4357	150 watt LED Flood Light	each	1.00	2310.00	2310.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				2320.26
	Cartage @ 1 % of A1				23.20
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2517.16
	OVERHEADS & PROFIT @ 15 %				377.57
	TOTAL				2894.73

Labours cess@1%	28.95
Total	2923.68
Add 18% GST	26.26
TOTAL	3449.94
Rate per Each	3449.94
Say	3450.00

1.16.5 200 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4358	200 watt LED Flood Light	each	1.00	3200.00	3200.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				3210.26
	Cartage @ 1 % of A1				32.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				3416.06
	OVERHEADS & PROFIT @ 15 %				512.41
	TOTAL				3928.47
	Labours cess@1%				39.28
	Total				967.76
	Add 18% GST				14.20
	TOTAL				4681.95
	Rate per Each				4681.95
	Say				4682.00

1.16.6 250 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4359	250 watt LED Flood Light	each	1.00	4125.00	4125.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				4135.26
	Cartage @ 1 % of A1				41.35
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40

1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				4350.31
	OVERHEADS & PROFIT @ 15 %				652.55
	TOTAL				5002.86
	Labours cess@1%				50.03
	Total				5052.89
	Add 18% GST				909.52
	TOTAL				5962.41
	Rate per Each				5962.41
	Say				5962.00

- 1.17 LED Flood Light, powder coated pressure die cast aluminium (System lumen efficacy >135lm/Watt)**
Supplying, installation, Testing & Commissioning of Flood Light, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement with Driver efficiency >85%, Input voltage: Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%, THD < 10% as per IEC 61000-3-2, P. F.≥0.95, IP-66,IK-10, CRI >80, under voltage and over voltage protection,EMI-EMC as per CISPR-15, lenses for beam angle 30 deg-120deg as per the application and the project requirementdeg., suitable tilt able fitting, life time (LED,Driver & electrical circuitary) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K / 6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output. LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

**1.17.1 50 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4360	50 watt LED Flood Light	each	1.00	1321.93	1321.93
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1332.19
	Cartage @ 1 % of A1				13.32
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40

1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1519.21
	OVERHEADS & PROFIT @ 15 %				227.88
	TOTAL				1747.09
	Labours cess@1%				17.47
	Total				1764.56
	Add 18% GST				317.62
	TOTAL				2082.18
	Rate per Each				2082.18
	Say				2082.00

1.17.2 70 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4361	70 watt LED Flood Light	each	1.00	1541.00	1541.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1551.26
	Cartage @ 1 % of A1				15.51
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1740.47
	OVERHEADS & PROFIT @ 15 %				261.07
	TOTAL				2001.54
	Labours cess@1%				20.02
	Total				2021.56
	Add 18% GST				363.88
	TOTAL				2385.44
	Rate per Each				2385.44
	Say				2385.00

1.17.3 100 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4362	100 watt LED Flood Light	each	1.00	1667.50	1667.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				1677.76
	Cartage @ 1 % of A1				16.78
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				1868.24
	OVERHEADS & PROFIT @ 15 %				280.24
	TOTAL				2148.48
	Labours cess@1%				21.48
	Total				2169.96
	Add 18% GST				390.59
	TOTAL				2560.56
	Rate per Each				2560.56
	Say				2561.00

**1.17.4 150 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4363	150 watt LED Flood Light	each	1.00	2415.00	2415.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				2425.26
	Cartage @ 1 % of A1				24.25
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				2623.21
	OVERHEADS & PROFIT @ 15 %				393.48
	TOTAL				3016.69
	Labours cess@1%				30.17
	Total				3046.86
	Add 18% GST				548.43
	TOTAL				3595.29
	Rate per Each				3595.29
	Say				3595.00

**1.17.5 200 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4364	200 watt LED Flood Light	each	1.00	3789.25	3789.25

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				3799.51
	Cartage @ 1 % of A1				38.00
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				4011.21
	OVERHEADS & PROFIT @ 15 %				601.68
	TOTAL				4612.89
	Labours cess@1%				46.13
	Total				4659.01
	Add 18% GST				838.62
	TOTAL				5497.64
	Rate per Each				5497.64
	Say				5498.00

1.17.6 250 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4365	250 watt LED Flood Light	each	1.00	2415.00	4312.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				4322.76
	Cartage @ 1 % of A1				43.23
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				4539.69
	OVERHEADS & PROFIT @ 15 %				680.95
	TOTAL				5220.64
	Labours cess@1%				52.21
	Total				5272.84
	Add 18% GST				949.11
	TOTAL				6221.96
	Rate per Each				6221.96
	Say				6222.00

1.18 LED Smart Street light fixture, powder coated pressure die cast aluminium (System. System lumen efficacy ≥ 105 and < 120 lm/Watt)

Supplying, installation, Testing & Commissioning of Smart Street light LED fixture, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement ($< 700\text{ma}$), Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency $>85\%$, THD $< 10\%$ as per IEC 61000-3-2 , P. F. ≥ 0.95 , IP-66, IK-08, CRI >80 , under voltage and over voltage protection, EMI- EMC as per CISPR-15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 105 and < 120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

Smart inbuilt controller shall have following features.

1. Control and monitor LED luminaries with bi directional control (Status, Fault, Alarm, dimming level, wattage, energy)
2. To measure voltage, current, power, power factor, apparent energy, active energy, operating hours.
3. Inbuilt ambient light sensor, motion sensor based on Passive Infra Red (PIR).
4. Wi-Fi LoRA/Zigbee/Powerline with ethernet network based IOT feature as per site requirement or engineer in charge.
5. Should be controlled through auto/ manual
6. Programmable level of not less than 48 different light intensity settings,
7. Inbuilt repeater & relay signals function to other controllers

**1.18.1 45 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4366	45 watt Street Light LED Fixture	each	1.00	3483.38	3483.38
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					3493.64
Cartage @ 1 % of A1					34.94
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30

TOTAL	3702.28
OVERHEADS & PROFIT @ 15 %	555.34
TOTAL	4257.62
Labours cess@1%	42.58
Total	4300.19
Add 18% GST	774.03
TOTAL	5074.23
Rate per Each	5074.23
Say	5074.00

1.18.2 50 Watt
COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4367	50 watt Street Light LED Fixture	each	1.00	3641.50	3641.50
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				3651.76
	Cartage @ 1 % of A1				36.52
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallas	day	0.10	783.00	78.30
	TOTAL				3861.98
	OVERHEADS & PROFIT @ 15 %				579.30
	TOTAL				4441.28
	Labours cess@1%				44.41
	Total				4485.69
	Add 18% GST				807.42
	TOTAL				5293.11
	Rate per Each				5293.11
	Say				5293.00

1.18.3 72 Watt
COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4368	72 watt Street Light LED Fixture	each	1.00	4021.00	4021.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				4031.26
	Cartage @ 1 % of A1				40.31
	LABOUR				

1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				4245.27
	OVERHEADS & PROFIT @ 15 %				636.79
	TOTAL				4882.06
	Labours cess@1%				48.82
	Total				4930.88
	Add 18% GST				887.56
	TOTAL				5818.44
	Rate per Each				5818.44
	Say				5818.00

1.18.4 90 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4369	90 watt Street Light LED Fixture	each	1.00	4210.75	4210.75
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				4221.01
	Cartage @ 1 % of A1				42.21
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				4436.92
	OVERHEADS & PROFIT @ 15 %				665.54
	TOTAL				5102.46
	Labours cess@1%				51.02
	Total				5153.48
	Add 18% GST				927.63
	TOTAL				6081.11
	Rate per Each				6081.11
	Say				6081.00

1.18.5 100 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4370	100 watt Street Light LED Fixture	each	1.00	5033.00	5033.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				5043.26
	Cartage @ 1 % of A1				50.43
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				5267.39
	OVERHEADS & PROFIT @ 15 %				790.11
	TOTAL				6057.50
	Labours cess@1%				60.58
	Total				6118.08
	Add 18% GST				1101.25
	TOTAL				7219.33
	Rate per Each				7219.33
	Say				7219.00

1.18.6 120 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4371	120 watt Street Light LED Fixture	each	1.00	5286.00	5286.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				5296.26
	Cartage @ 1 % of A1				52.96
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				5522.92
	OVERHEADS & PROFIT @ 15 %				828.44
	TOTAL				6351.36
	Labours cess@1%				63.51
	Total				6414.88
	Add 18% GST				1154.68
	TOTAL				7569.55
	Rate per Each				7569.55
	Say				7570.00

1.18.7 150 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4372	150 watt Street Light LED Fixture	each	1.00	6664.85	6664.85

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				6675.11
	Cartage @ 1 % of A1				66.75
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				6915.56
	OVERHEADS & PROFIT @ 15 %				1037.33
	TOTAL				7952.89
	Labours cess@1%				79.53
	Total				8032.42
	Add 18% GST				1445.84
	TOTAL				9478.26
	Rate per Each				9478.26
	Say				9478.00

1.18.8 180 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4373	180 watt Street Light LED Fixture	each	1.00	6791.35	6791.35
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				6801.61
	Cartage @ 1 % of A1				68.02
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				7043.33
	OVERHEADS & PROFIT @ 15 %				1056.50
	TOTAL				8099.83
	Labours cess@1%				81.00
	Total				8180.82
	Add 18% GST				1472.55
	TOTAL				9653.37
	Rate per Each				9653.37
	Say				9653.00

**1.18.9 200 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4374	200 watt Street Light LED Fixture	each	1.00	8005.75	8005.75
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				8016.01
	Cartage @ 1 % of A1				80.16
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				8269.87
	OVERHEADS & PROFIT @ 15 %				1240.48
	TOTAL				9510.35
	Labours cess@1%				95.10
	Total				9605.45
	Add 18% GST				1728.98
	TOTAL				11334.44
	Rate per Each				11334.44
	Say				11334.00

1.19 LED Smart Street light fixture, powder coated pressure die cast aluminium (System. System lumen efficacy ≥120 and <135 lm/Watt)

Supplying, installation, Testing & Commissioning of Smart Street light LED fixture, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement (< 700ma), Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2 , P. F.≥0.95, IP-66,IK-08, CRI >80 , under voltage and over voltage protection,EMI- EMC as per CISPR-15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥120 and <135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

Smart inbuilt controller shall have following features.

1. Control and monitor LED luminaries with bi directional control(Status, Fault, Alarm, dimming level, wattage, energy)
2. To measure voltage, current, power, power factor, apparent energy, active energy, operating hours.
3. Inbuilt ambient light sensor, motion sensor based on Passive Infra Red (PIR).
4. Wi-Fi LoRA/Zigbee/Powerline with ethernet network based IOT feature as per site requirement or engineer in charge.
5. Should be controlled through auto/ manual
6. Programmable level of not less than 48 different light intensity settings,
7. Inbuilt repeater & relay signals function to other controllers

1.19.1 45 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4375	45 watt Street Light LED Fixture	each	1.00	3831.71	3831.71
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				3841.97
	Cartage @ 1 % of A1				38.42
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallas	day	0.10	783.00	78.30
	TOTAL				4054.09
	OVERHEADS & PROFIT @ 15 %				608.11
	TOTAL				4662.20
	Labours cess@1%				46.62
	Total				4708.82
	Add 18% GST				47.59
	TOTAL				5556.41
	Rate per Each				5556.41
	Say				5556.00

1.19.2 50 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4376	50 watt Street Light LED Fixture	each	1.00	4005.65	4005.65
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60

2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				4015.91
	Cartage @ 1 % of A1				40.16
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				4229.77
	OVERHEADS & PROFIT @ 15 %				634.47
	TOTAL				4864.24
	Labours cess@1%				48.64
	Total				4912.88
	Add 18% GST				884.32
	TOTAL				5797.20
	Rate per Each				5797.20
	Say				5797.00

**1.19.3 72 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4377	72 watt Street Light LED Fixture	each	1.00	4423.10	4423.10
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				4433.36
	Cartage @ 1 % of A1				44.33
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				4651.39
	OVERHEADS & PROFIT @ 15 %				697.71
	TOTAL				5349.10
	Labours cess@1%				53.49
	Total				5402.59
	Add 18% GST				972.47
	TOTAL				6375.06
	Rate per Each				6375.06
	Say				6375.00

**1.19.4 90 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4377	90 watt Street Light LED Fixture	each	1.00	4631.83	4631.83

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				4642.09
	Cartage @ 1 % of A1				46.42
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				4862.21
	OVERHEADS & PROFIT @ 15 %				729.33
	TOTAL				5591.54
	Labours cess@1%				55.92
	Total				5647.46
	Add 18% GST				1016.54
	TOTAL				6664.00
	Rate per Each				6664.00
	Say				6664.00

**1.19.5 100 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4379	100 watt Street Light LED Fixture	each	1.00	5536.30	5536.30
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				5546.56
	Cartage @ 1 % of A1				55.47
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				5775.73
	OVERHEADS & PROFIT @ 15 %				866.36
	TOTAL				6642.09
	Labours cess@1%				66.42
	Total				6708.51
	Add 18% GST				1207.53
	TOTAL				7916.04
	Rate per Each				7916.04
	Say				7916.00

**1.19.6 120 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4380	120 watt Street Light LED Fixture	each	1.00	5814.60	5814.60
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				5824.86
	Cartage @ 1 % of A1				58.25
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				6056.81
	OVERHEADS & PROFIT @ 15 %				908.52
	TOTAL				6965.33
	Labours cess@1%				69.65
	Total				7034.98
	Add 18% GST				1266.30
	TOTAL				8301.28
	Rate per Each				8301.28
	Say				8301.00

**1.19.7 150 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4381	150 watt Street Light LED Fixture	each	1.00	7331.34	7331.34
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				7341.60
	Cartage @ 1 % of A1				73.42
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				7588.72
	OVERHEADS & PROFIT @ 15 %				1138.31
	TOTAL				8727.03
	Labours cess@1%				87.27
	Total				8814.30
	Add 18% GST				1586.57

TOTAL	10400.87
Rate per Each	10400.87
Say	10401.00

**1.19.8 180 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4382	180 watt Street Light LED Fixture	each	1.00	7470.49	7470.49
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				7480.75
	Cartage @ 1 % of A1				74.81
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				7729.26
	OVERHEADS & PROFIT @ 15 %				1159.39
	TOTAL				8888.65
	Labours cess@1%				88.89
	Total				8977.53
	Add 18% GST				1615.96
	TOTAL				10593.49
	Rate per Each				10593.49
	Say				10593.00

**1.19.9 200 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4383	200 watt Street Light LED Fixture	each	1.00	8806.33	8806.33
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				8816.59
	Cartage @ 1 % of A1				88.17
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				9078.46
	OVERHEADS & PROFIT @ 15 %				1361.77
	TOTAL				10440.23

Labours cess@1%	104.40
Total	10544.63
Add 18% GST	1898.03
TOTAL	12442.66
Rate per Each	12442.66
Say	12443.00

- 1.20 LED Smart Street light fixture, powder coated pressure die cast aluminium (System. System lumen efficacy >135 lm/Watt)**
Supplying, installation, Testing & Commissioning of Smart Street light LED fixture, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement (< 700ma), Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2 , P. F.≥0.95, IP-66,IK-08, CRI >80 , under voltage and over voltage protection,EMI- EMC as per CISPR-15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

Smart inbuilt controller shall have following features.

- 1. Control and monitor LED luminaries with bi directional control(Status, Fault, Alarm, dimming level, wattage, energy)**
- 2. To measure voltage, current, power, power factor, apparent energy, active energy, operating hours**
- 3. Inbuilt ambient light sensor, motion sensor based on Passive Infra Red (PIR).**
- 4. Wi-Fi LoRA/Zigbee/Powerline with ethernet network based IOT feature as per site requirement or engineer in charge.**
- 5. Should be controlled through auto/ manual**
- 6. Programmable level of not less than 48 different light intensity settings,**
- 7. Inbuilt repeater & relay signals function to other controllers**

**1.20.1 45 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4384	45 watt Street Light LED Fixture	each	1.00	4005.88	4005.88
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76

2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				4016.14
	Cartage @ 1 % of A1				40.16
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				4230.00
	OVERHEADS & PROFIT @ 15 %				634.50
	TOTAL				4864.50
	Labours cess@1%				48.65
	Total				4913.15
	Add 18% GST				884.37
	TOTAL				5797.51
	Rate per Each				5797.51
	Say				5798.00

1.20.2 50 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4385	50 watt Street Light LED Fixture	each	1.00	4187.73	4187.73
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				4197.99
	Cartage @ 1 % of A1				41.98
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				4413.67
	OVERHEADS & PROFIT @ 15 %				662.05
	TOTAL				5075.72
	Labours cess@1%				50.76
	Total				5126.48
	Add 18% GST				922.77
	TOTAL				6049.24
	Rate per Each				6049.24
	Say				6049.00

1.20.3 72 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4386	72 watt Street Light LED Fixture	each	1.00	4624.15	4624.15

1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				4634.41
	Cartage @ 1 % of A1				46.34
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				4854.45
	OVERHEADS & PROFIT @ 15 %				728.17
	TOTAL				5582.62
	Labours cess@1%				55.83
	Total				5638.45
	Add 18% GST				1014.92
	TOTAL				6653.37
	Rate per Each				6653.37
	Say				6653.00

1.20.4 90 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4387	90 watt Street Light LED Fixture	each	1.00	4842.36	4842.36
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				4852.62
	Cartage @ 1 % of A1				48.53
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				5074.85
	OVERHEADS & PROFIT @ 15 %				761.23
	TOTAL				5836.08
	Labours cess@1%				58.36
	Total				5894.44
	Add 18% GST				1061.00
	TOTAL				6955.44
	Rate per Each				6955.44
	Say				6955.00

**1.20.5 100 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4388	100 watt Street Light LED Fixture	each	1.00	5787.95	5787.95
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				5798.21
	Cartage @ 1 % of A1				57.98
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				6029.89
	OVERHEADS & PROFIT @ 15 %				904.48
	TOTAL				6934.37
	Labours cess@1%				69.34
	Total				7003.72
	Add 18% GST				1260.67
	TOTAL				8264.38
	Rate per Each				8264.38
	Say				8264.00

**1.20.6 120 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4389	120 watt Street Light LED Fixture	each	1.00	6078.90	6078.90
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				6089.16
	Cartage @ 1 % of A1				60.89
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				6323.75
	OVERHEADS & PROFIT @ 15 %				948.56
	TOTAL				7272.31
	Labours cess@1%				72.72
	Total				7345.03
	Add 18% GST				1322.11

TOTAL	8667.14
Rate per Each	8667.14
Say	8667.00

**1.20.7 150 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4390	150 watt Street Light LED Fixture	each	1.00	7664.58	7664.58
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					7674.84
Cartage @ 1 % of A1					76.75
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					7925.29
OVERHEADS & PROFIT @ 15 %					1188.79
TOTAL					9114.08
Labours cess@1%					91.14
Total					9205.22
Add 18% GST					1656.94
TOTAL					10862.16
Rate per Each					0862.16
Say					10862.00

**1.20.8 180 Watt
COST FOR EACH**

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4391	180 watt Street Light LED Fixture	each	1.00	7810.05	7810.05
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					7820.31
Cartage @ 1 % of A1					78.20
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					8072.21
OVERHEADS & PROFIT @ 15 %					1210.83

TOTAL	9283.04
Labours cess@1%	92.83
Total	9375.87
Add 18% GST	1687.66
TOTAL	11063.53
Rate per Each	11063.53
Say	11064.00

1.20.9 200 Watt COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
MATERIALS					
4392	200 watt Street Light LED Fixture	each	1.00	9206.61	9206.61
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
Total cost of materials					9216.87
Cartage @ 1 % of A1					92.17
LABOUR					
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
TOTAL					9482.74
OVERHEADS & PROFIT @ 15 %					1422.41
TOTAL					10905.15
Labours cess@1%					109.05
Total					11014.20
Add 18% GST					1982.56
TOTAL					12996.76
Rate per Each					12996.76
Say					12997.00

- 1.21 Supplying, installation, Testing & Commissioning of the integrated type solar PV lighting system on the existing pole structure, comprising of 20 watt, 6V Mono Passivated Emitter and Rear Contact (PERC) Solar Panel (minimum efficiency 21%),, Pulse with modulation (PWM)/Maximum Power point tracking (MPPT) Charge Controller in the box with a sleek appearance and a sturdy structure, is weather-proof, and is simple to install, With Lithium- Iron Phosphate Battery (LiFePO4) 3.2Volt (Cell) 24 AH battery, charging time 6-8 hours, Battery backup time 12 hours (minimum), LED fixture 20 watt, Input voltage: 12V DC , Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%, THD < 10% as per IEC 61000-3-2 , P. F.≥0.95, IP-66,IK-08, CRI >80 , under voltage and over voltage protection, Electro Magnetic Interference (EMI) Electro Magnetic Compatibility (EMC) As per CISPR 15 , lenses for beam angle as per Illuminating Engineering Society of North America (IESNA) type I/II/III as per the width of the road and the project**

requirement, Correlated Colour Temperature (CCT) 5700°K /6000°K (As per American National Standard Institute (ANSI Bin)), life time (LED,Driver & electrical circuitary) of 50K hours lamp burning hours till the 70 % of initial Lumen maintained as per LM80 extrapolation IES TM-21-11 report, automatic switch on/off, Alluminium or Acrylonitrile Butadiene Styrene (ABS body), can be installed on a pole or wall. System lumen efficacy >120 lm/Watt output All as per pre approved by Engineer in-charge complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required.

(Part 1), for fixtures up to 60 watt. LED light Complete with mounting structure for the battery and accessories and wind storm withstand capacity as per the zone. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C)

20 Watt (System lumen efficacy >120 lm/Watt)

1.21.1 20 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4393	20 Watt Fittings	each	1.00	13250.00	13250.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				13260.26
	Cartage @ 1 % of A1				132.60
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				13566.56
	OVERHEADS & PROFIT @ 15 %				2034.98
	TOTAL				15601.54
	Labours cess@1%				156.02
	Total				15757.56
	Add 18% GST				2836.36
	TOTAL				18593.92
	Rate per Each				18593.92
	Say				18594.00

1.21.2 Supplying, installation, Testing & Commissioning of the integrated type solar PV lighting system on the existing pole structure, comprising of 30 watt, 6V Mono Passivated Emitter and Rear Contact (PERC) Solar Panel (minimum efficiency 21%), Pulse with modulation (PWM)/Maximum Power point tracking (MPPT) charge Controller in the box with a sleek appearance and a sturdy structure, is weather-proof, and is simple to install, With Lithium- Iron Phosphate Battery (LiFePO4) 3.2Volt (Cell) 30 AH battery, charging time 8-10 hours, Battery backup time 12 hours (minimum), LED fixture watt 30 watt, Input voltage: 12V DC , Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as

per IEC 61000-4-5, Driver efficiency >85%, THD < 10% as per IEC 61000-3-2 , P. F. ≥ 0.95, IP-66, IK-08, CRI > 80 , under voltage and over voltage protection, Electro Magnetic Interference (EMI) Electro Magnetic Compatibility (EMC) As per CISPER 15 A, lenses for beam angle as per Illuminating Engineering Society of North America (IESNA) type I/II/III as per the width of the road and the project requirement, Correlated Colour Temperature (CCT) 5700°K /6000°K (As per American National Standard Institute (ANSI Bin)) , life time (LED, Driver & electrical circuitary) of 50K hours lamp burning hours till the 70 % of initial Lumen maintained as per LM80 extrapolation IES TM-21-11 report, automatic switch on/off, Aluminium or Acrylonitrile Butadiene Styrene (ABS body), can be installed on a pole or wall. System lumen efficacy >120 lm/Watt output All as per pre approved by Engineer in-charge complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required. (Part 1), for fixtures up to 60 watt. LED light Complete with mounting structure for the battery and accessories and wind storm withstand capacity as per the zone. (Thermal management: heat sink of aluminium housing such that LED junction temperature do'nt rise above 90°C)
30 Watt (System lumen efficacy >120 lm/Watt)

30 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4394	30 Watt Fittings	each	1.00	16500.00	16500.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable = 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				16510.26
	Cartage @ 1 % of A1				165.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				16849.06
	OVERHEADS & PROFIT @ 15 %				2527.36
	TOTAL				19376.42
	Labours cess@1%				193.76
	Total				19570.19
	Add 18% GST				3522.63
	TOTAL				23092.82
	Rate per Each				23092.82
	Say				23093.00

- 1.21.3 Supplying, installation, Testing & Commissioning of the integrated type solar PV lighting system on the existing pole structure, comprising of 35 watt, 6V Mono Passivated Emitter and Rear Contact (PERC) Solar Panel (minimum efficiency 21%),, Pulse with modulation (PWM)/Maximum Power point tracking (MPPT) Charge Controller in the box with a sleek appearance and a sturdy structure, is

weather-proof, and is simple to install. Operating temperature range: -35 to 60 deg C With Lithium-Iron Phosphate Battery (LiFePO4) 3.2Volt (Cell) 35 AH battery, charging time 8-10 hours, Battery backup time 12 hours (minimum), LED fixture watt 35 watt, Input voltage: 12V DC , Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%, THD < 10% as per IEC 61000-3-2 , P. F.≥0.95, IP-66, IK-08, CRI >80 , under voltage and over voltage protection, Electro Magnetic Interference (EMI) Electro Magnetic Compatibility (EMC) As per CISPR 15 , lenses for beam angle as per Illuminating Engineering Society of North America (IESNA) type I/II/III as per the width of the road and the project requirement, Correlated Colour Temperature (CCT) 5700°K /6000°K (As per American National Standard Institute (ANSI Bin)), life time (LED, Driver & electrical circuitary) of 50K hours lamp burning hours till the 70 % of initial Lumen maintained as per LM80 extrapolation IES TM-21-11 report, automatic switch on/off, Alluminium or Acrylonitrile Butadiene Styrene (ABS body), can be installed on a pole or wall. System lumen efficacy >120 lm/Watt output All as per pre approved by Engineer in-charge complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required.
(Part 1), for fixtures up to 60 watt. LED light Complete with mounting structure for the battery and accessories and wind storm withstand capacity as per the zone.
(Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C)
35 Watt (System lumen efficacy >120 lm/Watt)

35 Watt

COST FOR EACH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	MATERIALS				
4395	35 Watt Fittings	each	1.00	21000.00	21000.00
1101	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable= 0.30 + 0.02 (Wastage @5%) = 0.32m	meter	0.32	18.00	5.76
2852	Iron screws, 35 mm X 6 mm	each	2.00	1.80	3.60
2857	PVC fastener 40mm long	each	1.00	0.90	0.90
	Total cost of materials				21010.26
	Cartage @ 1 % of A1				210.10
	LABOUR				
1001	Wireman	day	0.10	954.00	95.40
1007	Khallasi	day	0.10	783.00	78.30
	TOTAL				21394.06
	OVERHEADS & PROFIT @ 15 %				3209.11
	TOTAL				24603.17
	Labours cess@1%				246.03
	Total				24849.20
	Add 18% GST				4472.86
	TOTAL				29322.06
	Rate per Each				29322.06
	Say				29322.00

CHAPTER-2-BLDC FAN

- 2.1 Brush Less Direct Current (BLDC) Motor**
Supply, Installation, Testing and Commissioning of ceiling fan with Brush Less Direct Current (BLDC) Motor, class of insulation: B, 3 nos. metal(Aluminum alloy) blades, 30 cm long down rod, 2 nos. canopies, shackle kit, safety rope, copper winding, steel/Al body
Power Factor not less than 0.9, Service Value (CM/M/W) minimum as below, 350 RPM (tolerance as per IS : 374-2019), THD (Total Harmonic Distortion) less than 10%, remote (prefreably mobile app based) for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise=75 degree C (max.), insulation resistance more than 2 mega ohm, suitable for 230 V, 50 Hz, single phase AC Ceiling Fan compliant to IS 374:2019 fan Supply, earthing etc. complete as req

2.1.1 Cost for 10 fans

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4396	900mm, BEE 5 star rating, service value ≥ 5.1 CM/Min/Watt, air delivery 130 CM/Min (Minimum)	each	10	1470	14700.00
	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable		8.4	18	151.20
	'= 8.0 + 0.40 (Wastage @5%) = 8.40m				
	TOTAL				14851.20
	Cartage@ 1% of A				148.51
	TOTAL A				14999.712
	(B) LABOUR				
1001	Wireman	day	1.00	954.00	954.00
1007	Khallasi	day	1.00	783.00	783.00
	TOTAL B				1737.00
	TOTAL (A+B)				16736.71
	Overhead & Profit @15%				2510.51
	TOTAL				19247.22
	Labours cess@1%				192.47
	TOTAL				19439.69
	Add 18% of GST				3499.14
	TOTAL				22938.84
	Cost for 1 fan				2294.00

2.1.2 Cost for 10 fans

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4397	1050mm, BEE 5 star rating, service value ≥ 5.1 CM/Min/Watt, air delivery 150 CM/Min (Minimum)	each	10	1491	14910.00

	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable	day	8.4	18	151.20
	'= 8.0 + 0.40 (Wastage @5%) = 8.40m	day			
	TOTAL				15061.20
	Cartage@ 1% of A				150.61
	TOTAL A				15211.812
	(B) LABOUR				
1001	Wireman		1.00	954.00	954.00
1007	Khallasi		1.00	783.00	783.00
	TOTAL B				1737.00
	TOTAL (A+B)				16948.81
	Overhead & Profit @15%				2542.32
	TOTAL				19491.13
	Labours cess@1%				194.91
	TOTAL				19686.05
	Add 18% of GST				3543.49
	TOTAL				23229.53
	Cost for 1 fan				2323.00

2.1.3 Cost for 10 fans

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4398	1200mm, BEE 5 star rating, service value ≥ 6.0 CM/Min/Watt, air delivery 210 CM/Min (Minimum)	each	10	1533	15330.00
	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable		8.4	18	151.20
	'= 8.0 + 0.40 (Wastage @5%) = 8.40m				
	TOTAL				15481.20
	Cartage@ 1% of A				154.81
	TOTAL A				15636.012
	(B) LABOUR				
1001	Wireman	day	1.00	954.00	954.00
1007	Khallasi	day	1.00	783.00	783.00
	TOTAL B				1737.00
	TOTAL (A+B)				17373.01
	Overhead & Profit @15%				2605.95
	TOTAL				19978.96
	Labours cess@1%				199.79
	TOTAL				20178.75
	Add 18% of GST				3632.18
	TOTAL				23810.93
	Cost for 1 fan				2381.00

2.1.4 Cost for 10 fans

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4399	1400mm, BEE 5 star rating, service value ≥ 6.0 CM/Min/Watt, air delivery 245 CM/Min (Minimum)	each	10	1575	15750.00
	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable '= 8.0 + 0.40 (Wastage @5%) = 8.40m		8.4	18	151.20
	TOTAL				15901.20
	Cartage@ 1% of A				159.01
	TOTAL A				16060.212
	(B) LABOUR				
1001	Wireman	day	1.00	954.00	954.00
1007	Khallasi	day	1.00	783.00	783.00
	TOTAL B				1737.00
	TOTAL (A+B)				17797.21
	Overhead & Profit @15%				2669.58
	TOTAL				20466.79
	Labours cess@1%				204.67
	TOTAL				20671.46
	Add 18% of GST				3720.86
	TOTAL				24392.32
	Cost for 1 fan				2439.00

2.2 Brush Less Direct Current (BLDC) Motor
Supply, Installation, Testing and Commissioning of ceiling fan with Brush Less Direct Current (BLDC) Motor, class of insulation: B, 3 nos. metal(Aluminum alloy) blades, 30 cm long down rod, 2 nos. canopies, shackle kit, safety rope, copper winding, steel/Al bodyPower Factor not less than 0.9, Service Value (CM/M/W) minimum as below, 350 RPM (tolerance as per IS : 374-2019), THD (Total Harmonic Distortion) less than 10%, suitable for operation with regulator for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise=75 degree C (max.), insulation resistance more than 2 mega ohm, suitable for 230 V, 50 Hz, single phase AC Ceiling Fan compliant to IS 374:2019 fan Supply, earthing etc. complete as req

2.2.1 900mm, service value ≥ 5.1 CM/Min/Watt, air delivery 130 CM/Min (Minimum)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4400	900mm, service value ≥ 5.1 CM/Min/Watt, air delivery 130 CM/Min (Minimum)	each	10	1365	13650.00
	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable '= 8.0 + 0.40 (Wastage @5%) = 8.40m		8.4	18	151.20
	TOTAL				13801.20

	Cartage@ 1% of A				138.01
	TOTAL A				13939.212
	(B) LABOUR				
1001	Wireman	day	1.00	954.00	954.00
1007	Khallasi	day	1.00	783.00	783.00
	TOTAL B				1737.00
	TOTAL (A+B)				15676.21
	Overhead & Profit @15%				2351.43
	TOTAL				18027.64
	Labours cess@1%				180.28
	TOTAL				18207.92
	Add 18% of GST				3277.43
	TOTAL				21485.35
	Cost for 1 fan				2149.00

2.2.2 1050mm, service value ≥ 5.1 CM/Min/Watt, air delivery 150 CM/Min (Minimum)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4401	1050mm, service value ≥ 5.1 CM/Min/Watt, air delivery 150 CM/Min (Minimum)	each	10	1384.5	13845.00
	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable '= 8.0 + 0.40 (Wastage @5%) = 8.40m		8.4	18	151.20
	TOTAL				13996.20
	Cartage@ 1% of A				139.96
	TOTAL A				14136.162
	(B) LABOUR				
1001	Wireman	day	1.00	954.00	954.00
1007	Khallasi	day	1.00	783.00	783.00
	TOTAL B				1737.00
	TOTAL (A+B)				15873.16
	Overhead & Profit @15%				2380.97
	TOTAL				18254.14
	Labours cess@1%				182.54
	TOTAL				18436.68
	Add 18% of GST				3318.60
	TOTAL				21755.28
	Cost for 1 fan				2176.00

2.2.3 1200mm, service value ≥ 6.0 CM/Min/Watt, air delivery 210 CM/Min (Minimum)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4402	1200mm, service value ≥ 6.0 CM/Min/Watt, air delivery 210 CM/Min (Minimum)	each	10	1423.5	14235.00
	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable '= 8.0 + 0.40 (Wastage @5%) = 8.40m		8.4	18	151.20

	TOTAL				14386.20
	Cartage@ 1% of A				143.86
	TOTAL A				14530.062
	(B) LABOUR				
1001	Wireman	day	1.00	954.00	954.00
1007	Khallasi	day	1.00	783.00	783.00
	TOTAL B				1737.00
	TOTAL (A+B)				16267.06
	Overhead & Profit @15%				2440.06
	TOTAL				18707.12
	Labours cess@1%				187.07
	TOTAL				18894.19
	Add 18% of GST				3400.95
	TOTAL				22295.15
	Cost for 1 fan				2230.00

2.2.4 1400mm, service value ≥ 6.0 CM/Min/Watt, air delivery 245 CM/Min (Minimum)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4403	1400mm, service value ≥ 6.0 CM/Min/Watt, air delivery 245 CM/Min (Minimum)	each	10	1470	14700.00
	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable		8.4	18	151.20
	'= 8.0 + 0.40 (Wastage @5%) = 8.40m				
	TOTAL				14851.20
	Cartage@ 1% of A				148.51
	TOTAL A				14999.712
	(B) LABOUR				
1001	Wireman	day	1.00	954.00	954.00
1007	Khallasi	day	1.00	783.00	783.00
	TOTAL B				1737.00
	TOTAL (A+B)				16736.71
	Overhead & Profit @15%				2510.51
	TOTAL				19247.22
	Labours cess@1%				192.47
	TOTAL				19439.69
	Add 18% of GST				3499.14
	TOTAL				22938.84
	Cost for 1 fan				2294.00

CHAPTER-2-TRANSFORMER

Oil Type

3.1

Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 33/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA);

m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.1.1 500 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4404	500 KVA	Nos.	1	922792.5	922792.50
	TOTAL				922792.50
	Cartage@ 1% of A				9227.93
	TOTAL A				932020.425
	(B) LABOUR				
	ITC @4% of A				37280.82
	TOTAL B				37280.82
	TOTAL (A+B)				969301.24
	Overhead & Profit @15%				145395.19
	TOTAL				1114696.43
	Labours cess@1%				11146.96
	TOTAL				1125843.39
	Add 18% of GST				202651.81
	TOTAL				1328495.00

3.1.2 630 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4405	630KVA	Nos.	1	1162718.55	1162718.55
	TOTAL				1162718.55
	Cartage@ 1% of A				11627.19
	TOTAL A				1174345.736
	(B) LABOUR				
	ITC @4% of A				46973.83
	TOTAL B				46973.83
	TOTAL (A+B)				1221319.56
	Overhead & Profit @15%				183197.93
	TOTAL				1404517.50

Labours cess@1%	14045.17
TOTAL	1418562.67
Add 18% of GST	255341.28
TOTAL	1673904.00

3.1.3 1000 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4406	1000 KVA	Nos.	1	1395000	1395000.00
	TOTAL				1395000.00
	Cartage@ 1% of A				13950.00
	TOTAL A				1408950.00
	(B) LABOUR				
	ITC @4% of A				56358.00
	TOTAL B				56358.00
	TOTAL (A+B)				1465308.00
	Overhead & Profit @15%				219796.20
	TOTAL				1685104.20
	Labours cess@1%				16851.04
	TOTAL				1701955.24
	Add 18% of GST				306351.94
	TOTAL				2008307.00

3.1.4 1250 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4407	1250 KVA	Nos.	1	1743750	1743750.00
	TOTAL				1743750.00
	Cartage@ 1% of A				17437.50
	TOTAL A				1761187.500
	(B) LABOUR				
	ITC @4% of A				70447.50
	TOTAL B				70447.50
	TOTAL (A+B)				1831635.00
	Overhead & Profit @15%				274745.25
	TOTAL				2106380.25
	Labours cess@1%				21063.80
	TOTAL				2127444.05
	Add 18% of GST				382939.93
	TOTAL				2510384.00

3.1.5 1600 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4408	1600 KVA	Nos.	1	2232000	2232000.00
	TOTAL				2232000.00
	Cartage@ 1% of A				22320.00
	TOTAL A				2254320.000
	(B) LABOUR				
	ITC @4% of A				90172.80
	TOTAL B				90172.80
	TOTAL (A+B)				2344492.80
	Overhead & Profit @15%				351673.92
	TOTAL				2696166.72
	Labours cess@1%				26961.67
	TOTAL				2723128.39
	Add 18% of GST				490163.11
	TOTAL				3213291.00

3.1.6 2000 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4409	2000 KVA	Nos.	1	2790000	2790000.00
	TOTAL				2790000.00
	Cartage@ 1% of A				27900.00
	TOTAL A				2817900.000
	(B) LABOUR				
	ITC @4% of A				112716.00
	TOTAL B				112716.00
	TOTAL (A+B)				2930616.00
	Overhead & Profit @15%				439592.40
	TOTAL				3370208.40
	Labours cess@1%				33702.08
	TOTAL				3403910.48
	Add 18% of GST				612703.89
	TOTAL				4016614.00

3.1.7 2500 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4410	2500 KVA	Nos.	1	3487500	3487500.00
	TOTAL				3487500.00
	Cartage@ 1% of A				34875.00
	TOTAL A				3522375.00
	(B) LABOUR				

ITC @4% of A	140895.00
TOTAL B	140895.00
TOTAL (A+B)	3663270.00
Overhead & Profit @15%	549490.50
TOTAL	4212760.50
Labours cess@1%	42127.61
TOTAL	4254888.11
Add 18% of GST	765879.86
TOTAL	5020768.00

- 3.2 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 33/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.**

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for

non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.2.1 500 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4411	500 KVA	Nos.	1	1107351	1107351.00
	TOTAL				1107351.00
	Cartage@ 1% of A				11073.51
	TOTAL A				1118424.510
	(B) LABOUR				
	ITC @4% of A				44736.98
	TOTAL B				44736.98
	TOTAL (A+B)				1163161.49
	Overhead & Profit @15%				174474.22
	TOTAL				1337635.71
	Labours cess@1%				13376.36
	TOTAL				1351012.07
	Add 18% of GST				243182.17
	TOTAL				1594194.00

3.2.2 630 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4412	630 KVA	Nos.	1	1395262	1395262.26
	TOTAL				1395262.26
	Cartage@ 1% of A				13952.62
	TOTAL A				1409214.883

(B) LABOUR	
ITC @4% of A	56368.60
TOTAL B	56368.60
TOTAL (A+B)	1465583.48
Overhead & Profit @15%	219837.52
TOTAL	1685421.00
Labours cess@1%	16854.21
TOTAL	1702275.21
Add 18% of GST	306409.54
TOTAL	2008685.00

3.2.3 1000 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4413	1000 KVA	Nos.	1	1674000	1674000.00
	TOTAL				1674000.00
	Cartage@ 1% of A				16740.00
	TOTAL A				1690740.00
	(B) LABOUR				
	ITC @4% of A				67629.60
	TOTAL B				67629.60
	TOTAL (A+B)				1758369.60
	Overhead & Profit @15%				263755.44
	TOTAL				2022125.04
	Labours cess@1%				20221.25
	TOTAL				2042346.29
	Add 18% of GST				367622.33
	TOTAL				2409969.00

3.2.4 1250 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4414	1250 KVA	Nos.	1	2092500	2092500.00
	TOTAL				2092500.00
	Cartage@ 1% of A				20925.002
	TOTAL A				113425.00
	(B) LABOUR				
	ITC @4% of A				84537.00
	TOTAL B				84537.00
	TOTAL (A+B)				2197962.00
	Overhead & Profit @15%				329694.30
	TOTAL				2527656.30
	Labours cess@1%				25276.56
	TOTAL				2552932.86
	Add 18% of GST				459527.92
	TOTAL				3012461.00

3.2.5 1600 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4415	1600 KVA	Nos.	1	2678400	2678400.00
	TOTAL				2678400.00
	Cartage@ 1% of A				26784.00
	TOTAL A				2705184.00
	(B) LABOUR				
	ITC @4% of A				108207.36
	TOTAL B				108207.36
	TOTAL (A+B)				2813391.36
	Overhead & Profit @15%				422008.70
	TOTAL				3235400.06
	Labours cess@1%				32354.00
	TOTAL				3267754.06
	Add 18% of GST				588195.73
	TOTAL				3855950.00

3.2.6 2000 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4416	2000 KVA	Nos.	1	3348000	3348000.00
	TOTAL				3348000.00
	Cartage@ 1% of A				33480.003
	TOTAL A				381480.00
	(B) LABOUR				
	ITC @4% of A				135259.20
	TOTAL B				135259.20
	TOTAL (A+B)				3516739.20
	Overhead & Profit @15%				527510.88
	TOTAL				4044250.08
	Labours cess@1%				40442.50
	TOTAL				4084692.58
	Add 18% of GST				735244.66
	TOTAL				4819937.00

3.2.7 2500 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4417	2500 KVA	Nos.	1	4185000	4185000.00
	TOTAL				4185000.00
	Cartage@ 1% of A				41850.00
	TOTAL A				4226850.00
	(B) LABOUR				
	ITC @4% of A				169074.00

TOTAL B	169074.00
TOTAL (A+B)	4395924.00
Overhead & Profit @15%	659388.60
TOTAL	5055312.60
Labours cess@1%	50553.13
TOTAL	5105865.73
Add 18% of GST	919055.83
TOTAL	6024922.00

- 3.3 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender), 33/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.**
- Fitting and Accessories :** The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably

steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.3.1 500 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4418	500 KVA	Nos.	1	1291909.5	1291909.50
	TOTAL				1291909.50
	Cartage@ 1% of A				12919.10
	TOTAL A				1304828.595
	(B) LABOUR				
	ITC @4% of A				52193.14
	TOTAL B				52193.14
	TOTAL (A+B)				1357021.74
	Overhead & Profit @15%				203553.26
	TOTAL				1560575.00
	Labours cess@1%				15605.75
	TOTAL				1576180.75
	Add 18% of GST				283712.53
	TOTAL				1859893.00

3.3.2 630 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4419	630 KVA	Nos.	1	1627805.97	1627805.97
	TOTAL				1627805.97
	Cartage@ 1% of A				16278.06
	TOTAL A				1644084.030
	(B) LABOUR				

ITC @4% of A	65763.36
TOTAL B	65763.36
TOTAL (A+B)	1709847.39
Overhead & Profit @15%	256477.11
TOTAL	1966324.50
Labours cess@1%	19663.24
TOTAL	1985987.74
Add 18% of GST	357477.79
TOTAL	2343466.00

3.3.3 1000 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4420	1000 KVA	Nos.	1	1953000	1953000.00
	TOTAL				1953000.00
	Cartage@ 1% of A				19530.00
	TOTAL A				1972530.000
	(B) LABOUR				
	ITC @4% of A				78901.20
	TOTAL B				78901.20
	TOTAL (A+B)				2051431.20
	Overhead & Profit @15%				307714.68
	TOTAL				2359145.88
	Labours cess@1%				23591.46
	TOTAL				2382737.34
	Add 18% of GST				428892.72
	TOTAL				2811630.00

3.3.4 1250 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4421	1250 KVA	Nos.	1	2441250	2441250.00
	TOTAL				2441250.00
	Cartage@ 1% of A				24412.50
	TOTAL A				2465662.500
	(B) LABOUR				
	ITC @4% of A				98626.50
	TOTAL B				98626.50
	TOTAL (A+B)				2564289.00
	Overhead & Profit @15%				384643.35
	TOTAL				2948932.35
	Labours cess@1%				29489.32
	TOTAL				2978421.67
	Add 18% of GST				536115.90
	TOTAL				3514538.00

3.3.5 1600 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4422	1600 KVA	Nos.	1	3124800	3124800.00
	TOTAL				3124800.00
	Cartage@ 1% of A				31248.00
	TOTAL A				3156048.000
	(B) LABOUR				
	ITC @4% of A				126241.92
	TOTAL B				126241.92
	TOTAL (A+B)				3282289.92
	Overhead & Profit @15%				492343.49
	TOTAL				3774633.41
	Labours cess@1%				37746.33
	TOTAL				3812379.74
	Add 18% of GST				686228.35
	TOTAL				4498608.00

3.3.6 2000 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4423	2000 KVA	Nos.	1	3906000	3906000.00
	TOTAL				3906000.00
	Cartage@ 1% of A				39060.00
	TOTAL A				3945060.000
	(B) LABOUR				
	ITC @4% of A				157802.40
	TOTAL B				157802.40
	TOTAL (A+B)				4102862.40
	Overhead & Profit @15%				615429.36
	TOTAL				4718291.76
	Labours cess@1%				47182.92
	TOTAL				4765474.68
	Add 18% of GST				857785.44
	TOTAL				5623260.00

3.3.7 2500 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4424	2500 KVA	Nos.	1	4882500	4882500.00
	TOTAL				4882500.00
	Cartage@ 1% of A				48825.00
	TOTAL A				4931325.000
	(B) LABOUR				
	ITC @4% of A				197253.00

TOTAL B	197253.00
TOTAL (A+B)	5128578.00
Overhead & Profit @15%	769286.70
TOTAL	5897864.70
Labours cess@1%	58978.65
TOTAL	5956843.35
Add 18% of GST	1072231.80
TOTAL	7029075.00

- 3.4 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender), 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.**
- Fitting and Accessories :** The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates;

e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.4.1 1000 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4425	1000 KVA	Nos.	1	1215000	1215000.00
	TOTAL				1215000.00
	Cartage@ 1% of A				12150.00
	TOTAL A				1227150.000
	(B) LABOUR				
	ITC @4% of A				49086.00
	TOTAL B				49086.00
	TOTAL (A+B)				1276236.00
	Overhead & Profit @15%				191435.40
	TOTAL				1467671.40
	Labours cess@1%				14676.71
	TOTAL				1482348.11
	Add 18% of GST				266822.66
	TOTAL				1749171.00

3.4.2 1250 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4426	1250 KVA	Nos.	1	1518750	1518750.00
	TOTAL				1518750.00
	Cartage@ 1% of A				15187.50

TOTAL A	1533937.500
(B) LABOUR	
ITC @4% of A	61357.50
TOTAL B	61357.50
TOTAL (A+B)	1595295.00
Overhead & Profit @15%	239294.25
TOTAL	1834589.25
Labours cess@1%	18345.89
TOTAL	1852935.14
Add 18% of GST	333528.33
TOTAL	2186463.00

3.4.3 1600 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4427	1600 KVA	Nos.	1	1944000	1944000.00
	TOTAL				1944000.00
	Cartage@ 1% of A				19440.00
	TOTAL A				1963440.000
	(B) LABOUR				
	ITC @4% of A				78537.60
	TOTAL B				78537.60
	TOTAL (A+B)				2041977.60
	Overhead & Profit @15%				306296.64
	TOTAL				2348274.24
	Labours cess@1%				23482.74
	TOTAL				2371756.98
	Add 18% of GST				426916.26
	TOTAL				2798673.00

3.4.4 2000 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4428	2000 KVA	Nos.	1	2430000	2430000.00
	TOTAL				2430000.00
	Cartage@ 1% of A				24300.00
	TOTAL A				2454300.000
	(B) LABOUR				
	ITC @4% of A				98172.00
	TOTAL B				98172.00
	TOTAL (A+B)				2552472.00
	Overhead & Profit @15%				382870.80
	TOTAL				2935342.80
	Labours cess@1%				29353.43
	TOTAL				2964696.23
	Add 18% of GST				533645.32
	TOTAL				3498342.00

- 3.4 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.**
- Fitting and Accessories :** The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable

rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.5.1 1000 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4429	1000 KVA	Nos.	1	1458000	1458000.00
	TOTAL				1458000.00
	Cartage@ 1% of A				14580.00
	TOTAL A				1472580.000
	(B) LABOUR				
	ITC @4% of A				58903.20
	TOTAL B				58903.20
	TOTAL (A+B)				1531483.20
	Overhead & Profit @15%				229722.48
	TOTAL				1761205.68
	Labours cess@1%				17612.06
	TOTAL				1778817.74
	Add 18% of GST				320187.19
	TOTAL				2099005.00

3.5.2 1250 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4430	1250 KVA	Nos.	1	1822500	1822500.00
	TOTAL				1822500.00
	Cartage@ 1% of A				18225.00
	TOTAL A				1840725.000
	(B) LABOUR				
	ITC @4% of A				73629.00
	TOTAL B				73629.00
	TOTAL (A+B)				1914354.00
	Overhead & Profit @15%				287153.10
	TOTAL				2201507.10
	Labours cess@1%				22015.07
	TOTAL				2223522.17
	Add 18% of GST				400233.99
	TOTAL				2623756.00

3.5.3 1600 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4431	1600 KVA	Nos.	1	2332800	2332800.00
	TOTAL				2332800.00
	Cartage@ 1% of A				23328.00
	TOTAL A				2356128.000
	(B) LABOUR				
	ITC @4% of A				94245.12
	TOTAL B				94245.12
	TOTAL (A+B)				2450373.12
	Overhead & Profit @15%				367555.97
	TOTAL				2817929.09
	Labours cess@1%				28179.29
	TOTAL				2846108.38
	Add 18% of GST				512299.51
	TOTAL				3358408.00

3.5.4 2000 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4432	2000 KVA	Nos.	1	2916000	2916000.00
	TOTAL				2916000.00
	Cartage@ 1% of A				29160.00
	TOTAL A				2945160.000
	(B) LABOUR				
	ITC @4% of A				117806.40
	TOTAL B				117806.40
	TOTAL (A+B)				3062966.40
	Overhead & Profit @15%				459444.96
	TOTAL				3522411.36
	Labours cess@1%				35224.11
	TOTAL				3557635.47
	Add 18% of GST				640374.39
	TOTAL				4198010.00

3.6 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender), 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm

XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.6.1 1000 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4433	1000 KVA	Nos.	1	1701000	1701000.00
	TOTAL				1701000.00
	Cartage@ 1% of A				17010.00
	TOTAL A				1718010.000
	(B) LABOUR				
	ITC @4% of A				68720.40
	TOTAL B				68720.40
	TOTAL (A+B)				1786730.40
	Overhead & Profit @15%				268009.56
	TOTAL				2054739.96
	Labours cess@1%				20547.40
	TOTAL				2075287.36
	Add 18% of GST				373551.72
	TOTAL				2448839.00

3.6.2 1250 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4434	1250 KVA	Nos.	1	2126250	2126250.00
	TOTAL				2126250.00
	Cartage@ 1% of A				21262.50
	TOTAL A				2147512.500
	(B) LABOUR				
	ITC @4% of A				85900.50
	TOTAL B				85900.50
	TOTAL (A+B)				2233413.00
	Overhead & Profit @15%				335011.95
	TOTAL				2568424.95
	Labours cess@1%				25684.25
	TOTAL				2594109.20
	Add 18% of GST				466939.66
	TOTAL				3061049.00

3.6.3 1600 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4435	1600 KVA	Nos.	1	2721600	2721600.00
	TOTAL				2721600.00
	Cartage@ 1% of A				27216.00
	TOTAL A				2748816.000
	(B) LABOUR				
	ITC @4% of A				109952.64

TOTAL B	109952.64
TOTAL (A+B)	2858768.64
Overhead & Profit @15%	428815.30
TOTAL	3287583.94
Labours cess@1%	32875.84
TOTAL	3320459.78
Add 18% of GST	597682.76
TOTAL	3918143.00

3.6.4 2000 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4436	2000 KVA	Nos.	1	3402000	3402000.00
	TOTAL				3402000.00
	Cartage@ 1% of A				34020.00
	TOTAL A				3436020.000
	(B) LABOUR				
	ITC @4% of A				137440.80
	TOTAL B				137440.80
	TOTAL (A+B)				3573460.80
	Overhead & Profit @15%				536019.12
	TOTAL				4109479.92
	Labours cess@1%				41094.80
	TOTAL				4150574.72
	Add 18% of GST				747103.45
	TOTAL				4897678.00

- 3.7 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does

not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.7.1 200 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4437	200 KVA	Nos.	1	234000	234000.00
	TOTAL				234000.00
	Cartage@ 1% of A				2340.00
	TOTAL A				236340.000
	(B) LABOUR				

ITC @4% of A	9453.60
TOTAL B	9453.60
TOTAL (A+B)	245793.60
Overhead & Profit @15%	36869.04
TOTAL	282662.64
Labours cess@1%	2826.63
TOTAL	285489.27
Add 18% of GST	51388.07
TOTAL	336877.00

3.7.2 250 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4438	250 KVA	Each	1	292500	292500.00
	TOTAL				292500.00
	Cartage@ 1% of A				2925.00
	TOTAL A				295425.000
	(B) LABOUR				11817.00
	ITC @4% of A				
	Khallasi	day	0.00	663.00	0.00
	TOTAL B				11817.00
	TOTAL (A+B)				307242.00
	Overhead & Profit @15%				46086.30
	TOTAL				353328.30
	Labours cess@1%				3533.28
	TOTAL				356861.58
	Add 18% of GST				64235.08
	TOTAL				421097.00

3.7.3 315KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4439	315 KVA	Nos.	1	368550	368550.00
	TOTAL				368550.00
	Cartage@ 1% of A				3685.50
	TOTAL A				372235.500
	(B) LABOUR				
	ITC @4% of A				14889.42
	TOTAL B				14889.42
	TOTAL (A+B)				387124.92
	Overhead & Profit @15%				58068.74
	TOTAL				45193.66
	Labours cess@1%				4451.94
	TOTAL				449645.59
	Add 18% of GST				80936.21
	TOTAL				530582.00

3.7.4 400KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4440	400 KVA	Nos.	1	468000	468000.00
	TOTAL				468000.00
	Cartage@ 1% of A				4680.00
	TOTAL A				472680.000
	(B) LABOUR				
	ITC @4% of A				18907.20
	TOTAL B				18907.20
	TOTAL (A+B)				491587.20
	Overhead & Profit @15%				73738.08
	TOTAL				565325.28
	Labours cess@1%				5653.25
	TOTAL				570978.53
	Add 18% of GST				102776.14
	TOTAL				673755.00

3.7.5 400KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4441	400 KVA	Nos.	1	585000	585000.00
	TOTAL				585000.00
	Cartage@ 1% of A				5850.00
	TOTAL A				590850.000
	(B) LABOUR				
	ITC @4% of A				23634.00
	TOTAL B				23634.00
	TOTAL (A+B)				614484.00
	Overhead & Profit @15%				92172.60
	TOTAL				706656.60
	Labours cess@1%				7066.57
	TOTAL				713723.17
	Add 18% of GST				128470.17
	TOTAL				842193.00

3.7.6 630KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4442	630 KVA	Nos.	1	737100	737100.00
	TOTAL				737100.00
	Cartage@ 1% of A				7371.00
	TOTAL A				744471.000
	(B) LABOUR				
	ITC @4% of A				29778.84

TOTAL B	29778.84
TOTAL (A+B)	774249.84
Overhead & Profit @15%	116137.48
TOTAL	890387.32
Labours cess@1%	8903.87
TOTAL	899291.19
Add 18% of GST	161872.41
TOTAL	1061164.00

- 3.8 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender), 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked. Fitting and Accessories: The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel**

breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.8.1 200KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4443	200 KVA	Nos.	1	262080	262080.00
	TOTAL				262080.00
	Cartage@ 1% of A				2620.80
	TOTAL A				264700.800
	(B) LABOUR				
	ITC @4% of A				10588.03
	TOTAL B				10588.03
	TOTAL (A+B)				275288.83
	Overhead & Profit @15%				41293.32
	TOTAL				316582.16
	Labours cess@1%				3165.82
	TOTAL				319747.98
	Add 18% of GST				57554.64
	TOTAL				377303.00

3.8.2 250KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4444	250 KVA	Nos.	1	327600	327600.00
	TOTAL				327600.00
	Cartage@ 1% of A				3276.00
	TOTAL A				330876.000

(B) LABOUR	
ITC @4% of A	13235.04
TOTAL B	13235.04
TOTAL (A+B)	344111.04
Overhead & Profit @15%	51616.66
TOTAL	395727.70
Labours cess@1%	3957.28
TOTAL	399684.97
Add 18% of GST	71943.30
TOTAL	471628.00

3.8.3 315KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4445	315 KVA	Nos.	1	412776	412776.00
	TOTAL				412776.00
	Cartage@ 1% of A				4127.76
	TOTAL A				416903.760
	(B) LABOUR				
	ITC @4% of A				16676.15
	TOTAL B				16676.15
	TOTAL (A+B)				433579.91
	Overhead & Profit @15%				65036.99
	TOTAL				498616.90
	Labours cess@1%				4986.17
	TOTAL				503603.07
	Add 18% of GST				90648.55
	TOTAL				594252.00

3.8.4 400KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4446	400 KVA	Nos.	1	524160	524160.00
	TOTAL				524160.00
	Cartage@ 1% of A				5241.60
	TOTAL A				529401.600
	(B) LABOUR				
	ITC @4% of A				21176.06
	TOTAL B				21176.06
	TOTAL (A+B)				550577.66
	Overhead & Profit @15%				82586.65
	TOTAL				633164.31
	Labours cess@1%				6331.64
	TOTAL				639495.96
	Add 18% of GST				115109.27
	TOTAL				754605.00

3.8.5 500KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4447	500 KVA	Nos.	1	655200	655200.00
	TOTAL				655200.00
	Cartage@ 1% of A				6552.00
	TOTAL A				661752.000
	(B) LABOUR				
	ITC @4% of A				26470.08
	TOTAL B				26470.08
	TOTAL (A+B)				688222.08
	Overhead & Profit @15%				103233.31
	TOTAL				791455.39
	Labours cess@1%				7914.55
	TOTAL				799369.95
	Add 18% of GST				143886.59
	TOTAL				943257.00

3.8.6 630KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4448	630 KVA	Nos.	1	825552	825552.00
	TOTAL				825552.00
	Cartage@ 1% of A				8255.52
	TOTAL A				833807.520
	(B) LABOUR				
	ITC @4% of A				33352.30
	TOTAL B				33352.30
	TOTAL (A+B)				867159.82
	Overhead & Profit @15%				130073.97
	TOTAL				997233.79
	Labours cess@1%				9972.34
	TOTAL				1007206.13
	Add 18% of GST				181297.10
	TOTAL				1188503.00

- 3.9 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm**

XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg. C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked. Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.9.1 200KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4449	200 KVA	Nos.	1	327600	327600.00
	TOTAL				327600.00
	Cartage@ 1% of A				3276.00
	TOTAL A				330876.000
	(B) LABOUR				
	ITC @4% of A				13235.04
	TOTAL B				13235.04
	TOTAL (A+B)				344111.04
	Overhead & Profit @15%				51616.66
	TOTAL				395727.70
	Labours cess@1%				3957.28
	TOTAL				399684.97
	Add 18% of GST				71943.30
	TOTAL				471628.00

3.9.2 250KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4450	250 KVA	Nos.	1	409500	409500.00
	TOTAL				409500.00
	Cartage@ 1% of A				4095.00
	TOTAL A				413595.000
	(B) LABOUR				
	ITC @4% of A				16543.80
	TOTAL B				0.0016543.80
	TOTAL (A+B)				430138.80
	Overhead & Profit @15%				64520.82
	TOTAL				494659.62
	Labours cess@1%				4946.60
	TOTAL				499606.22
	Add 18% of GST				89929.12
	TOTAL				589535.00

3.9.3 315KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4451	315 KVA	Nos.	1	515970	515970.00
	TOTAL				515970.00
	Cartage@ 1% of A				5159.70
	TOTAL A				521129.700
	(B) LABOUR				
	ITC @4% of A				20845.19
	TOTAL B				20845.19

TOTAL (A+B)	541974.89
Overhead & Profit @15%	81296.23
TOTAL	623271.12
Labours cess@1%	6232.71
TOTAL	629503.83
Add 18% of GST	113310.69
TOTAL	742815.00

3.9.4 400KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4452	400 KVA	Nos.	1	655200	655200.00
	TOTAL				655200.00
	Cartage@ 1% of A				6552.00
	TOTAL A				661752.000
	(B) LABOUR				
	ITC @4% of A				26470.08
	TOTAL B				26470.08
	TOTAL (A+B)				688222.08
	Overhead & Profit @15%				103233.31
	TOTAL				791455.39
	Labours cess@1%				7914.55
	TOTAL				799369.95
	Add 18% of GST				143886.59
	TOTAL				943257.00

3.9.5 500KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4453	500 KVA	Nos.	1	819000	819000.00
	TOTAL				819000.00
	Cartage@ 1% of A				8190.00
	TOTAL A				827190.000
	(B) LABOUR				
	ITC @4% of A				33087.60
	TOTAL B				33087.60
	TOTAL (A+B)				860277.60
	Overhead & Profit @15%				129041.64
	TOTAL				989319.24
	Labours cess@1%				9893.19
	TOTAL				999212.43
	Add 18% of GST				179858.24
	TOTAL				1179071.00

3.9.6 630KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4454	630 KVA	Nos.	1	1031940	1031940.00
	TOTAL				1031940.00
	Cartage@ 1% of A				10319.40
	TOTAL A				1042259.400
	(B) LABOUR				
	ITC @4% of A				41690.38
	TOTAL B				41690.38
	TOTAL (A+B)				1083949.78
	Overhead & Profit @15%				162592.47
	TOTAL				1246542.24
	Labours cess@1%				12465.42
	TOTAL				1259007.66
	Add 18% of GST				226621.38
	TOTAL				1485629.00

- 3.10 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg. C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits**

as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.10.1 63KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4455	63 KVA	Nos.	1	73710	73710.00
	TOTAL				73710.00
	Cartage@ 1% of A				737.10
	TOTAL A				74447.100
	(B) LABOUR				
	ITC @4% of A				2977.88
	TOTAL B				2977.88
	TOTAL (A+B)				77424.98
	Overhead & Profit @15%				11613.75
	TOTAL				89038.73
	Labours cess@1%				890.39
	TOTAL				89929.12
	Add 18% of GST				16187.24
	TOTAL				106116.00

3.10.2 100KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4456	100 KVA	Each	1	117000	117000.00
	TOTAL				117000.00
	Cartage@ 1% of A				1170.00
	TOTAL A				118170.000
	(B) LABOUR				
	ITC @4% of A				4726.80
	TOTAL B				4726.80
	TOTAL (A+B)				122896.80
	Overhead & Profit @15%				18434.52
	TOTAL				141331.32
	Labours cess@1%				1413.31
	TOTAL				142744.63
	Add 18% of GST				25694.03
	TOTAL				168439.00

3.10.3 100KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4457	100 KVA	Nos.	1	187200	187200.00
	TOTAL				187200.00
	Cartage@ 1% of A				1872.00
	TOTAL A				189072.000
	(B) LABOUR				
	ITC @4% of A				7562.88
	TOTAL B				7562.88
	TOTAL (A+B)				196634.88
	Overhead & Profit @15%				29495.23
	TOTAL				226130.11
	Labours cess@1%				261.30
	TOTAL				228391.41
	Add 18% of GST				41110.45
	TOTAL				269502.00

- 3.11 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm**

XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked. Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.11.1 63KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4458	63 KVA	Nos.	1	82555.2	82555.20
	TOTAL				82555.20
	Cartage@ 1% of A				825.55
	TOTAL A				83380.752
	(B) LABOUR				
	ITC @4% of A				3335.23
	TOTAL B				3335.23
	TOTAL (A+B)				86715.98
	Overhead & Profit @15%				13007.40
	TOTAL				99723.38
	Labours cess@1%				997.23
	TOTAL				100720.61
	Add 18% of GST				18129.71
	TOTAL				118850.00

3.11.2 100KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4459	100 KVA	Each	1	131040	131040.00
	TOTAL				131040.00
	Cartage@ 1% of A				1310.40
	TOTAL A				132350.400
	(B) LABOUR				
	ITC @4% of A				5294.02
	TOTAL B				5294.02
	TOTAL (A+B)				137644.42
	Overhead & Profit @15%				20646.66
	TOTAL				158291.08
	Labours cess@1%				1582.91
	TOTAL				159873.99
	Add 18% of GST				28777.32
	TOTAL				188651.00

3.11.3 160KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4460	160 KVA	Each	1	209664	209664.00
	TOTAL				209664.00
	Cartage@ 1% of A				2096.64
	TOTAL A				211760.640
	(B) LABOUR				
	ITC @4% of A				8470.43

TOTAL B	8470.43
TOTAL (A+B)	220231.07
Overhead & Profit @15%	33034.66
TOTAL	253265.73
Labours cess@1%	2532.66
TOTAL	255798.38
Add 18% of GST	46043.71
TOTAL	301842.00

- 3.12 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site . The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked. Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably**

steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.12.1 63KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4461	63 KVA	Nos.	1	103194	103194.00
	TOTAL				103194.00
	Cartage@ 1% of A				1031.94
	TOTAL A				104225.940
	(B) LABOUR				
	ITC @4% of A				4169.04
	TOTAL B				4169.04
	TOTAL (A+B)				108394.98
	Overhead & Profit @15%				16259.25
	TOTAL				124654.22
	Labours cess@1%				1246.54
	TOTAL				125900.77
	Add 18% of GST				22662.14
	TOTAL				148563.00

3.12.2 100KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4462	100 KVA	Each	1	163800	163800.00
	TOTAL				163800.00
	Cartage@ 1% of A				1638.00
	TOTAL A				165438.000
	(B) LABOUR				

ITC @4% of A	6617.52
TOTAL B	6617.52
TOTAL (A+B)	172055.52
Overhead & Profit @15%	25808.33
TOTAL	197863.85
Labours cess@1%	1978.64
TOTAL	199842.49
Add 18% of GST	35971.65
TOTAL	235814.00

3.12.3 160KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4463	160 KVA	Nos.	1	262080	262080.00
	TOTAL				262080.00
	Cartage@ 1% of A				2620.80
	TOTAL A				264700.800
	(B) LABOUR				
	ITC @4% of A				10588.03
	TOTAL B				10588.03
	TOTAL (A+B)				275288.83
	Overhead & Profit @15%				41293.32
	TOTAL				316582.16
	Labours cess@1%				3165.82
	TOTAL				319747.98
	Add 18% of GST				57554.64
	TOTAL				377303.00

33/0.433 KV, 3 Phase, 50 Hz outdoor/ indoor mounting (Synthetic organic Ester oil filled)

- 3.13 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 33/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site . The maximum flux density in any

part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.13.1 500KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4464	500 KVA	Nos.	1	974058.75	974058.75
	TOTAL				974058.75
	Cartage@ 1% of A				9740.59
	TOTAL A				983799.338
	(B) LABOUR				
	ITC @4% of A				39351.97
	TOTAL B				39351.97
	TOTAL (A+B)				1023151.31
	Overhead & Profit @15%				153472.70
	TOTAL				1176624.01
	Labours cess@1%				11766.24
	TOTAL				1188390.25
	Add 18% of GST				213910.24
	TOTAL				1402300.49

3.13.2 630KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4465	630 KVA	Nos.	1	1227314.03	1227314.03
	TOTAL				1227314.03
	Cartage@ 1% of A				12273.14
	TOTAL A				1239587.165
	(B) LABOUR				
	ITC @4% of A				49583.49
	TOTAL B				49583.49
	TOTAL (A+B)				1289170.65
	Overhead & Profit @15%				193375.60
	TOTAL				1482546.25
	Labours cess@1%				14825.46
	TOTAL				1497371.71
	Add 18% of GST				269526.91
	TOTAL				1766899.00

3.13.3 1000KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4466	1000 KVA	Nos.	1	1472500	1472500.00
	TOTAL				1472500.00
	Cartage@ 1% of A				14725.00
	TOTAL A				1487225.000
	(B) LABOUR				
	ITC @4% of A				59489.00

TOTAL B	59489.00
TOTAL (A+B)	1546714.00
Overhead & Profit @15%	232007.10
TOTAL	1778721.10
Labours cess@1%	17787.21
TOTAL	1796508.31
Add 18% of GST	323371.50
TOTAL	2119880.00

3.13.4 1250KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4467	1250 KVA	Nos.	1	1840625	1840625.00
	TOTAL				1840625.00
	Cartage@ 1% of A				18406.25
	TOTAL A				1859031.250
	(B) LABOUR				
	ITC @4% of A				74361.25
	TOTAL B				74361.25
	TOTAL (A+B)				1933392.50
	Overhead & Profit @15%				290008.88
	TOTAL				2223401.38
	Labours cess@1%				22234.01
	TOTAL				2245635.39
	Add 18% of GST				404214.37
	TOTAL				2649850.00

3.13.5 1600KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4468	1600 KVA	Nos.	1	2356000	2356000.00
	TOTAL				2356000.00
	Cartage@ 1% of A				23560.00
	TOTAL A				2379560.000
	(B) LABOUR				
	ITC @4% of A				95182.40
	TOTAL B				95182.40
	TOTAL (A+B)				2474742.40
	Overhead & Profit @15%				371211.36
	TOTAL				2845953.76
	Labours cess@1%				28459.54
	TOTAL				2874413.30
	Add 18% of GST				517394.39
	TOTAL				3391808.00

3.13.6 2000KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4469	2000 KVA	Nos.	1	2945000	2945000.00
	TOTAL				2945000.00
	Cartage@ 1% of A				29450.00
	TOTAL A				2974450.000
	(B) LABOUR				
	ITC @4% of A				118978.00
	TOTAL B				118978.00
	TOTAL (A+B)				3093428.00
	Overhead & Profit @15%				464014.20
	TOTAL				3557442.20
	Labours cess@1%				35574.42
	TOTAL				3593016.62
	Add 18% of GST				646742.99
	TOTAL				4239760.00

3.13.7 2500KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4470	2500 KVA	Nos.	1	3681250	3681250.00
	TOTAL				3681250.00
	Cartage@ 1% of A				36812.50
	TOTAL A				3718062.500
	(B) LABOUR				
	ITC @4% of A				148722.50
	TOTAL B				148722.50
	TOTAL (A+B)				3866785.00
	Overhead & Profit @15%				580017.75
	TOTAL				4446802.75
	Labours cess@1%				44468.03
	TOTAL				4491270.78
	Add 18% of GST				808428.74
	TOTAL				5299700.00

- 3.14** Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 33/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%,

having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover

z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.14.1 500KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4471	500 KVA	Nos.	1	1168870.5	1168870.50
	TOTAL				1168870.50
	Cartage@ 1% of A				11688.71
	TOTAL A				1180559.205
	(B) LABOUR				
	ITC @4% of A				47222.37
	TOTAL B				47222.37
	TOTAL (A+B)				1227781.57
	Overhead & Profit @15%				184167.24
	TOTAL				1411948.81
	Labours cess@1%				14119.49
	TOTAL				1426068.30
	Add 18% of GST				256692.29
	TOTAL				1682761.00

3.14.2 630KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4472	630 KVA	Each	1	1472776.83	1472776.83
	TOTAL				1472776.83
	Cartage@ 1% of A				14727.77
	TOTAL A				1487504.598
	(B) LABOUR				
	ITC @4% of A				59500.18
	TOTAL B				59500.18
	TOTAL (A+B)				1547004.78
	Overhead & Profit @15%				232050.72
	TOTAL				1779055.50
	Labours cess@1%				17790.55
	TOTAL				1796846.05
	Add 18% of GST				323432.29
	TOTAL				2120278.00

3.14.3 1000KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4473	1000 KVA	Each	1	1767000	1767000.00
	TOTAL				1767000.00
	Cartage@ 1% of A				17670.00

TOTAL A	1784670.000
(B) LABOUR	
ITC @4% of A	71386.80
TOTAL B	71386.80
TOTAL (A+B)	1856056.80
Overhead & Profit @15%	278408.52
TOTAL	2134465.32
Labours cess@1%	21344.65
TOTAL	2155809.97
Add 18% of GST	388045.80
TOTAL	2543856.00

3.14.4 1250KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4474	1250 KVA	Nos.	1	2208750	2208750.00
	TOTAL				2208750.00
	Cartage@ 1% of A				22087.50
	TOTAL A				2230837.500
	(B) LABOUR				
	ITC @4% of A				89233.50
	TOTAL B				89233.50
	TOTAL (A+B)				2320071.00
	Overhead & Profit @15%				348010.65
	TOTAL				2668081.65
	Labours cess@1%				26680.82
	TOTAL				2694762.47
	Add 18% of GST				485057.24
	TOTAL				3179820.00

3.14.5 1600KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4475	1600 KVA	Nos.	1	2827200	2827200.00
	TOTAL				2827200.00
	Cartage@ 1% of A				28272.00
	TOTAL A				2855472.000
	(B) LABOUR				
	ITC @4% of A				114218.88
	TOTAL B				114218.88
	TOTAL (A+B)				2969690.88
	Overhead & Profit @15%				445453.63
	TOTAL				3415144.51
	Labours cess@1%				34151.45
	TOTAL				3449295.96
	Add 18% of GST				620873.27
	TOTAL				4070169.00

3.14.6 2000KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4476	2000 KVA	Nos.	1	3534000	3534000.00
	TOTAL				3534000.00
	Cartage@ 1% of A				35340.00
	TOTAL A				3569340.000
	(B) LABOUR				
	ITC @4% of A				142773.60
	TOTAL B				142773.60
	TOTAL (A+B)				3712113.60
	Overhead & Profit @15%				556817.04
	TOTAL				4268930.64
	Labours cess@1%				42689.31
	TOTAL				4311619.95
	Add 18% of GST				776091.59
	TOTAL				5087712.00

3.14.7 2500KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4477	2500 KVA	Nos.	1	4417500	4417500.00
	TOTAL				4417500.00
	Cartage@ 1% of A				44175.00
	TOTAL A				4461675.000
	(B) LABOUR				
	ITC @4% of A				178467.00
	TOTAL B				178467.00
	TOTAL (A+B)				4640142.00
	Overhead & Profit @15%				696021.30
	TOTAL				5336163.30
	Labours cess@1%				53361.63
	TOTAL				5389524.93
	Add 18% of GST				970114.49
	TOTAL				6359639.00

- 3.15 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 33/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade, including bus trunking arrangement on LV side including supplying and**

laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be conforming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all

transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.15.1 500KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4478	500 KVA	Nos.	1	1363682.25	1363682.25
	TOTAL				1363682.25
	Cartage@ 1% of A				13636.82
	TOTAL A				1377319.073
	(B) LABOUR				
	ITC @4% of A				55092.76
	TOTAL B				55092.76
	TOTAL (A+B)				1432411.84
	Overhead & Profit @15%				214861.78
	TOTAL				1647273.61
	Labours cess@1%				16472.74
	TOTAL				1663746.35
	Add 18% of GST				299474.34
	TOTAL				1963221.00

3.15.2 630KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4479	630 KVA	Each	1	1718239.64	1718239.64
	TOTAL				1718239.64
	Cartage@ 1% of A				17182.40
	TOTAL A				1735422.031
	(B) LABOUR				
	ITC @4% of A				69416.88
	TOTAL B				69416.88
	TOTAL (A+B)				1804838.91
	Overhead & Profit @15%				270725.84
	TOTAL				2075564.75
	Labours cess@1%				20755.65
	TOTAL				2096320.40
	Add 18% of GST				377337.67
	TOTAL				2473658.00

3.15.3 1000KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4480	1000 KVA	Nos.	1	2061500	2061500.00
	TOTAL				2061500.00
	Cartage@ 1% of A				20615.00

TOTAL A	2082115.000
(B) LABOUR	
ITC @4% of A	83284.60
TOTAL B	83284.60
TOTAL (A+B)	2165399.60
Overhead & Profit @15%	324809.94
TOTAL	2490209.54
Labours cess@1%	24902.10
TOTAL	2515111.64
Add 18% of GST	452720.09
TOTAL	2967832.00

3.15.4 1250KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4481	1250 KVA	Nos.	1	2576875	2576875.00
	TOTAL				2576875.00
	Cartage@ 1% of A				25768.75
	TOTAL A				2602643.750
	(B) LABOUR				
	ITC @4% of A				104105.75
	TOTAL B				104105.75
	TOTAL (A+B)				2706749.50
	Overhead & Profit @15%				406012.43
	TOTAL				3112761.93
	Labours cess@1%				31127.62
	TOTAL				3143889.54
	Add 18% of GST				565900.12
	TOTAL				3709790.00

3.15.5 1600KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4482	1600 KVA	Each	1	3298400	3298400.00
	TOTAL				3298400.00
	Cartage@ 1% of A				32984.00
	TOTAL A				3331384.000
	(B) LABOUR				
	ITC @4% of A				133255.36
	TOTAL B				133255.36
	TOTAL (A+B)				3464639.36
	Overhead & Profit @15%				519695.90
	TOTAL				3984335.26
	Labours cess@1%				39843.35
	TOTAL				4024178.62
	Add 18% of GST				724352.15
	TOTAL				4748531.00

3.15.6 2000KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4483	2000 KVA	Nos.	1	4123000	4123000.00
	TOTAL				4123000.00
	Cartage@ 1% of A				41230.00
	TOTAL A				4164230.000
	(B) LABOUR				
	ITC @4% of A				166569.20
	TOTAL B				166569.20
	TOTAL (A+B)				4330799.20
	Overhead & Profit @15%				649619.88
	TOTAL				4980419.08
	Labours cess@1%				49804.19
	TOTAL				5030223.27
	Add 18% of GST				905440.19
	TOTAL				5935663.00

3.15.7 2500KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4484	2500 KVA	Each	1	5153750	5153750.00
	TOTAL				5153750.00
	Cartage@ 1% of A				51537.50
	TOTAL A				5205287.500
	(B) LABOUR				
	ITC @4% of A				208211.50
	TOTAL B				208211.50
	TOTAL (A+B)				5413499.00
	Overhead & Profit @15%				812024.85
	TOTAL				6225523.85
	Labours cess@1%				62255.24
	TOTAL				6287779.09
	Add 18% of GST				1131800.24
	TOTAL				7419579.00

- 3.16 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV**

grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be conforming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all

transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.16.1 1000 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4485	1000 KVA	Nos.	1	1282500	1282500.00
	TOTAL				1282500.00
	Cartage@ 1% of A				12825.00
	TOTAL A				1295325.000
	(B) LABOUR				
	ITC @4% of A				51813.00
	TOTAL B				51813.00
	TOTAL (A+B)				1347138.00
	Overhead & Profit @15%				202070.70
	TOTAL				1549208.70
	Labours cess@1%				15492.09
	TOTAL				1564700.79
	Add 18% of GST				281646.14
	TOTAL				1846347.00

3.16.2 1250 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4486	1250 KVA	Each	1	1603125	1603125.00
	TOTAL				1603125.00
	Cartage@ 1% of A				16031.25
	TOTAL A				1619156.250
	(B) LABOUR				
	ITC @4% of A				64766.25
	TOTAL B				64766.25
	TOTAL (A+B)				1683922.50
	Overhead & Profit @15%				252588.38
	TOTAL				1936510.88
	Labours cess@1%				19365.11
	TOTAL				1955875.98
	Add 18% of GST				352057.68
	TOTAL				2307934.00

3.16.3 1000KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4487	1000 KVA	Nos.	1	2052000	2052000.00
	TOTAL				2052000.00
	Cartage@ 1% of A				20520.00

TOTAL A	2072520.000
(B) LABOUR	
ITC @4% of A	82900.80
TOTAL B	82900.80
TOTAL (A+B)	2155420.80
Overhead & Profit @15%	323313.12
TOTAL	2478733.92
Labours cess@1%	24787.34
TOTAL	2503521.26
Add 18% of GST	450633.83
TOTAL	2954155.00

3.16.4 1600 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4488	1600 KVA	Nos.	1	2565000	2565000.00
	TOTAL				2565000.00
	Cartage@ 1% of A				25650.00
	TOTAL A				2590650.000
	(B) LABOUR				
	ITC @4% of A				103626.00
	TOTAL B				103626.00
	TOTAL (A+B)				2694276.00
	Overhead & Profit @15%				404141.40
	TOTAL				3098417.40
	Labours cess@1%				30984.17
	TOTAL				3129401.57
	Add 18% of GST				563292.28
	TOTAL				3692694.00

- 3.17 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications**

complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.17.1 1000KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4489	1000 KVA	Nos.	1	1539000	1539000.00
	TOTAL				1539000.00
	Cartage@ 1% of A				15390.00
	TOTAL A				1554390.000
	(B) LABOUR				
	ITC @4% of A				62175.60
	TOTAL B				62175.60
	TOTAL (A+B)				1616565.60
	Overhead & Profit @15%				242484.84
	TOTAL				1859050.44
	Labours cess@1%				18590.50
	TOTAL				1877640.94
	Add 18% of GST				337975.37
	TOTAL				2215616.00

3.17.2 1250KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4490	1250 KVA	Each	1	1923750	1923750.00
	TOTAL				1923750.00
	Cartage@ 1% of A				19237.50
	TOTAL A				1942987.500
	(B) LABOUR				
	ITC @4% of A				77719.50
	TOTAL B				77719.50
	TOTAL (A+B)				2020707.00
	Overhead & Profit @15%				303106.05
	TOTAL				2323813.05
	Labours cess@1%				23238.13
	TOTAL				2347051.18
	Add 18% of GST				422469.21
	TOTAL				2769520.00

3.17.3 1600KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4491	1600 KVA	Nos.	1	1923750	2462400.00
	TOTAL				2462400.00
	Cartage@ 1% of A				24624.00
	TOTAL A				2487024.000
	(B) LABOUR				
	ITC @4% of A				99480.96
	TOTAL B				99480.96

TOTAL (A+B)	2586504.96
Overhead & Profit @15%	387975.74
TOTAL	2974480.70
Labours cess@1%	29744.81
TOTAL	3004225.51
Add 18% of GST	540760.59
TOTAL	3544986.00

3.17.4 2000KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4492	2000 KVA	Nos.	1	3078000	3078000.00
	TOTAL				3078000.00
	Cartage@ 1% of A				30780.00
	TOTAL A				3108780.000
	(B) LABOUR				
	ITC @4% of A				124351.20
	TOTAL B				124351.20
	TOTAL (A+B)				3233131.20
	Overhead & Profit @15%				484969.68
	TOTAL				3718100.88
	Labours cess@1%				37181.01
	TOTAL				3755281.89
	Add 18% of GST				675950.74
	TOTAL				4431233.00

- 3.18 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45**

dg. C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.18.1 1000KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4493	1000 KVA	Nos.	1	1795500	1795500.00
	TOTAL				1795500.00
	Cartage@ 1% of A				
	TOTAL A				17955.00
	(B) LABOUR				1813455.000

ITC @4% of A	72538.20
TOTAL B	72538.20
TOTAL (A+B)	1885993.20
Overhead & Profit @15%	282898.98
TOTAL	2168892.18
Labours cess@1%	21688.92
TOTAL	2190581.10
Add 18% of GST	394304.60
TOTAL	2584886.00

3.18.2 1250KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4494	1250 KVA	Each	1	2244375	2244375.00
	TOTAL				2244375.00
	Cartage@ 1% of A				22443.75
	TOTAL A				2266818.750
	(B) LABOUR				
	ITC @4% of A				90672.75
	TOTAL B				90672.75
	TOTAL (A+B)				2357491.50
	Overhead & Profit @15%				353623.73
	TOTAL				2711115.23
	Labours cess@1%				27111.15
	TOTAL				2738226.38
	Add 18% of GST				492880.75
	TOTAL				3231107.00

3.18.3 1600KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4495	1600 KVA	Nos.	1	2872800	2872800.00
	TOTAL				2872800.00
	Cartage@ 1% of A				28728.00
	TOTAL A				2901528.000
	(B) LABOUR				
	ITC @4% of A				116061.12
	TOTAL B				116061.12
	TOTAL (A+B)				3017589.12
	Overhead & Profit @15%				452638.37
	TOTAL				3470227.49
	Labours cess@1%				34702.27
	TOTAL				3504929.76
	Add 18% of GST				630887.36
	TOTAL				4135817.00

3.18.4 2000KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4496	2000 KVA	Nos.	1	3591000	3591000.00
	TOTAL				3591000.00
	Cartage@ 1% of A				35910.00
	TOTAL A				3626910.000
	(B) LABOUR				
	ITC @4% of A				145076.40
	TOTAL B				145076.40
	TOTAL (A+B)				3771986.40
	Overhead & Profit @15%				565797.96
	TOTAL				4337784.36
	Labours cess@1%				43377.84
	TOTAL				4381162.20
	Add 18% of GST				788609.20
	TOTAL				5169771.00

- 3.19** Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C,

b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.19.1 200KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4497	200 KVA	Nos.	1	247000	247000.00
	TOTAL				247000.00
	Cartage@ 1% of A				2470.00
	TOTAL A				249470.000
	(B) LABOUR				
	ITC @4% of A				9978.80
	TOTAL B				9978.80
	TOTAL (A+B)				259448.80
	Overhead & Profit @15%				38917.32

TOTAL	298366.12
Labours cess@1%	2983.66
TOTAL	301349.78
Add 18% of GST	54242.96
TOTAL	355593.00

3.19.2 250KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4498	250 KVA	Nos.	1	308750	308750.00
	TOTAL				308750.00
	Cartage@ 1% of A				3087.50
	TOTAL A				311837.500
	(B) LABOUR				
	ITC @4% of A				12473.50
	Khallasi	day	0.00	663.00	0.00
	TOTAL B				12473.50
	TOTAL (A+B)				324311.00
	Overhead & Profit @15%				48646.65
	TOTAL				372957.65
	Labours cess@1%				3729.58
	TOTAL				376687.23
	Add 18% of GST				67803.70
	TOTAL				444491.00

3.19.3 315 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4499	315 KVA	Nos.	1	389025	389025.00
	TOTAL				389025.00
	Cartage@ 1% of A				3890.25
	TOTAL A				392915.250
	(B) LABOUR				
	ITC @4% of A				15716.61
	TOTAL B				15716.61
	TOTAL (A+B)				408631.86
	Overhead & Profit @15%				61294.78
	TOTAL				469926.64
	Labours cess@1%				4699.27
	TOTAL				474625.91
	Add 18% of GST				85432.66
	TOTAL				560059.00

3.19.4 400 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4500	400 KVA	Nos.	1	494000	494000.00
	TOTAL				494000.00
	Cartage@ 1% of A				4940.00
	TOTAL A				498940.000
	(B) LABOUR				
	ITC @4% of A				19957.60
	TOTAL B				19957.60
	TOTAL (A+B)				518897.60
	Overhead & Profit @15%				77834.64
	TOTAL				596732.24
	Labours cess@1%				5967.32
	TOTAL				602699.56
	Add 18% of GST				108485.92
	TOTAL				711185.00

3.19.45 500 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4501	500 KVA	Nos.	1	617500	617500.00
	TOTAL				617500.00
	Cartage@ 1% of A				6175.00
	TOTAL A				623675.000
	(B) LABOUR				
	ITC @4% of A				24947.00
	TOTAL B				24947.00
	TOTAL (A+B)				648622.00
	Overhead & Profit @15%				97293.30
	TOTAL				745915.30
	Labours cess@1%				7459.15
	TOTAL				753374.45
	Add 18% of GST				135607.40
	TOTAL				888982.00

3.19.5 630 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4502	630 KVA	Nos.	1	778050	778050.00
	TOTAL				778050.00
	Cartage@ 1% of A				7780.50
	TOTAL A				785830.500
	(B) LABOUR				
	ITC @4% of A				31433.22

TOTAL B	31433.22
TOTAL (A+B)	817263.72
Overhead & Profit @15%	122589.56
TOTAL	939853.28
Labours cess@1%	9398.53
TOTAL	949251.81
Add 18% of GST	170865.33
TOTAL	1120117.00

- 3.20** Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

3.20.1 200 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4503	200 KVA	Nos.	1	276640	276640.00
	TOTAL				276640.00
	Cartage@ 1% of A				2766.40
	TOTAL A				279406.400
	(B) LABOUR				
	ITC @4% of A				11176.26
	TOTAL B				11176.26
	TOTAL (A+B)				290582.66
	Overhead & Profit @15%				43587.40
	TOTAL				334170.05
	Labours cess@1%				3341.70
	TOTAL				337511.75
	Add 18% of GST				60752.12
	TOTAL				398264.00

3.20.2 250 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4504	250 KVA	Each	1	345800	345800.00
	TOTAL				345800.00
	Cartage@ 1% of A				3458.00
	TOTAL A				349258.000
	(B) LABOUR				
	ITC @4% of A				13970.32
	TOTAL B				13970.32
	TOTAL (A+B)				363228.32
	Overhead & Profit @15%				54484.25
	TOTAL				417712.57
	Labours cess@1%				4177.13
	TOTAL				421889.69
	Add 18% of GST				75940.14
	TOTAL				497830.00

3.20.3 315 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4505	315 KVA	Nos.	1	435708	435708.00
	TOTAL				435708.00
	Cartage@ 1% of A				4357.08
	TOTAL A				440065.080
	(B) LABOUR				
	ITC @4% of A				17602.60
	TOTAL B				17602.60

TOTAL (A+B)	457667.68
Overhead & Profit @15%	68650.15
TOTAL	526317.84
Labours cess@1%	5263.18
TOTAL	531581.01
Add 18% of GST	95684.58
TOTAL	627266.00

3.20.4 400 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4506	400 KVA	Each	1	553280	553280.00
	TOTAL				553280.00
	Cartage@ 1% of A				5532.80
	TOTAL A				558812.800
	(B) LABOUR				
	ITC @4% of A				22352.51
	TOTAL B				22352.51
	TOTAL (A+B)				581165.31
	Overhead & Profit @15%				87174.80
	TOTAL				668340.11
	Labours cess@1%				6683.40
	TOTAL				675023.51
	Add 18% of GST				121504.23
	TOTAL				796528.00

3.20.5 500 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4507	500 KVA	Nos.	1	691600	691600.00
	TOTAL				691600.00
	Cartage@ 1% of A				6916.00
	TOTAL A				698516.000
	(B) LABOUR				
	ITC @4% of A				27940.64
	TOTAL B				27940.64
	TOTAL (A+B)				726456.64
	Overhead & Profit @15%				108968.50
	TOTAL				835425.14
	Labours cess@1%				8354.25
	TOTAL				843779.39
	Add 18% of GST				151880.29
	TOTAL				995660.00

3.20.6 630 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4508	630 KVA	Each	1	871416	871416.00
	TOTAL				871416.00
	Cartage@ 1% of A				8714.16
	TOTAL A				880130.160
	(B) LABOUR				
	ITC @4% of A				35205.21
	TOTAL B				35205.21
	TOTAL (A+B)				915335.37
	Overhead & Profit @15%				137300.30
	TOTAL				1052635.67
	Labours cess@1%				10526.36
	TOTAL				1063162.03
	Add 18% of GST				191369.17
	TOTAL				1254531.00

- 3.21** Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C,

b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.21.1 200 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4509	200 KVA	Nos.	1	345800	345800.00
	TOTAL				345800.00
	Cartage@ 1% of A				3458.00
	TOTAL A				349258.000
	(B) LABOUR				
	ITC @4% of A				13970.32
	TOTAL B				13970.32
	TOTAL (A+B)				363228.32
	Overhead & Profit @15%				54484.25
	TOTAL				417712.57
	Labours cess@1%				4177.13

TOTAL	421889.69
Add 18% of GST	75940.14
TOTAL	497830.00

3.21.2 250 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4510	250 KVA	Each	1	432250	432250.00
	TOTAL				432250.00
	Cartage@ 1% of A				4322.50
	TOTAL A				436572.500
	(B) LABOUR				
	ITC @4% of A				17462.90
	TOTAL B				17462.90
	TOTAL (A+B)				454035.40
	Overhead & Profit @15%				68105.31
	TOTAL				522140.71
	Labours cess@1%				5221.41
	TOTAL				527362.12
	Add 18% of GST				94925.18
	TOTAL				622287.00

3.21.3 315 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4511	315 KVA	Each	1	544635	544635.00
	TOTAL				544635.00
	Cartage@ 1% of A				5446.35
	TOTAL A				550081.350
	(B) LABOUR				
	ITC @4% of A				22003.25
	TOTAL B				22003.25
	TOTAL (A+B)				572084.60
	Overhead & Profit @15%				85812.69
	TOTAL				657897.29
	Labours cess@1%				6578.97
	TOTAL				664476.27
	Add 18% of GST				119605.73
	TOTAL				784082.00

3.21.4 400 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4512	400 KVA	Nos.	1	691600	691600.00
	TOTAL				691600.00
	Cartage@ 1% of A				6916.00

TOTAL A	698516.000
(B) LABOUR	
ITC @4% of A	27940.64
TOTAL B	27940.64
TOTAL (A+B)	726456.64
Overhead & Profit @15%	108968.50
TOTAL	835425.14
Labours cess@1%	8354.25
TOTAL	843779.39
Add 18% of GST	151880.29
TOTAL	995660.00

3.21.5 500 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4513	500 KVA	Nos.	1	864500	864500.00
	TOTAL				864500.00
	Cartage@ 1% of A				8645.00
	TOTAL A				873145.000
	(B) LABOUR				
	ITC @4% of A				34925.80
	TOTAL B				34925.80
	TOTAL (A+B)				908070.80
	Overhead & Profit @15%				136210.62
	TOTAL				1044281.42
	Labours cess@1%				10442.81
	TOTAL				1054724.23
	Add 18% of GST				189850.36
	TOTAL				1244575.00

3.21.6 630 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4514	630 KVA	Nos.	1	1089270	1089270.00
	TOTAL				1089270.00
	Cartage@ 1% of A				10892.70
	TOTAL A				1100162.700
	(B) LABOUR				
	ITC @4% of A				44006.51
	TOTAL B				44006.51
	TOTAL (A+B)				1144169.21
	Overhead & Profit @15%				171625.38
	TOTAL				1315794.59
	Labours cess@1%				13157.95
	TOTAL				1328952.54
	Add 18% of GST				239211.46
	TOTAL				1568164.00

3.22 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA);

m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.22.1 63 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4515	63 KVA	Nos.	1	77805	77805.00
	TOTAL				77805.00
	Cartage@ 1% of A				778.05
	TOTAL A				78583.050
	(B) LABOUR				
	ITC @4% of A				3143.32
	TOTAL B				3143.32
	TOTAL (A+B)				81726.37
	Overhead & Profit @15%				12258.96
	TOTAL				93985.33
	Labours cess@1%				939.85
	TOTAL				94925.18
	Add 18% of GST				17086.53
	TOTAL				112012.00

3.22.2 100 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4516	100 KVA	Each	1	123500	123500.00
	TOTAL				123500.00
	Cartage@ 1% of A				1235.00
	TOTAL A				124735.000
	(B) LABOUR				
	ITC @4% of A				4989.40
	TOTAL B				4989.40
	TOTAL (A+B)				129724.40
	Overhead & Profit @15%				19458.66
	TOTAL				149183.06
	Labours cess@1%				1491.83

TOTAL	150674.89
Add 18% of GST	27121.48
TOTAL	177796.00

3.22.3 160 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4517	160 KVA	Nos.	1	197600	197600.00
	TOTAL				197600.00
	Cartage@ 1% of A				1976.00
	TOTAL A				199576.000
	(B) LABOUR				
	ITC @4% of A				7983.04
	TOTAL B				7983.04
	TOTAL (A+B)				207559.04
	Overhead & Profit @15%				31133.86
	TOTAL				238692.90
	Labours cess@1%				2386.93
	TOTAL				241079.82
	Add 18% of GST				43394.37
	TOTAL				284474.00

- 3.23** Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint

thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.23.1 63 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4518	63 KVA	Nos.	1	87141.6	87141.60
	TOTAL				87141.60
	Cartage@ 1% of A				871.42
	TOTAL A				88013.016
	(B) LABOUR				
	ITC @4% of A				3520.52
	TOTAL B				3520.52
	TOTAL (A+B)				91533.54
	Overhead & Profit @15%				13730.03

TOTAL	105263.57
Labours cess@1%	1052.64
TOTAL	106316.20
Add 18% of GST	19136.92
TOTAL	125453.00

3.23.2 100 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4519	100 KVA	Each	1	138320	138320.00
	TOTAL				138320.00
	Cartage@ 1% of A				1383.20
	TOTAL A				139703.200
	(B) LABOUR				
	ITC @4% of A				5588.13
	TOTAL B				5588.13
	TOTAL (A+B)				145291.33
	Overhead & Profit @15%				21793.70
	TOTAL				167085.03
	Labours cess@1%				1670.85
	TOTAL				168755.88
	Add 18% of GST				30376.06
	TOTAL				199132.00

3.23.3 160 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4520	160 KVA	Nos.	1	221312	221312.00
	TOTAL				221312.00
	Cartage@ 1% of A				2213.12
	TOTAL A				223525.120
	(B) LABOUR				
	ITC @4% of A				8941.00
	TOTAL B				8941.00
	TOTAL (A+B)				232466.12
	Overhead & Profit @15%				34869.92
	TOTAL				267336.04
	Labours cess@1%				2673.36
	TOTAL				270009.40
	Add 18% of GST				48601.69
	TOTAL				318611.00

3.24 Supply, installation, testing and commissioning of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth);

o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

3.24.1 63 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4521	63 KVA	Nos.	1	108927	108927.00
	TOTAL				108927.00
	Cartage@ 1% of A				1089.27
	TOTAL A				110016.270
	(B) LABOUR				
	ITC @4% of A				4400.65
	TOTAL B				4400.65
	TOTAL (A+B)				114416.92
	Overhead & Profit @15%				17162.54
	TOTAL				131579.46
	Labours cess@1%				1315.79
	TOTAL				132895.25
	Add 18% of GST				23921.15
	TOTAL				156816.00

3.24.2 100 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4522	100 KVA	Each	1	172900	172900.00
	TOTAL				172900.00
	Cartage@ 1% of A				1729.00
	TOTAL A				174629.000
	(B) LABOUR				
	ITC @4% of A				6985.16
	TOTAL B				6985.16
	TOTAL (A+B)				181614.16
	Overhead & Profit @15%				27242.12
	TOTAL				208856.28
	Labours cess@1%				2088.56
	TOTAL				210944.85
	Add 18% of GST				37970.07
	TOTAL				248915.00

3.24.3 160 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4523	160 KVA	Nos.	1	276640	276640.00
	TOTAL				276640.00
	Cartage@ 1% of A				2766.40
	TOTAL A				279406.400
	(B) LABOUR				
	ITC @4% of A				11176.26
	TOTAL B				11176.26
	TOTAL (A+B)				290582.66
	Overhead & Profit @15%				43587.40
	TOTAL				334170.05
	Labours cess@1%				3341.70
	TOTAL				337511.75
	Add 18% of GST				60752.12
	TOTAL				398264.00

DRY Type**33/0.433 KV, 3 Phase, 50 Hz Indoor mounting**

- 3.25 Supply, installation, testing and commissioning of following capacity (continuous loading) 33/0.433 KV Delta/Star,step down, 3 Phase, 50 Hz, Dyn 11 vector group, Cast Resin / VPI (vacuum pressure impregnated) Dry Type, copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better) AN (air natural) cooled transformer suitable for indoor applications with On Load Tap Changer (OLTC) on HV side having AVS relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote/manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, insulation class F (minimum), suitable for environment conditions class E4, suitable for fire behaviour class F1,climate class-C1, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade with necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers, bus trunking arrangement on LV side complete with all accessories and safety provisions as per relevant IS Code, The transformer shall be provided with standard fittings/accessories as per relevant IS and mentioned below, protection alarm/trip protection, 3 nos. of Polymeric Zinc Oxide surge Arrestors on HV Side. Winding Temperature scanner (Digital) with alarm/Trip contacts with RTD Sensors per LV winding and space for mounting differential protection CT's in LV chamber with neutral brought out separately including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/HT Panel for safety tripping, complete as confirming to IS-2026 Part-11, i/c supplying and grouting of suitable M.S. Channel with all accessories ,complete in all respects as required at site as per CPWD specifications. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. All testing shall as**

per relevant IS Code. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Rating and terminal marking plates; c) Thermometer pocket with cap; d) Lifting lugs for the complete transformer as well as for core and winding assembly; e) Bi-directional flat rollers (for transformers above 200 kVA); f) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); g) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. for transformers up to 200 kVA; h) Bird guard; i) Jacking pads (for transformer above 1 600 kVA); j) Name Rating & Diagram Plate. k) Monogram Plate.i) Additional neutral seperately brought out on bushing for earthing.

Note : The permissible total losses value shall not exceed by 15% the losses as mentioned below.

3.25.1 1000 KVA (losses at 50% loading < 3000watt, losses at 100% loading < 9000watt)					
ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4524	1000 KVA (losses at 50% loading < 3000 watt, losses at 100% loading < 9000 watt)	Nos.	1	1665000	1665000.00
	TOTAL				1665000.00
	Cartage@ 1% of A				16650.00
	TOTAL A				1681650.000
	(B) LABOUR				
	ITC @4% of A				67266.00
	TOTAL B				67266.00
	TOTAL (A+B)				1748916.00
	Overhead & Profit @15%				262337.40
	TOTAL				2011253.40
	Labours cess@1%				20112.53
	TOTAL				2031365.93
	Add 18% of GST				365645.87
	TOTAL				2397012.00
3.25.2 1250 KVA (losses at 50% loading < 3600watt, losses at 100% loading < 10750watt)					
ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4525	1250 KVA (losses at 50% loading < 3600watt, losses at 100% loading < 10750watt)	Nos.	1	2081250	2081250.00
	TOTAL				2081250.00
	Cartage@ 1% of A				20812.50
	TOTAL A				2102062.500
	(B) LABOUR				
	ITC @4% of A				84082.50
	TOTAL B				84082.50

TOTAL (A+B)	2186145.00
Overhead & Profit @15%	327921.75
TOTAL	2514066.75
Labours cess@1%	25140.67
TOTAL	2539207.42
Add 18% of GST	457057.34
TOTAL	2996265.00

3.25.3 1600 KVA (losses at 50% loading < 4500watt, losses at 100% loading < 13500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4526	1600 KVA (losses at 50% loading < 4500watt, losses at 100% loading < 13500watt)	Nos.	1	2664000	2664000.00
	TOTAL				2664000.00
	Cartage@ 1% of A				26640.00
	TOTAL A				2690640.000
	(B) LABOUR				
	ITC @4% of A				107625.60
	TOTAL B				107625.60
	TOTAL (A+B)				2798265.60
	Overhead & Profit @15%				419739.84
	TOTAL				3218005.44
	Labours cess@1%				32180.05
	TOTAL				3250185.49
	Add 18% of GST				585033.39
	TOTAL				3835219.00

3.25.4 2000 KVA (losses at 50% loading < 5400watt, losses at 100% loading < 17000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4527	2000 KVA (losses at 50% loading < 5400watt, losses at 100% loading < 17000watt)	Nos.	1	3330000	3330000.00
	TOTAL				3330000.00
	Cartage@ 1% of A				33300.00
	TOTAL A				3363300.000
	(B) LABOUR				
	ITC @4% of A				134532.00
	TOTAL B				134532.00
	TOTAL (A+B)				3497832.00
	Overhead & Profit @15%				524674.80
	TOTAL				4022506.80
	Labours cess@1%				40225.07
	TOTAL				4062731.87
	Add 18% of GST				731291.74
	TOTAL				4794024.00

3.25.5 2500 KVA (losses at 50% loading < 6500watt, losses at 100% loading < 20000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4528	2500 KVA (losses at 50% loading < 6500watt, losses at 100% loading < 20000watt)	Nos.	1	4162500	4162500.00
	TOTAL				4162500.00
	Cartage@ 1% of A				41625.00
	TOTAL A				4204125.000
	(B) LABOUR				
	ITC @4% of A				168165.00
	TOTAL B				168165.00
	TOTAL (A+B)				4372290.00
	Overhead & Profit @15%				655843.50
	TOTAL				5028133.50
	Labours cess@1%				50281.34
	TOTAL				5078414.84
	Add 18% of GST				914114.67
	TOTAL				5992530.00

3.25.6 1000 KVA (losses at 50% loading < 2790watt, losses at 100% loading < 7700watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4529	1000 KVA (losses at 50% loading < 2790watt, losses at 100% loading < 7700watt)	Nos.	1	1914750	1914750.00
	TOTAL				1914750.00
	Cartage@ 1% of A				19147.50
	TOTAL A				1933897.500
	(B) LABOUR				
	ITC @4% of A				77355.90
	Khallasi	day	0.00	663.00	0.00
	TOTAL B				77355.90
	TOTAL (A+B)				2011253.40
	Overhead & Profit @15%				301688.01
	TOTAL				2312941.41
	Labours cess@1%				23129.41
	TOTAL				2336070.82
	Add 18% of GST				420492.75
	TOTAL				2756564.00

3.25.7 1250 KVA (losses at 50% loading < 3300watt, losses at 100% loading < 9200watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4530	1250 KVA (losses at 50% loading < 3300watt, losses at 100% loading < 9200watt)	Nos.	1	2393437.5	2393437.50
	TOTAL				2393437.50
	Cartage@ 1% of A				23934.38
	TOTAL A				2417371.875
	(B) LABOUR				
	ITC @4% of A				96694.88
	TOTAL B				96694.88
	TOTAL (A+B)				2514066.75
	Overhead & Profit @15%				377110.01
	TOTAL				2891176.76
	Labours cess@1%				28911.77
	TOTAL				2920088.53
	Add 18% of GST				525615.94
	TOTAL				3445704.00

3.25.8 1600 KVA (losses at 50% loading < 4200watt, losses at 100% loading < 11800watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4531	1600 KVA (losses at 50% loading < 4200watt, losses at 100% loading < 11800watt)	Nos.	1	3063600	3063600.00
	TOTAL				3063600.00
	Cartage@ 1% of A				30636.00
	TOTAL A				3094236.000
	(B) LABOUR				
	ITC @4% of A				123769.44
	TOTAL B				123769.44
	TOTAL (A+B)				3218005.44
	Overhead & Profit @15%				482700.82
	TOTAL				3700706.26
	Labours cess@1%				37007.06
	TOTAL				3737713.32
	Add 18% of GST				672788.40
	TOTAL				4410502.00

3.25.9 1600 KVA (losses at 50% loading < 4200watt, losses at 100% loading < 11800watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4532	2000 KVA (losses at 50% loading < 5050watt, losses at 100% loading < 15000watt)	Nos.	1	3829500	3829500.00

TOTAL	3829500.00
Cartage@ 1% of A	38295.00
TOTAL A	3867795.000
(B) LABOUR	
ITC @4% of A	154711.80
TOTAL B	154711.80
TOTAL (A+B)	4022506.80
Overhead & Profit @15%	603376.02
TOTAL	4625882.82
Labours cess@1%	46258.83
TOTAL	4672141.65
Add 18% of GST	840985.50
TOTAL	5513127.00

3.25.10 2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading < 18500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4533	2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading < 18500watt)	Nos.	1	4786875	4786875.00
	TOTAL				4786875.00
	Cartage@ 1% of A				47868.75
	TOTAL A				4834743.750
	(B) LABOUR				
	ITC @4% of A				193389.75
	TOTAL B				193389.75
	TOTAL (A+B)				5028133.50
	Overhead & Profit @15%				754220.03
	TOTAL				5782353.53
	Labours cess@1%				57823.54
	TOTAL				5840177.06
	Add 18% of GST				1051231.87
	TOTAL				6891409.00

3.25.11 2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading < 18500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4534	2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading < 18500watt)	Nos.	1	2164500	2164500.00
	TOTAL				2164500.00
	Cartage@ 1% of A				21645.00
	TOTAL A				2186145.000
	(B) LABOUR				
	ITC @4% of A				87445.80
	TOTAL B				87445.80
	TOTAL (A+B)				2273590.80

Overhead & Profit @15%	341038.62
TOTAL	2614629.42
Labours cess@1%	26146.29
TOTAL	2640775.71
Add 18% of GST	475339.63
TOTAL	3116115.00

3.25.12 1250 KVA (losses at 50% loading < 3220watt, losses at 100% loading < 8400watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4535	1250 KVA (losses at 50% loading < 3220watt, losses at 100% loading < 8400watt)	Nos.	1	2705625	2705625.00
	TOTAL				2705625.00
	Cartage@ 1% of A				27056.25
	TOTAL A				2732681.250
	(B) LABOUR				
	ITC @4% of A				109307.25
	TOTAL B				109307.25
	TOTAL (A+B)				2841988.50
	Overhead & Profit @15%				426298.28
	TOTAL				3268286.78
	Labours cess@1%				32682.87
	TOTAL				3300969.64
	Add 18% of GST				594174.54
	TOTAL				3895144.00

3.25.13 1600 KVA (losses at 50% loading < 3970watt, losses at 100% loading < 11300watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4536	1600 KVA (losses at 50% loading < 3970watt, losses at 100% loading < 11300watt)	Nos.	1	3463200	3463200.00
	TOTAL				3463200.00
	Cartage@ 1% of A				34632.00
	TOTAL A				3497832.000
	(B) LABOUR				
	ITC @4% of A				139913.28
	TOTAL B				139913.28
	TOTAL (A+B)				3637745.28
	Overhead & Profit @15%				545661.79
	TOTAL				4183407.07
	Labours cess@1%				41834.07
	TOTAL				4225241.14
	Add 18% of GST				760543.41
	TOTAL				4985785.00

3.25.14 2000 KVA (losses at 50% loading < 4790watt, losses at 100% loading < 14100watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4537	2000 KVA (losses at 50% loading < 4790watt, losses at 100% loading < 14100watt)	Nos.	1	4329000	4329000.00
	TOTAL				4329000.00
	Cartage@ 1% of A				43290.00
	TOTAL A				4372290.000
	(B) LABOUR				
	ITC @4% of A				174891.60
	TOTAL B				174891.60
	TOTAL (A+B)				4547181.60
	Overhead & Profit @15%				682077.24
	TOTAL				5229258.84
	Labours cess@1%				52292.59
	TOTAL				5281551.43
	Add 18% of GST				950679.26
	TOTAL				6232231.00

3.25.15 2500 KVA (losses at 50% loading < 5900watt, losses at 100% loading < 17500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4538	2500 KVA (losses at 50% loading < 5900watt, losses at 100% loading < 17500watt)	Nos.	1	5411250	5411250.00
	TOTAL				5411250.00
	Cartage@ 1% of A				54112.50
	TOTAL A				5465362.500
	(B) LABOUR				
	ITC @4% of A				218614.50
	TOTAL B				218614.50
	TOTAL (A+B)				5683977.00
	Overhead & Profit @15%				852596.55
	TOTAL				6536573.55
	Labours cess@1%				65365.74
	TOTAL				6601939.29
	Add 18% of GST				1188349.07
	TOTAL				7790288.00

33/0.433 KV, 3 Phase, 50 Hz Outdoor mounting

- 3.26 Supply, installation, testing and commissioning of following capacity (continuous loading) 33/0.433 KV Delta/Star,step down, 3 Phase, 50 Hz, Dyn 11 vector group, Cast Resin / VPI (vacuum pressure impregnated) Dry Type, copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better) AN (air natural) cooled transformer suitable for Outdoor applications with enclosure, On Load Tap**

Changer (OLTC) on HV side having AVS relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote/ manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, insulation class F (minimum), suitable for environment conditions class E4, suitable for fire behaviour class F1, climate class-C1, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade with necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers, bus trunking arrangement on LV side complete with all accessories and safety provisions as per relevant IS Code, The transformer shall be provided with standard fittings/accessories as per relevant IS and mentioned below, protection alarm/trip protection, 3 nos. of Polymeric Zinc Oxide surge Arrestors on HV Side. Winding Temperature scanner (Digital) with alarm/Trip contacts with RTD Sensors per LV winding and space for mounting differential protection CT's in LV chamber with neutral brought out separately including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/HT Panel for safety tripping, complete as confirming to IS-2026 Part-11, i/c supplying and grouting of suitable M.S. Channel with all accessories, complete in all respects as required at site as per CPWD specifications. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. All testing shall as per relevant IS Code. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The enclosure shall also have Welded Door handle, Danger plate on HV and LV side doors, caution plate for tap links for HT doors, Door limit switch on both HV and LV side doors to be wired up to WTI box terminal for tripping the transformer in case door is opened with the enclosure transformer energized, Phase marking plates on HV and LV doors.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Rating and terminal marking plates; c) Thermometer pocket with cap; d) Lifting lugs for the complete transformer as well as for core and winding assembly; e) Bi-directional flat rollers (for transformers above 200 kVA); f) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); g) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. for transformers up to 200 kVA; h) Bird guard; i) Jacking pads (for transformer above 1600 kVA); j) Name Rating & Diagram Plate. k) Monogram Plate. i) Additional neutral separately brought out on bushing for earthing. **Note :** The permissible total losses value shall not exceed by 15% the losses as mentioned below.

3.26.1 1000 KVA (losses at 50% loading < 3000watt, losses at 100% loading < 9000watt)					
ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4539	1000 KVA (losses at 50% loading < 3000watt, losses at 100% loading < 9000watt)	Nos.	1	1757500	1757500.00
	TOTAL				1757500.00
	Cartage@ 1% of A				17575.00

TOTAL A	1775075.000
(B) LABOUR	
ITC @4% of A	71003.00
TOTAL B	71003.00
TOTAL (A+B)	1846078.00
Overhead & Profit @15%	276911.70
TOTAL	2122989.70
Labours cess@1%	21229.90
TOTAL	2144219.60
Add 18% of GST	385959.53
TOTAL	2530179.00

3.26.2 1250 KVA (losses at 50% loading < 3600watt, losses at 100% loading < 10750watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4540	2500 KVA (losses at 50% loading < 5900watt, losses at 100% loading < 17500watt)	Nos.	1	2196875	2196875.00
	TOTAL				2196875.00
	Cartage@ 1% of A				21968.75
	TOTAL A				2218843.750
	(B) LABOUR				
	ITC @4% of A				88753.75
	TOTAL B				88753.75
	TOTAL (A+B)				2307597.50
	Overhead & Profit @15%				346139.63
	TOTAL				2653737.13
	Labours cess@1%				26537.37
	TOTAL				2680274.50
	Add 18% of GST				482449.41
	TOTAL				3162724.00

3.26.3 1600 KVA (losses at 50% loading < 4500watt, losses at 100% loading < 13500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4541	1600 KVA (losses at 50% loading < 4500watt, losses at 100% loading < 13500watt)	Nos.	1	2812000	2812000.00
	TOTAL				2812000.00
	Cartage@ 1% of A				28120.00
	TOTAL A				2840120.000
	(B) LABOUR				
	ITC @4% of A				113604.80
	TOTAL B				113604.80
	TOTAL (A+B)				2953724.80
	Overhead & Profit @15%				443058.72
	TOTAL				3396783.52

Labours cess@1%	33967.84
TOTAL	3430751.36
Add 18% of GST	617535.24
TOTAL	4048287.00

3.26.4 2000 KVA (losses at 50% loading < 5400watt, losses at 100% loading < 17000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4542	2000 KVA (losses at 50% loading < 5400watt, losses at 100% loading < 17000watt)	Nos.	1	3515000	3515000.00
	TOTAL				3515000.00
	Cartage@ 1% of A				35150.00
	TOTAL A				3550150.000
	(B) LABOUR				
	ITC @4% of A				142006.00
	TOTAL B				142006.00
	TOTAL (A+B)				3692156.00
	Overhead & Profit @15%				553823.40
	TOTAL				4245979.40
	Labours cess@1%				42459.79
	TOTAL				4288439.19
	Add 18% of GST				771919.05
	TOTAL				5060358.00

3.26.5 2500 KVA (losses at 50% loading < 6500watt, losses at 100% loading < 20000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4543	2500 KVA (losses at 50% loading < 6500watt, losses at 100% loading < 20000watt)	Nos.	1	4393750	4393750.00
	TOTAL				4393750.00
	Cartage@ 1% of A				43937.50
	TOTAL A				4437687.500
	(B) LABOUR				
	ITC @4% of A				177507.50
	TOTAL B				177507.50
	TOTAL (A+B)				4615195.00
	Overhead & Profit @15%				692279.25
	TOTAL				5307474.25
	Labours cess@1%				53074.74
	TOTAL				5360548.99
	Add 18% of GST				964898.82
	TOTAL				6325448.00

3.26.6 1000 KVA (losses at 50% loading < 2790watt, losses at 100% loading < 7700watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4544	1000 KVA (losses at 50% loading < 2790watt, losses at 100% loading < 7700watt)	Nos.	1	2021125	2021125.00
	TOTAL				2021125.00
	Cartage@ 1% of A				20211.25
	TOTAL A				2041336.250
	(B) LABOUR				
	ITC @4% of A				81653.45
	Khallasi	day	0.00	663.00	0.00
	TOTAL B				81653.45
	TOTAL (A+B)				2122989.70
	Overhead & Profit @15%				318448.46
	TOTAL				2441438.16
	Labours cess@1%				24414.38
	TOTAL				2465852.54
	Add 18% of GST				443853.46
	TOTAL				2909706.00

3.26.7 1250 KVA (losses at 50% loading < 3300watt, losses at 100% loading < 9200watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4545	1250 KVA (losses at 50% loading < 3300watt, losses at 100% loading < 9200watt)	Nos.	1	2526406.25	2526406.25
	TOTAL				2526406.25
	Cartage@ 1% of A				25264.06
	TOTAL A				2551670.313
	(B) LABOUR				
	ITC @4% of A				102066.81
	TOTAL B				102066.81
	TOTAL (A+B)				2653737.13
	Overhead & Profit @15%				398060.57
	TOTAL				3051797.69
	Labours cess@1%				30517.98
	TOTAL				3082315.67
	Add 18% of GST				554816.82
	TOTAL				3637132.00

3.26.8 1600 KVA (losses at 50% loading < 4200watt, losses at 100% loading < 11800watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4546	1600 KVA (losses at 50% loading < 4200watt, losses at 100% loading < 11800watt)	Nos.	1	3233800	3233800.00

TOTAL	3233800.00
Cartage@ 1% of A	32338.00
TOTAL A	3266138.000
(B) LABOUR	
ITC @4% of A	130645.52
TOTAL B	130645.52
TOTAL (A+B)	3396783.52
Overhead & Profit @15%	509517.53
TOTAL	3906301.05
Labours cess@1%	39063.01
TOTAL	3945364.06
Add 18% of GST	710165.53
TOTAL	4655530.00

3.26.9 2000 KVA (losses at 50% loading < 5050watt, losses at 100% loading < 15000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4547	2000 KVA (losses at 50% loading < 5050watt, losses at 100% loading < 15000watt)	Nos.	1	4042250	4042250.00
	TOTAL				4042250.00
	Cartage@ 1% of A				40422.50
	TOTAL A				4082672.500
	(B) LABOUR				
	ITC @4% of A				163306.90
	TOTAL B				163306.90
	TOTAL (A+B)				4245979.40
	Overhead & Profit @15%				636896.91
	TOTAL				4882876.31
	Labours cess@1%				48828.76
	TOTAL				4931705.07
	Add 18% of GST				887706.91
	TOTAL				5819412.00

3.26.10 2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading < 18500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4548	2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading < 18500watt)	Nos.	1	5052812.5	5052812.50
	TOTAL				5052812.50
	Cartage@ 1% of A				50528.13
	TOTAL A				5103340.625
	(B) LABOUR				
	ITC @4% of A				204133.63
	TOTAL B				204133.63
	TOTAL (A+B)				5307474.25

Overhead & Profit @15%	796121.14
TOTAL	6103595.39
Labours cess@1%	61035.95
TOTAL	6164631.34
Add 18% of GST	1109633.64
TOTAL	7274265.00

3.26.11 1000 KVA (losses at 50% loading < 2620watt, losses at 100% loading < 7000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4549	1000 KVA (losses at 50% loading < 2620watt, losses at 100% loading < 7000watt)	Nos.	1	2284750	2284750.00
	TOTAL				2284750.00
	Cartage@ 1% of A				22847.50
	TOTAL A				2307597.500
	(B) LABOUR				
	ITC @4% of A				92303.90
	TOTAL B				92303.90
	TOTAL (A+B)				2399901.40
	Overhead & Profit @15%				359985.21
	TOTAL				2759886.61
	Labours cess@1%				27598.87
	TOTAL				2787485.48
	Add 18% of GST				501747.39
	TOTAL				3289233.00

3.26.12 1250 KVA (losses at 50% loading < 3220watt, losses at 100% loading < 8400watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4550	1250 KVA (losses at 50% loading < 3220watt, losses at 100% loading < 8400watt)	Nos.	1	2855937.5	2855937.50
	TOTAL				2855937.50
	Cartage@ 1% of A				28559.38
	TOTAL A				2884496.875
	(B) LABOUR				
	ITC @4% of A				115379.88
	TOTAL B				115379.88
	TOTAL (A+B)				2999876.75
	Overhead & Profit @15%				449981.51
	TOTAL				3449858.26
	Labours cess@1%				34498.58
	TOTAL				3484356.85
	Add 18% of GST				627184.23
	TOTAL				4111541.00

3.26.13 1600 KVA (losses at 50% loading < 3970watt, losses at 100% loading < 11300watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4551	1600 KVA (losses at 50% loading < 3970watt, losses at 100% loading < 11300watt)	Nos.	1	3655600	3655600.00
	TOTAL				3655600.00
	Cartage@ 1% of A				36556.00
	TOTAL A				3692156.000
	(B) LABOUR				
	ITC @4% of A				147686.24
	TOTAL B				147686.24
	TOTAL (A+B)				3839842.24
	Overhead & Profit @15%				575976.34
	TOTAL				4415818.58
	Labours cess@1%				44158.19
	TOTAL				4459976.76
	Add 18% of GST				802795.82
	TOTAL				5262773.00

3.26.14 2000 KVA (losses at 50% loading < 4790watt, losses at 100% loading < 14100watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4552	2000 KVA (losses at 50% loading < 4790watt, losses at 100% loading < 14100watt)	Nos.	1	4569500	4569500.00
	TOTAL				4569500.00
	Cartage@ 1% of A				45695.00
	TOTAL A				4615195.000
	(B) LABOUR				
	ITC @4% of A				184607.80
	TOTAL B				184607.80
	TOTAL (A+B)				4799802.80
	Overhead & Profit @15%				719970.42
	TOTAL				5519773.22
	Labours cess@1%				55197.73
	TOTAL				5574970.95
	Add 18% of GST				1003494.77
	TOTAL				6578466.00

3.26.15 2500 KVA (losses at 50% loading < 5900watt, losses at 100% loading < 17500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4553	2500 KVA (losses at 50% loading < 5900watt, losses at 100% loading < 17500watt)	Nos.	1	5711875	5711875.00

TOTAL	5711875.00
Cartage@ 1% of A	57118.75
TOTAL A	5768993.750
(B) LABOUR	
ITC @4% of A	230759.75
TOTAL B	230759.75
TOTAL (A+B)	5999753.50
Overhead & Profit @15%	899963.03
TOTAL	6899716.53
Labours cess@1%	68997.17
TOTAL	6968713.69
Add 18% of GST	1254368.46
TOTAL	8223082.00

11/0.433 KV, 3 Phase, 50 Hz Indoor mounting

- 3.27 Supply, installation, testing and commissioning of following capacity (continuous loading) 11/0.433 KV Delta/Star,step down, 3 Phase, 50 Hz, Dyn 11 vector group, Cast Resin / VPI (vacuum pressure impregnated) Dry Type, copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better) AN (air natural) cooled transformer suitable for indoor applications with On Load Tap Changer (OLTC) on HV side having AVS relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote/manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, insulation class F (minimum), suitable for environment conditions class E4, suitable for fire behaviour class F1,climate class-C1, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade with necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers, bus trunking arrangement on LV side complete with all accessories and safety provisions as per relevant IS Code ,The transformer shall be provided with standard fittings/accessories as per relevant IS and mentioned below, protection alarm/trip protection, 3 nos. of Polymeric Zinc Oxide surge Arrestors on HV Side. Winding Temperature scanner (Digital) with alarm/Trip contacts with RTD Sensors per LV winding and space for mounting differential protection CT's in LV chamber with neutral brought out separately including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/HT Panel for safety tripping, complete as confirming to IS-2026 Part-11, i/c supplying and grouting of suitable M.S. Channel with all accessories ,complete in all respects as required at site as per CPWD specifications . Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. All testing shall as per relevant IS Code. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Rating and terminal marking plates; c) Thermometer pocket with cap; d) Lifting lugs for the complete transformer as well as for core and winding assembly; e) Bi-directional flat rollers (for transformers above 200 kVA); f) HV side neutral grounding strip (where one of the

HV bushing terminal is connected to earth); g) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. for transformers up to 200 kVA; h) Bird guard; i) Jacking pads (for transformer above 1600 kVA); j) Name Rating & Diagram Plate. k) Monogram Plate.i) Additional neutral seperately brought out on bushing for earthing.

3.27.1 63 KVA (losses at 50% loading < 380watt, losses at 100% loading < 1250watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4555	63 KVA (losses at 50% loading < 380watt, losses at 100% loading < 1250watt)	Nos.	1	96390	96390.00
	TOTAL				96390.00
	Cartage@ 1% of A				963.90
	TOTAL A				97353.900
	(B) LABOUR				
	ITC @4% of A				3894.16
	TOTAL B				3894.16
	TOTAL (A+B)				101248.06
	Overhead & Profit @15%				15187.21
	TOTAL				116435.26
	Labours cess@1%				1164.35
	TOTAL				117599.62
	Add 18% of GST				21167.93
	TOTAL				138768.00

3.27.2 100 KVA (losses at 50% loading < 520watt, losses at 100% loading < 1800watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4556	100 KVA (losses at 50% loading < 520watt, losses at 100% loading < 1800watt)	Nos.	1	153000	153000.00
	TOTAL				153000.00
	Cartage@ 1% of A				1530.00
	TOTAL A				154530.000
	(B) LABOUR				
	ITC @4% of A				6181.20
	TOTAL B				6181.20
	TOTAL (A+B)				160711.20
	Overhead & Profit @15%				24106.68
	TOTAL				184817.88
	Labours cess@1%				1848.18
	TOTAL				186666.06
	Add 18% of GST				33599.89
	TOTAL				220266.00

3.27.3 160 KVA (losses at 50% loading <770watt, losses at 100% loading < 2200watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4557	160 KVA (losses at 50% loading <770watt, losses at 100% loading < 2200watt)	Nos.	1	244800	244800.00
	TOTAL				244800.00
	Cartage@ 1% of A				2448.00
	TOTAL A				247248.000
	(B) LABOUR				
	ITC @4% of A				9889.92
	TOTAL B				9889.92
	TOTAL (A+B)				257137.92
	Overhead & Profit @15%				38570.69
	TOTAL				295708.61
	Labours cess@1%				2957.09
	TOTAL				298665.69
	Add 18% of GST				3759.82
	TOTAL				352426.00

3.27.4 200 KVA (losses at 50% loading < 890watt, losses at 100% loading < 2700watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4558	100 KVA (losses at 50% loading < 520watt, losses at 100% loading < 1800watt)	Nos.	1	306000	306000.00
	TOTAL				306000.00
	Cartage@ 1% of A				3060.00
	TOTAL A				309060.000
	(B) LABOUR				
	ITC @4% of A				12362.40
	TOTAL B				12362.40
	TOTAL (A+B)				321422.40
	Overhead & Profit @15%				48213.36
	TOTAL				369635.76
	Labours cess@1%				3696.36
	TOTAL				373332.12
	Add 18% of GST				67199.78
	TOTAL				440532.00

3.27.5 250 KVA (losses at 50% loading < 1050watt, losses at 100% loading < 3150watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4559	250 KVA (losses at 50% loading < 1050watt, losses at 100% loading < 3150watt)	Nos.	1	382500	382500.00

TOTAL	382500.00
Cartage@ 1% of A	3825.00
TOTAL A	386325.000
(B) LABOUR	
ITC @4% of A	15453.00
Khallasi day 0.00 663.00	0.00
TOTAL B	15453.00
TOTAL (A+B)	401778.00
Overhead & Profit @15%	60266.70
TOTAL	462044.70
Labours cess@1%	4620.45
TOTAL	466665.15
Add 18% of GST	83999.73
TOTAL	550665.00

3.27.6 315 KVA (losses at 50% loading < 1100watt, losses at 100% loading < 3275watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4560	315 KVA (losses at 50% loading < 1100watt, losses at 100% loading < 3275watt)	Nos.	1	481950	481950.00
	TOTAL				481950.00
	Cartage@ 1% of A				4819.50
	TOTAL A				486769.500
	(B) LABOUR				
	ITC @4% of A				19470.78
	TOTAL B				19470.78
	TOTAL (A+B)				506240.28
	Overhead & Profit @15%				75936.04
	TOTAL				582176.32
	Labours cess@1%				5821.76
	TOTAL				587998.09
	Add 18% of GST				105839.66
	TOTAL				693838.00

3.27.7 400 KVA (losses at 50% loading < 1300watt, losses at 100% loading < 3875watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4561	400 KVA (losses at 50% loading < 1300watt, losses at 100% loading < 3875watt)	Nos.	1	612000	612000.00
	TOTAL				612000.00
	Cartage@ 1% of A				6120.00
	TOTAL A				618120.000
	(B) LABOUR				
	ITC @4% of A				24724.80
	TOTAL B				24724.80

TOTAL (A+B)	642844.80
Overhead & Profit @15%	96426.72
TOTAL	39271.52
Labours cess@1%	7392.72
TOTAL	746664.24
Add 18% of GST	134399.56
TOTAL	881064.00

3.27.8 500 KVA (losses at 50% loading < 1600watt, losses at 100% loading < 4750watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4562	500 KVA (losses at 50% loading < 1600watt, losses at 100% loading < 4750watt)	Nos.	1	765000	765000.00
	TOTAL				765000.00
	Cartage@ 1% of A				7650.00
	TOTAL A				772650.000
	(B) LABOUR				
	ITC @4% of A				30906.00
	TOTAL B				30906.00
	TOTAL (A+B)				803556.00
	Overhead & Profit @15%				120533.40
	TOTAL				924089.40
	Labours cess@1%				9240.89
	TOTAL				933330.29
	Add 18% of GST				167999.45
	TOTAL				1101330.00

3.27.9 630 KVA (losses at 50% loading < 2000watt, losses at 100% loading < 5855watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4563	630 KVA (losses at 50% loading < 2000watt, losses at 100% loading < 5855watt)	Nos.	1	963900	963900.00
	TOTAL				963900.00
	Cartage@ 1% of A				9639.00
	TOTAL A				973539.000
	(B) LABOUR				
	ITC @4% of A				38941.56
	TOTAL B				38941.56
	TOTAL (A+B)				1012480.56
	Overhead & Profit @15%				151872.08
	TOTAL				1164352.64
	Labours cess@1%				11643.53
	TOTAL				1175996.17
	Add 18% of GST				211679.31
	TOTAL				387675.00

3.27.10 1000 KVA (losses at 50% loading < 3000watt, losses at 100% loading < 9000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4564	1000 KVA (losses at 50% loading < 3000watt, losses at 100% loading < 9000watt)	Nos.	1	1530000	1530000.00
	TOTAL				1530000.00
	Cartage@ 1% of A				15300.00
	TOTAL A				1545300.000
	(B) LABOUR				
	ITC @4% of A				61812.00
	TOTAL B				61812.00
	TOTAL (A+B)				1607112.00
	Overhead & Profit @15%				241066.80
	TOTAL				1848178.80
	Labours cess@1%				18481.79
	TOTAL				1866660.59
	Add 18% of GST				335998.91
	TOTAL				2202659.00

3.27.11 1250 KVA (losses at 50% loading < 3600watt, losses at 100% loading < 10750watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4565	1250 KVA (losses at 50% loading < 3600watt, losses at 100% loading < 10750watt)	Nos.	1	1912500	1912500.00
	TOTAL				1912500.00
	Cartage@ 1% of A				19125.00
	TOTAL A				1931625.000
	(B) LABOUR				
	ITC @4% of A				77265.00
	TOTAL B				77265.00
	TOTAL (A+B)				2008890.00
	Overhead & Profit @15%				301333.50
	TOTAL				2310223.50
	Labours cess@1%				23102.24
	TOTAL				2333325.74
	Add 18% of GST				419998.63
	TOTAL				2753324.00

3.27.12 1600 KVA (losses at 50% loading < 4500watt, losses at 100% loading < 13500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4566	1600 KVA (losses at 50% loading < 4500watt, losses at 100% loading < 13500watt)	Nos.	1	2448000	2448000.00

TOTAL	2448000.00
Cartage@ 1% of A	24480.00
TOTAL A	2472480.000
(B) LABOUR	
ITC @4% of A	98899.20
TOTAL B	98899.20
TOTAL (A+B)	2571379.20
Overhead & Profit @15%	385706.88
TOTAL	2957086.08
Labours cess@1%	29570.86
TOTAL	2986656.94
Add 18% of GST	537598.25
TOTAL	3524255.00

3.27.13 2000 KVA (losses at 50% loading < 5400watt, losses at 100% loading < 17000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4567	2000 KVA (losses at 50% loading < 5400watt, losses at 100% loading < 17000watt)	Nos.	1	3060000	3060000.00
	TOTAL				3060000.00
	Cartage@ 1% of A				30600.00
	TOTAL A				3090600.000
	(B) LABOUR				
	ITC @4% of A				123624.00
	TOTAL B				123624.00
	TOTAL (A+B)				3214224.00
	Overhead & Profit @15%				482133.60
	TOTAL				3696357.60
	Labours cess@1%				36963.58
	TOTAL				3733321.18
	Add 18% of GST				671997.81
	TOTAL				4405319.00

3.27.14 2500 KVA (losses at 50% loading < 6500watt, losses at 100% loading < 20000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4568	2500 KVA (losses at 50% loading < 6500watt, losses at 100% loading < 20000watt)	Nos.	1	3825000	3825000.00
	TOTAL				3825000.00
	Cartage@ 1% of A				38250.00
	TOTAL A				3863250.000
	(B) LABOUR				
	ITC @4% of A				154530.00
	TOTAL B				154530.00

TOTAL (A+B)	4017780.00
Overhead & Profit @15%	602667.00
TOTAL	4620447.00
Labours cess@1%	46204.47
TOTAL	4666651.47
Add 18% of GST	839997.26
TOTAL	5506649.00

3.27.15 63 KVA (losses at 50% loading < 340watt, losses at 100% loading < 1140watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4569	63 KVA (losses at 50% loading < 340watt, losses at 100% loading < 1140watt)	Nos.	1	110848.5	110848.50
	TOTAL				110848.50
	Cartage@ 1% of A				1108.49
	TOTAL A				111956.985
	(B) LABOUR				
	ITC @4% of A				4478.28
	TOTAL B				4478.28
	TOTAL (A+B)				116435.26
	Overhead & Profit @15%				17465.29
	TOTAL				133900.55
	Labours cess@1%				1339.01
	TOTAL				135239.56
	Add 18% of GST				24343.12
	TOTAL				159583.00

3.27.16 100 KVA (losses at 50% loading <475watt, losses at 100% loading <1650watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4570	100 KVA (losses at 50% loading <475watt, losses at 100% loading <1650watt)	Nos.	1	175950	175950.00
	TOTAL				175950.00
	Cartage@ 1% of A				1759.50
	TOTAL A				177709.500
	(B) LABOUR				
	ITC @4% of A				7108.38
	TOTAL B				7108.38
	TOTAL (A+B)				184817.88
	Overhead & Profit @15%				27722.68
	TOTAL				212540.56
	Labours cess@1%				2125.41
	TOTAL				214665.97
	Add 18% of GST				38639.87
	TOTAL				253306.00

3.27.17 160 KVA (losses at 50% loading < 670watt, losses at 100% loading < 1950watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4571	160 KVA (losses at 50% loading < 670watt, losses at 100% loading < 1950watt)	Nos.	1	281520	281520.00
	TOTAL				281520.00
	Cartage@ 1% of A				2815.20
	TOTAL A				284335.200
	(B) LABOUR				
	ITC @4% of A				11373.41
	TOTAL B				11373.41
	TOTAL (A+B)				295708.61
	Overhead & Profit @15%				44356.29
	TOTAL				340064.90
	Labours cess@1%				3400.65
	TOTAL				343465.55
	Add 18% of GST				61823.80
	TOTAL				405289.00

3.27.18 200 KVA (losses at 50% loading < 780watt, losses at 100% loading <2300watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4572	200 KVA (losses at 50% loading < 780watt, losses at 100% loading <2300watt)	Nos.	1	351900	351900.00
	TOTAL				351900.00
	Cartage@ 1% of A				3519.00
	TOTAL A				355419.000
	(B) LABOUR				
	ITC @4% of A				14216.76
	TOTAL B				14216.76
	TOTAL (A+B)				369635.76
	Overhead & Profit @15%				55445.36
	TOTAL				425081.12
	Labours cess@1%				4250.81
	TOTAL				429331.94
	Add 18% of GST				77279.75
	TOTAL				506612.00

3.27.19 250 KVA (losses at 50% loading < 980watt, losses at 100% loading < 2930watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4573	250 KVA (losses at 50% loading < 980watt, losses at 100% loading < 2930watt)	Nos.	1	439875	439875.00

TOTAL	439875.00
Cartage@ 1% of A	4398.75
TOTAL A	444273.750
(B) LABOUR	
ITC @4% of A	17770.95
TOTAL B	17770.95
TOTAL (A+B)	462044.70
Overhead & Profit @15%	69306.71
TOTAL	531351.41
Labours cess@1%	5313.51
TOTAL	536664.92
Add 18% of GST	96599.69
TOTAL	633265.00

3.27.20 315 KVA (losses at 50% loading < 1025watt, losses at 100% loading < 3100watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4574	315 KVA (losses at 50% loading < 1025watt, losses at 100% loading < 3100watt)	Nos.	1	554242.5	554242.50
	TOTAL				554242.50
	Cartage@ 1% of A				5542.43
	TOTAL A				559784.925
	(B) LABOUR				
	ITC @4% of A				22391.40
	TOTAL B				22391.40
	TOTAL (A+B)				582176.32
	Overhead & Profit @15%				87326.45
	TOTAL				669502.77
	Labours cess@1%				6695.03
	TOTAL				676197.80
	Add 18% of GST				121715.60
	TOTAL				797913.00

3.27.21 400 KVA (losses at 50% loading < 1225watt, losses at 100% loading < 3450watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4575	400 KVA (losses at 50% loading < 1225watt, losses at 100% loading < 3450watt)	Nos.	1	703800	703800.00
	TOTAL				703800.00
	Cartage@ 1% of A				7038.00
	TOTAL A				710838.000
	(B) LABOUR				
	ITC @4% of A				28433.52
	TOTAL B				28433.52

TOTAL (A+B)	739271.52
Overhead & Profit @15%	110890.73
TOTAL	850162.25
Labours cess@1%	8501.62
TOTAL	858663.87
Add 18% of GST	154559.50
TOTAL	1013223.00

3.27.22 500 KVA (losses at 50% loading <1510watt, losses at 100% loading < 4300watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4576	500 KVA (losses at 50% loading <1510watt, losses at 100% loading < 4300watt)	Nos.	1	879750	879750.00
	TOTAL				879750.00
	Cartage@ 1% of A				8797.50
	TOTAL A				888547.500
	(B) LABOUR				
	ITC @4% of A				35541.90
	TOTAL B				35541.90
	TOTAL (A+B)				924089.40
	Overhead & Profit @15%				138613.41
	TOTAL				1062702.81
	Labours cess@1%				10627.03
	TOTAL				1073329.84
	Add 18% of GST				193199.37
	TOTAL				1266529.00

3.27.23 630 KVA (losses at 50% loading < 1860watt, losses at 100% loading < 5300watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4577	630 KVA (losses at 50% loading < 1860watt, losses at 100% loading < 5300watt)	Nos.	1	1108485	1108485.00
	TOTAL				1108485.00
	Cartage@ 1% of A				11084.85
	TOTAL A				1119569.850
	(B) LABOUR				
	ITC @4% of A				44782.79
	TOTAL B				44782.79
	TOTAL (A+B)				1164352.64
	Overhead & Profit @15%				174652.90
	TOTAL				1339005.54
	Labours cess@1%				13390.06
	TOTAL				1352395.60
	Add 18% of GST				243431.21
	TOTAL				1595827.00

3.27.24 1000 KVA (losses at 50% loading < 2790watt, losses at 100% loading < 7700watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4578	1000 KVA (losses at 50% loading < 2790watt, losses at 100% loading < 7700watt)	Nos.	1	1759500	1759500.00
	TOTAL				1759500.00
	Cartage@ 1% of A				17595.00
	TOTAL A				1777095.000
	(B) LABOUR				
	ITC @4% of A				71083.80
	TOTAL B				71083.80
	TOTAL (A+B)				1848178.80
	Overhead & Profit @15%				277226.82
	TOTAL				2125405.62
	Labours cess@1%				21254.06
	TOTAL				2146659.68
	Add 18% of GST				386398.74
	TOTAL				2533058.00

3.27.25 1250 KVA (losses at 50% loading < 3300watt, losses at 100% loading < 9200watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4579	1250 KVA (losses at 50% loading < 3300watt, losses at 100% loading < 9200watt)	Nos.	1	2199375	2199375.00
	TOTAL				2199375.00
	Cartage@ 1% of A				21993.75
	TOTAL A				2221368.750
	(B) LABOUR				
	ITC @4% of A				88854.75
	TOTAL B				88854.75
	TOTAL (A+B)				2310223.50
	Overhead & Profit @15%				346533.53
	TOTAL				2656757.03
	Labours cess@1%				26567.57
	TOTAL				2683324.60
	Add 18% of GST				482998.43
	TOTAL				3166323.00

3.27.26 1600 KVA (losses at 50% loading < 4200watt, losses at 100% loading < 11800watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4580	1600 KVA (losses at 50% loading < 4200watt, losses at 100% loading < 11800watt)	Nos.	1	2815200	2815200.00

TOTAL	2815200.00
Cartage@ 1% of A	28152.00
TOTAL A	2843352.000
(B) LABOUR	
ITC @4% of A	113734.08
TOTAL B	113734.08
TOTAL (A+B)	2957086.08
Overhead & Profit @15%	443562.91
TOTAL	3400648.99
Labours cess@1%	34006.49
TOTAL	3434655.48
Add 18% of GST	618237.99
TOTAL	4052893.00

3.27.27 2000 KVA (losses at 50% loading < 5050watt, losses at 100% loading < 15000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4581	2000 KVA (losses at 50% loading < 5050watt, losses at 100% loading < 15000watt)	Nos.	1	3519000	3519000.00
	TOTAL				3519000.00
	Cartage@ 1% of A				35190.00
	TOTAL A				3554190.000
	(B) LABOUR				
	ITC @4% of A				142167.60
	TOTAL B				142167.60
	TOTAL (A+B)				3696357.60
	Overhead & Profit @15%				554453.64
	TOTAL				4250811.24
	Labours cess@1%				42508.11
	TOTAL				4293319.35
	Add 18% of GST				772797.48
	TOTAL				5066117.00

3.27.28 2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading < 18500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4582	2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading < 18500watt)	Nos.	1	4398750	4398750.00
	TOTAL				4398750.00
	Cartage@ 1% of A				43987.50
	TOTAL A				4442737.500
	(B) LABOUR				
	ITC @4% of A				177709.50
	TOTAL B				177709.50

TOTAL (A+B)	4620447.00
Overhead & Profit @15%	693067.05
TOTAL	5313514.05
Labours cess@1%	53135.14
TOTAL	5366649.19
Add 18% of GST	965996.85
TOTAL	6332646.00

3.27.29 63 KVA (losses at 50% loading < 300watt, losses at 100% loading <1050watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4583	63 KVA (losses at 50% loading < 300watt, losses at 100% loading <1050watt)	Nos.	1	125307	125307.00
	TOTAL				125307.00
	Cartage@ 1% of A				1253.07
	TOTAL A				126560.070
	(B) LABOUR				
	ITC @4% of A				5062.40
	TOTAL B				5062.40
	TOTAL (A+B)				131622.47
	Overhead & Profit @15%				19743.37
	TOTAL				151365.84
	Labours cess@1%				1513.66
	TOTAL				152879.50
	Add 18% of GST				27518.31
	TOTAL				180398.00

3.27.30 100 KVA (losses at 50% loading < 435watt, losses at 100% loading < 1500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4584	100 KVA (losses at 50% loading < 435watt, losses at 100% loading < 1500watt)	Nos.	1	198900	198900.00
	TOTAL				198900.00
	Cartage@ 1% of A				1989.00
	TOTAL A				200889.000
	(B) LABOUR				
	ITC @4% of A				8035.56
	TOTAL B				8035.56
	TOTAL (A+B)				208924.56
	Overhead & Profit @15%				31338.68
	TOTAL				240263.24
	Labours cess@1%				2402.63
	TOTAL				242665.88
	Add 18% of GST				43679.86
	TOTAL				286346.00

3.27.31 160 KVA (losses at 50% loading < 570watt, losses at 100% loading <1700watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4585	160 KVA (losses at 50% loading < 570watt, losses at 100% loading <1700watt)	Nos.	1	318240	318240.00
	TOTAL				318240.00
	Cartage@ 1% of A				3182.40
	TOTAL A				321422.400
	(B) LABOUR				
	ITC @4% of A				12856.90
	TOTAL B				12856.90
	TOTAL (A+B)				334279.30
	Overhead & Profit @15%				50141.89
	TOTAL				384421.19
	Labours cess@1%				3844.21
	TOTAL				388265.40
	Add 18% of GST				69887.77
	TOTAL				458153.00

3.27.32 200 KVA(losses at 50% loading <670watt, losses at 100% loading < 2100watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4586	200 KVA(losses at 50% loading <670watt, losses at 100% loading < 2100watt)	Nos.	1	397800	397800.00
	TOTAL				397800.00
	Cartage@ 1% of A				3978.00
	TOTAL A				401778.000
	(B) LABOUR				
	ITC @4% of A				16071.12
	TOTAL B				16071.12
	TOTAL (A+B)				417849.12
	Overhead & Profit @15%				62677.37
	TOTAL				480526.49
	Labours cess@1%				4805.26
	TOTAL				485331.75
	Add 18% of GST				87359.72
	TOTAL				572691.00

3.27.33 250 KVA(losses at 50% loading < 920watt, losses at 100% loading < 2700watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4587	250 KVA(losses at 50% loading < 920watt, losses at 100% loading < 2700watt)	Nos.	1	497250	497250.00
	TOTAL				497250.00
	Cartage@ 1% of A				4972.50
	TOTAL A				502222.500
	(B) LABOUR				
	ITC @4% of A				20088.90
	TOTAL B				20088.90
	TOTAL (A+B)				522311.40
	Overhead & Profit @15%				78346.71
	TOTAL				600658.11
	Labours cess@1%				6006.58
	TOTAL				606664.69
	Add 18% of GST				109199.64
	TOTAL				715864.00

3.27.34 315 KVA (losses at 50% loading < 955watt, losses at 100% loading < 2750watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4588	315 KVA (losses at 50% loading < 955watt, losses at 100% loading < 2750watt)	Nos.	1	626535	626535.00
	TOTAL				626535.00
	Cartage@ 1% of A				6265.35
	TOTAL A				632800.350
	(B) LABOUR				
	ITC @4% of A				25312.01
	TOTAL B				5312.01
	TOTAL (A+B)				658112.36
	Overhead & Profit @15%				98716.85
	TOTAL				756829.22
	Labours cess@1%				7568.29
	TOTAL				764397.51
	Add 18% of GST				137591.55
	TOTAL				901989.00

3.27.35 400 KVA (losses at 50% loading < 1150watt, losses at 100% loading < 3330watt)					
ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4589	400 KVA (losses at 50% loading < 1150watt, losses at 100% loading < 3330watt)	Nos.	1	795600	795600.00
	TOTAL				795600.00
	Cartage@ 1% of A				7956.00
	TOTAL A				803556.000
	(B) LABOUR				
	ITC @4% of A				32142.24
	TOTAL B				32142.24
	TOTAL (A+B)				835698.24
	Overhead & Profit @15%				125354.74
	TOTAL				961052.98
	Labours cess@1%				9610.53
	TOTAL				970663.51
	Add 18% of GST				174719.43
	TOTAL				1145383.00

3.27.36 500 KVA (losses at 50% loading < 1430watt, losses at 100% loading < 4100watt)					
ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4590	500 KVA (losses at 50% loading < 1430watt, losses at 100% loading < 4100watt)	Nos.	1	994500	994500.00
	TOTAL				994500.00
	Cartage@ 1% of A				9945.00
	TOTAL A				1004445.000
	(B) LABOUR				
	ITC @4% of A				40177.80
	TOTAL B				40177.80
	TOTAL (A+B)				1044622.80
	Overhead & Profit @15%				156693.42
	TOTAL				1201316.22
	Labours cess@1%				12013.16
	TOTAL				213329.38
	Add 18% of GST				218399.29
	TOTAL				1431729.00

3.27.37 630 KVA (losses at 50% loading < 1745watt, losses at 100% loading < 4850watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4591	630 KVA (losses at 50% loading < 1745watt, losses at 100% loading < 4850watt)	Nos.	1	1253070	1253070.00
	TOTAL				1253070.00
	Cartage@ 1% of A				12530.70
	TOTAL A				1265600.700
	(B) LABOUR				
	ITC @4% of A				50624.03
	TOTAL B				50624.03
	TOTAL (A+B)				1316224.73
	Overhead & Profit @15%				197433.71
	TOTAL				1513658.44
	Labours cess@1%				15136.58
	TOTAL				1528795.02
	Add 18% of GST				275183.10
	TOTAL				1803978.00

3.27.38 1000 KVA (losses at 50% loading < 2620watt, losses at 100% loading < 7000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4592	1000 KVA (losses at 50% loading < 2620watt, losses at 100% loading < 7000watt)	Nos.	1	1989000	1989000.00
	TOTAL				1989000.00
	Cartage@ 1% of A				19890.00
	TOTAL A				2008890.000
	(B) LABOUR				
	ITC @4% of A				80355.60
	TOTAL B				80355.60
	TOTAL (A+B)				2089245.60
	Overhead & Profit @15%				313386.84
	TOTAL				2402632.44
	Labours cess@1%				24026.32
	TOTAL				2426658.76
	Add 18% of GST				436798.58
	TOTAL				2863457.00

3.27.39 1250 KVA (losses at 50% loading < 3220watt, losses at 100% loading < 8400watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4593	1250 KVA (losses at 50% loading < 3220watt, losses at 100% loading < 8400watt)	Nos.	1	2486250	2486250.00

TOTAL	2486250.00
Cartage@ 1% of A	24862.50
TOTAL A	2511112.500
(B) LABOUR	
ITC @4% of A	100444.50
TOTAL B	100444.50
TOTAL (A+B)	2611557.00
Overhead & Profit @15%	391733.55
TOTAL	3003290.55
Labours cess@1%	30032.91
TOTAL	3033323.46
Add 18% of GST	545998.22
TOTAL	3579322.00

3.27.40 1600 KVA (losses at 50% loading < 3970watt, losses at 100% loading < 11300watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4594	1600 KVA (losses at 50% loading < 3970watt, losses at 100% loading < 11300watt)	Nos.	1	3182400	3182400.00
	TOTAL				3182400.00
	Cartage@ 1% of A				31824.00
	TOTAL A				3214224.000
	(B) LABOUR				
	ITC @4% of A				128568.96
	TOTAL B				128568.96
	TOTAL (A+B)				3342792.96
	Overhead & Profit @15%				501418.94
	TOTAL				3844211.90
	Labours cess@1%				38442.12
	TOTAL				3882654.02
	Add 18% of GST				698877.72
	TOTAL				4581532.00

3.27.41 2000 KVA (losses at 50% loading < 4790watt, losses at 100% loading < 14100watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4595	1000 KVA (losses at 50% loading < 2620watt, losses at 100% loading < 7000watt)	Nos.	1	3978000	3978000.00
	TOTAL				3978000.00
	Cartage@ 1% of A				39780.00
	TOTAL A				4017780.000
	(B) LABOUR				
	ITC @4% of A				160711.20
	TOTAL B				160711.20
	TOTAL (A+B)				4178491.20

Overhead & Profit @15%	626773.68
TOTAL	4805264.88
Labours cess@1%	48052.65
TOTAL	4853317.53
Add 18% of GST	873597.16
TOTAL	5726915.00

3.27.42 2500 KVA (losses at 50% loading < 5900watt, losses at 100% loading < 17500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4596	2500 KVA (losses at 50% loading < 5900watt, losses at 100% loading < 17500watt)	Nos.	1	4972500	4972500.00
	TOTAL				4972500.00
	Cartage@ 1% of A				49725.00
	TOTAL A				5022225.000
	(B) LABOUR				
	ITC @4% of A				200889.00
	TOTAL B				200889.00
	TOTAL (A+B)				5223114.00
	Overhead & Profit @15%				783467.10
	TOTAL				6006581.10
	Labours cess@1%				60065.81
	TOTAL				6066646.91
	Add 18% of GST				1091996.44
	TOTAL				7158643.00

3.28 Supply, installation, testing and commissioning of following capacity (continuous loading) 11/0.433 KV Delta/Star,step down, 3 Phase, 50 Hz, Dyn 11 vector group, Cast Resin / VPI (vacuum pressure impregnated) Dry Type, copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better) AN (air natural) cooled transformer suitable for Outdoor applications with enclosure, On Load Tap Changer (OLTC) on HV side having AVS relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote/ manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, insulation class F (minimum), suitable for environment conditions Class E-O-3, suitable for fire behaviour class F1,climate class-C1, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade with necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers, bus trunking arrangement on LV side complete with all accessories and safety provisions as per relevant IS Code ,The transformer shall be provided with standard fittings/accessories as per relevant IS and mentioned below, protection alarm/trip protection, 3 nos. of Polymeric Zinc Oxide surge Arrestors on HV Side. Winding Temperature scanner (Digital) with alarm/Trip contacts with RTD Sensors per LV winding and space for mounting differential protection CT's in LV chamber with neutral brought out separately including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/HT Panel for safety tripping, complete as confirming to

IS-2026 Part-11, i/c supplying and grouting of suitable M.S. Channel with all accessories ,complete in all respects as required at site as per CPWD specifications. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. All testing shall as per relevant IS Code. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The enclosure shall also have Welded Door handle , Danger plate on HV and LV side doors, caution plate for tap links for HT doors, Door limit switch on both HV and LV side doors to be wired up to WTI box terminal for tripping the transformer in case door is opened with the enclosure transformer energized, Phase marking plates on HV and LV doors.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Rating and terminal marking plates; c) Thermometer pocket with cap; d) Lifting lugs for the complete transformer as well as for core and winding assembly; e) Bi-directional flat rollers (for transformers above 200 kVA); f) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); g) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. for transformers up to 200 kVA; h) Bird guard; i) Jacking pads (for transformer above 1600 kVA); j) Name Rating & Diagram Plate. k) Monogram Plate.i) Additional neutral seperately brought out on bushing for earthing.

3.28.1 63 KVA (losses at 50% loading < 380watt, losses at 100% loading < 1250watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4596	63 KVA (losses at 50% loading < 380watt, losses at 100% loading < 1250watt)	Nos.	1	101745	101745.00
	TOTAL				101745.00
	Cartage@ 1% of A				1017.45
	TOTAL A				102762.450
	(B) LABOUR				
	ITC @4% of A				4110.50
	TOTAL B				4110.50
	TOTAL (A+B)				106872.95
	Overhead & Profit @15%				16030.94
	TOTAL				122903.89
	Labours cess@1%				1229.04
	TOTAL				124132.93
	Add 18% of GST				22343.93
	TOTAL				146477.00

3.28.2 100 KVA (losses at 50% loading < 520watt, losses at 100% loading < 1800watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4597	100 KVA (losses at 50% loading < 520watt, losses at 100% loading < 1800watt)	Nos.	1	161500	161500.00
	TOTAL				161500.00
	Cartage@ 1% of A				1615.00
	TOTAL A				163115.000
	(B) LABOUR				
	ITC @4% of A				6524.60
	TOTAL B				6524.60
	TOTAL (A+B)				169639.60
	Overhead & Profit @15%				25445.94
	TOTAL				195085.54
	Labours cess@1%				1950.86
	TOTAL				197036.40
	Add 18% of GST				35466.55
	TOTAL				232503.00

3.28.3 160 KVA (losses at 50% loading < 520watt, losses at 100% loading < 1800watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4597	160 KVA (losses at 50% loading < 520watt, losses at 100% loading < 1800watt)	Nos.	1	258400	258400.00
	TOTAL				258400.00
	Cartage@ 1% of A				2584.00
	TOTAL A				260984.000
	(B) LABOUR				
	ITC @4% of A				10439.36
	TOTAL B				10439.36
	TOTAL (A+B)				271423.36
	Overhead & Profit @15%				40713.50
	TOTAL				312136.86
	Labours cess@1%				3121.37
	TOTAL				315258.23
	Add 18% of GST				56746.48
	TOTAL				372005.00

3.28.4 200 KVA (losses at 50% loading < 890watt, losses at 100% loading < 2700watt)					
ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4599	200 KVA (losses at 50% loading < 890watt, losses at 100% loading < 2700watt)	Nos.	1	323000	323000.00
	TOTAL				323000.00
	Cartage@ 1% of A				3230.00
	TOTAL A				326230.000
	(B) LABOUR				
	ITC @4% of A				13049.20
	TOTAL B				13049.20
	TOTAL (A+B)				339279.20
	Overhead & Profit @15%				50891.88
	TOTAL				390171.08
	Labours cess@1%				3901.71
	TOTAL				394072.79
	Add 18% of GST				70933.10
	TOTAL				465006.00

3.28.5 250 KVA (losses at 50% loading < 1050watt, losses at 100% loading < 3150watt)					
ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4600	250 KVA (losses at 50% loading < 1050watt, losses at 100% loading < 3150watt)	Nos.	1	403750	403750.00
	TOTAL				403750.00
	Cartage@ 1% of A				4037.50
	TOTAL A				407787.500
	(B) LABOUR				
	ITC @4% of A				16311.50
	TOTAL B				16311.50
	TOTAL (A+B)				424099.00
	Overhead & Profit @15%				63614.85
	TOTAL				487713.85
	Labours cess@1%				4877.14
	TOTAL				492590.99
	Add 18% of GST				88666.38
	TOTAL				581257.00

3.28.6 315 KVA (losses at 50% loading < 1100watt, losses at 100% loading < 3275watt)					
ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4601	315 KVA (losses at 50% loading < 1100watt, losses at 100% loading < 3275watt)	Nos.	1	508725	508725.00
	TOTAL				508725.00
	Cartage@ 1% of A				5087.25
	TOTAL A				513812.250
	(B) LABOUR				
	ITC @4% of A				20552.49
	TOTAL B				20552.49
	TOTAL (A+B)				534364.74
	Overhead & Profit @15%				80154.71
	TOTAL				614519.45
	Labours cess@1%				6145.19
	TOTAL				620664.65
	Add 18% of GST				111719.64
	TOTAL				732384.00

3.28.7 400 KVA (losses at 50% loading < 1300watt, losses at 100% loading < 3875watt)					
ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4602	400 KVA (losses at 50% loading < 1300watt, losses at 100% loading < 3875watt)	Nos.	1	646000	646000.00
	TOTAL				646000.00
	Cartage@ 1% of A				6460.00
	TOTAL A				652460.000
	(B) LABOUR				
	ITC @4% of A				26098.40
	TOTAL B				26098.40
	TOTAL (A+B)				678558.40
	Overhead & Profit @15%				101783.76
	TOTAL				780342.16
	Labours cess@1%				7803.42
	TOTAL				788145.58
	Add 18% of GST				141866.20
	TOTAL				930012.00

3.28.8 500 KVA (losses at 50% loading < 1600watt, losses at 100% loading < 4750watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4603	500 KVA (losses at 50% loading < 1600watt, losses at 100% loading < 4750watt)	Nos.	1	807500	807500.00
	TOTAL				807500.00
	Cartage@ 1% of A				8075.00
	TOTAL A				815575.000
	(B) LABOUR				
	ITC @4% of A				32623.00
	TOTAL B				32623.00
	TOTAL (A+B)				848198.00
	Overhead & Profit @15%				127229.70
	TOTAL				975427.70
	Labours cess@1%				9754.28
	TOTAL				985181.98
	Add 18% of GST				177332.76
	TOTAL				1162515.00

3.28.9 630 KVA (losses at 50% loading < 2000watt, losses at 100% loading < 5855watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4604	630 KVA (losses at 50% loading < 2000watt, losses at 100% loading < 5855watt)	Nos.	1	1017450	1017450.00
	TOTAL				1017450.00
	Cartage@ 1% of A				10174.50
	TOTAL A				1027624.500
	(B) LABOUR				
	ITC @4% of A				41104.98
	TOTAL B				41104.98
	TOTAL (A+B)				1068729.48
	Overhead & Profit @15%				160309.42
	TOTAL				1229038.90
	Labours cess@1%				12290.39
	TOTAL				1241329.29
	Add 18% of GST				223439.27
	TOTAL				1464769.00

3.28.10 1000 KVA (losses at 50% loading < 3000watt, losses at 100% loading < 9000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4605	1000 KVA (losses at 50% loading < 3000watt, losses at 100% loading < 9000watt)	Nos.	1	1615000	1615000.00

TOTAL	1615000.00
Cartage@ 1% of A	16150.00
TOTAL A	1631150.000
(B) LABOUR	
ITC @4% of A	65246.00
TOTAL B	65246.00
TOTAL (A+B)	1696396.00
Overhead & Profit @15%	254459.40
TOTAL	950855.40
Labours cess@1%	19508.55
TOTAL	1970363.95
Add 18% of GST	354665.51
TOTAL	2325029.00

3.28.11 1250 KVA (losses at 50% loading < 3600watt, losses at 100% loading < 10750watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4606	1250 KVA (losses at 50% loading < 3600watt, losses at 100% loading < 10750watt)	Nos.	1	2018750	2018750.00
	TOTAL				2018750.00
	Cartage@ 1% of A				20187.50
	TOTAL A				2038937.500
	(B) LABOUR				
	ITC @4% of A				81557.50
	TOTAL B				81557.50
	TOTAL (A+B)				2120495.00
	Overhead & Profit @15%				318074.25
	TOTAL				2438569.25
	Labours cess@1%				24385.69
	TOTAL				2462954.94
	Add 18% of GST				443331.89
	TOTAL				2906287.00

3.28.12 1600 KVA (losses at 50% loading < 4500watt, losses at 100% loading < 13500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4607	1600 KVA (losses at 50% loading < 4500watt, losses at 100% loading < 13500watt)	Nos.	1	2584000	2584000.00
	TOTAL				2584000.00
	Cartage@ 1% of A				25840.00
	TOTAL A				2609840.000
	(B) LABOUR				
	ITC @4% of A				104393.60
	TOTAL B				104393.60
	TOTAL (A+B)				2714233.60

Overhead & Profit @15%	407135.04
TOTAL	3121368.64
Labours cess@1%	31213.69
TOTAL	3152582.33
Add 18% of GST	567464.82
TOTAL	3720047.00

3.28.13 2000 KVA (losses at 50% loading < 5400watt, losses at 100% loading < 17000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4608	2000 KVA (losses at 50% loading < 5400watt, losses at 100% loading < 17000watt)	Nos.	1	3230000	3230000.00
	TOTAL				3230000.00
	Cartage@ 1% of A				32300.00
	TOTAL A				3262300.000
	(B) LABOUR				
	ITC @4% of A				130492.00
	TOTAL B				130492.00
	TOTAL (A+B)				3392792.00
	Overhead & Profit @15%				508918.80
	TOTAL				3901710.80
	Labours cess@1%				39017.11
	TOTAL				3940727.91
	Add 18% of GST				709331.02
	TOTAL				4650059.00

3.28.14 2500 KVA (losses at 50% loading < 6500watt, losses at 100% loading < 20000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4609	2500 KVA (losses at 50% loading < 6500watt, losses at 100% loading < 20000watt)	Nos.	1	4037500	4037500.00
	TOTAL				4037500.00
	Cartage@ 1% of A				40375.00
	TOTAL A				4077875.000
	(B) LABOUR				
	ITC @4% of A				163115.00
	TOTAL B				163115.00
	TOTAL (A+B)				4240990.00
	Overhead & Profit @15%				636148.50
	TOTAL				4877138.50
	Labours cess@1%				48771.39
	TOTAL				4925909.89
	Add 18% of GST				886663.78
	TOTAL				5812574.00

3.28.15 63 KVA (losses at 50% loading < 340watt, losses at 100% loading < 1140watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4610	63 KVA (losses at 50% loading < 340watt, losses at 100% loading < 1140watt)	Nos.	1	117006.75	117006.75
	TOTAL				117006.75
	Cartage@ 1% of A				1170.07
	TOTAL A				118176.818
	(B) LABOUR				
	ITC @4% of A				4727.07
	TOTAL B				4727.07
	TOTAL (A+B)				122903.89
	Overhead & Profit @15%				18435.58
	TOTAL				141339.47
	Labours cess@1%				1413.39
	TOTAL				142752.87
	Add 18% of GST				25695.52
	TOTAL				168448.00

3.28.16 100 KVA (losses at 50% loading <475watt, losses at 100% loading <1650watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4611	100 KVA (losses at 50% loading <475watt, losses at 100% loading <1650watt)	Nos.	1	185725	185725.00
	TOTAL				185725.00
	Cartage@ 1% of A				1857.25
	TOTAL A				187582.250
	(B) LABOUR				
	ITC @4% of A				7503.29
	TOTAL B				7503.29
	TOTAL (A+B)				195085.54
	Overhead & Profit @15%				29262.83
	TOTAL				224348.37
	Labours cess@1%				2243.48
	TOTAL				226591.85
	Add 18% of GST				40786.53
	TOTAL				267378.00

3.28.17 160 KVA (losses at 50% loading < 670watt, losses at 100% loading < 1950watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4612	160 KVA (losses at 50% loading < 670watt, losses at 100% loading < 1950watt)	Nos.	1	297160	297160.00

TOTAL	297160.00
Cartage@ 1% of A	2971.60
TOTAL A	300131.600
(B) LABOUR	
ITC @4% of A	12005.26
TOTAL B	12005.26
TOTAL (A+B)	312136.86
Overhead & Profit @15%	46820.53
TOTAL	358957.39
Labours cess@1%	3589.57
TOTAL	362546.97
Add 18% of GST	65258.45
TOTAL	427805.00

3.28.18 200 KVA (losses at 50% loading < 780watt, losses at 100% loading <2300watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4613	200 KVA (losses at 50% loading < 780watt, losses at 100% loading <2300watt)	Nos.	1	371450	371450.00
	TOTAL				371450.00
	Cartage@ 1% of A				3714.50
	TOTAL A				375164.500
	(B) LABOUR				
	ITC @4% of A				15006.58
	TOTAL B				15006.58
	TOTAL (A+B)				390171.08
	Overhead & Profit @15%				58525.66
	TOTAL				448696.74
	Labours cess@1%				4486.97
	TOTAL				453183.71
	Add 18% of GST				81573.07
	TOTAL				534757.00

3.28.19 250 KVA (losses at 50% loading < 980watt, losses at 100% loading < 2930watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4614	250 KVA (losses at 50% loading < 980watt, losses at 100% loading < 2930watt)	Nos.	1	464312.5	464312.50
	TOTAL				464312.50
	Cartage@ 1% of A				4643.13
	TOTAL A				468955.625
	(B) LABOUR				
	ITC @4% of A				18758.23
	TOTAL B				18758.23
	TOTAL (A+B)				487713.85

Overhead & Profit @15%	73157.08
TOTAL	560870.93
Labours cess@1%	5608.71
TOTAL	566479.64
Add 18% of GST	101966.33
TOTAL	668446.00

3.28.20 315 KVA (losses at 50% loading < 1025watt, losses at 100% loading < 3100watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4615	315 KVA (losses at 50% loading < 1025watt, losses at 100% loading < 3100watt)	Nos.	1	585033.75	585033.75
	TOTAL				585033.75
	Cartage@ 1% of A				5850.34
	TOTAL A				590884.088
	(B) LABOUR				
	ITC @4% of A				23635.36
	TOTAL B				23635.36
	TOTAL (A+B)				614519.45
	Overhead & Profit @15%				92177.92
	TOTAL				706697.37
	Labours cess@1%				7066.97
	TOTAL				713764.34
	Add 18% of GST				128477.58
	TOTAL				842242.00

3.28.21 400 KVA (losses at 50% loading < 1225watt, losses at 100% loading < 3450watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4616	400 KVA (losses at 50% loading < 1225watt, losses at 100% loading < 3450watt)	Nos.	1	742900	742900.00
	TOTAL				742900.00
	Cartage@ 1% of A				7429.00
	TOTAL A				750329.000
	(B) LABOUR				
	ITC @4% of A				30013.16
	TOTAL B				30013.16
	TOTAL (A+B)				780342.16
	Overhead & Profit @15%				117051.32
	TOTAL				897393.48
	Labours cess@1%				8973.93
	TOTAL				906367.42
	Add 18% of GST				163146.14
	TOTAL				1069514.00

3.28.22 500 KVA (losses at 50% loading <1510watt, losses at 100% loading < 4300watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4617	500 KVA (losses at 50% loading <1510watt, losses at 100% loading < 4300watt)	Nos.	1	928625	928625.00
	TOTAL				928625.00
	Cartage@ 1% of A				9286.25
	TOTAL A				937911.250
	(B) LABOUR				
	ITC @4% of A				37516.45
	TOTAL B				37516.45
	TOTAL (A+B)				975427.70
	Overhead & Profit @15%				146314.16
	TOTAL				1121741.86
	Labours cess@1%				11217.42
	TOTAL				1132959.27
	Add 18% of GST				203932.67
	TOTAL				1336892.00

3.28.23 630 KVA (losses at 50% loading < 1860watt, losses at 100% loading < 5300watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4618	630 KVA (losses at 50% loading < 1860watt, losses at 100% loading < 5300watt)	Nos.	1	1170067.5	1170067.50
	TOTAL				1170067.50
	Cartage@ 1% of A				11700.68
	TOTAL A				1181768.175
	(B) LABOUR				
	ITC @4% of A				47270.73
	TOTAL B				47270.73
	TOTAL (A+B)				1229038.90
	Overhead & Profit @15%				184355.84
	TOTAL				1413394.74
	Labours cess@1%				14133.95
	TOTAL				1427528.68
	Add 18% of GST				256955.16
	TOTAL				1684484.00

3.28.24 1000 KVA (losses at 50% loading < 2790watt, losses at 100% loading < 7700watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4619	1000 KVA (losses at 50% loading < 2790watt, losses at 100% loading < 7700watt)	Nos.	1	1857250	1857250.00

TOTAL	1857250.00
Cartage@ 1% of A	18572.50
TOTAL A	1875822.500
(B) LABOUR	
ITC @4% of A	75032.90
TOTAL B	75032.90
TOTAL (A+B)	1950855.40
Overhead & Profit @15%	292628.31
TOTAL	2243483.71
Labours cess@1%	22434.84
TOTAL	2265918.55
Add 18% of GST	407865.34
TOTAL	2673784.00

3.28.25 1250 KVA (losses at 50% loading < 3300watt, losses at 100% loading < 9200watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4620	1250 KVA (losses at 50% loading < 3300watt, losses at 100% loading < 9200watt)	Nos.	1	2321562.5	2321562.50
	TOTAL				2321562.50
	Cartage@ 1% of A				23215.63
	TOTAL A				2344778.125
	(B) LABOUR				
	ITC @4% of A				93791.13
	TOTAL B				93791.13
	TOTAL (A+B)				2438569.25
	Overhead & Profit @15%				365785.39
	TOTAL				2804354.64
	Labours cess@1%				28043.55
	TOTAL				2832398.18
	Add 18% of GST				509831.67
	TOTAL				3342230.00

3.28.26 1600 KVA (losses at 50% loading < 4200watt, losses at 100% loading < 11800watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4621	1600 KVA (losses at 50% loading < 4200watt, losses at 100% loading < 11800watt)	Nos.	1	2971600	2971600.00
	TOTAL				2971600.00
	Cartage@ 1% of A				29716.00
	TOTAL A				3001316.000
	(B) LABOUR				
	ITC @4% of A				120052.64
	TOTAL B				120052.64
	TOTAL (A+B)				3121368.64

Overhead & Profit @15%	468205.30
TOTAL	3589573.94
Labours cess@1%	35895.74
TOTAL	3625469.68
Add 18% of GST	652584.54
TOTAL	4278054.00

3.28.27 2000 KVA (losses at 50% loading < 5050watt, losses at 100% loading < 15000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4622	2000 KVA (losses at 50% loading < 5050watt, losses at 100% loading < 15000watt)	Nos.	1	3714500	3714500.00
	TOTAL				3714500.00
	Cartage@ 1% of A				37145.00
	TOTAL A				3751645.000
	(B) LABOUR				
	ITC @4% of A				150065.80
	TOTAL B				150065.80
	TOTAL (A+B)				3901710.80
	Overhead & Profit @15%				585256.62
	TOTAL				4486967.42
	Labours cess@1%				44869.67
	TOTAL				4531837.09
	Add 18% of GST				815730.68
	TOTAL				5347568.00

3.28.28 2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading < 18500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4623	2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading < 18500watt)	Nos.	1	4643125	4643125.00
	TOTAL				4643125.00
	Cartage@ 1% of A				46431.25
	TOTAL A				4689556.250
	(B) LABOUR				
	ITC @4% of A				187582.25
	TOTAL B				187582.25
	TOTAL (A+B)				4877138.50
	Overhead & Profit @15%				731570.78
	TOTAL				5608709.28
	Labours cess@1%				56087.09
	TOTAL				5664796.37
	Add 18% of GST				1019663.35
	TOTAL				6684460.00

3.28.29 63 KVA (losses at 50% loading < 300watt, losses at 100% loading <1050watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4624	63 KVA (losses at 50% loading < 300watt, losses at 100% loading <1050watt)	Nos.	1	132268.5	132268.50
	TOTAL				132268.50
	Cartage@ 1% of A				1322.69
	TOTAL A				133591.185
	(B) LABOUR				
	ITC @4% of A				5343.65
	TOTAL B				5343.65
	TOTAL (A+B)				138934.83
	Overhead & Profit @15%				20840.22
	TOTAL				159775.06
	Labours cess@1%				1597.75
	TOTAL				161372.81
	Add 18% of GST				29047.11
	TOTAL				190420.00

3.28.30 100 KVA (losses at 50% loading < 435watt, losses at 100% loading < 1500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4625	100 KVA (losses at 50% loading < 435watt, losses at 100% loading < 1500watt)	Nos.	1	209950	209950.00
	TOTAL				209950.00
	Cartage@ 1% of A				2099.50
	TOTAL A				212049.500
	(B) LABOUR				
	ITC @4% of A				8481.98
	TOTAL B				8481.98
	TOTAL (A+B)				220531.48
	Overhead & Profit @15%				33079.72
	TOTAL				253611.20
	Labours cess@1%				2536.11
	TOTAL				256147.31
	Add 18% of GST				46106.52
	TOTAL				302254.00

3.28.31 160 KVA(losses at 50% loading <670watt, losses at 100% loading < 2100watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4626	160 KVA (losses at 50% loading < 570watt, losses at 100% loading <1700watt)	Nos.	1	335920	335920.00

TOTAL	335920.00
Cartage@ 1% of A	3359.20
TOTAL A	339279.200
(B) LABOUR	
ITC @4% of A	13571.17
TOTAL B	13571.17
TOTAL (A+B)	352850.37
Overhead & Profit @15%	52927.56
TOTAL	405777.92
Labours cess@1%	4057.78
TOTAL	409835.70
Add 18% of GST	73770.43
TOTAL	483606.00

3.28.32 200 KVA(losses at 50% loading <670watt, losses at 100% loading < 2100watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4627	200 KVA(losses at 50% loading <670watt, losses at 100% loading < 2100watt)	Nos.	1	419900	419900.00
	TOTAL				419900.00
	Cartage@ 1% of A				4199.00
	TOTAL A				424099.000
	(B) LABOUR				
	ITC @4% of A				16963.96
	Khallasi	day	0.00	663.00	0.00
	TOTAL B				16963.96
	TOTAL (A+B)				441062.96
	Overhead & Profit @15%				66159.44
	TOTAL				507222.40
	Labours cess@1%				5072.22
	TOTAL				512294.63
	Add 18% of GST				92213.03
	TOTAL				604508.00

3.28.33 250 KVA(losses at 50% loading < 920watt, losses at 100% loading < 2700watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4628	250 KVA(losses at 50% loading < 920watt, losses at 100% loading < 2700watt)	Nos.	1	524875	524875.00
	TOTAL				524875.00
	Cartage@ 1% of A				5248.75
	TOTAL A				530123.750
	(B) LABOUR				
	ITC @4% of A				21204.95
	TOTAL B				21204.95

TOTAL (A+B)	551328.70
Overhead & Profit @15%	82699.31
TOTAL	634028.01
Labours cess@1%	6340.28
TOTAL	640368.29
Add 18% of GST	115266.29
TOTAL	755635.00

3.28.34 315 KVA (losses at 50% loading < 955watt, losses at 100% loading < 2750watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4629	315 KVA (losses at 50% loading < 955watt, losses at 100% loading < 2750watt)	Nos.	1	661342.5	661342.50
	TOTAL				661342.50
	Cartage@ 1% of A				6613.43
	TOTAL A				667955.925
	(B) LABOUR				
	ITC @4% of A				26718.24
	TOTAL B				26718.24
	TOTAL (A+B)				694674.16
	Overhead & Profit @15%				104201.12
	TOTAL				798875.29
	Labours cess@1%				7988.75
	TOTAL				806864.04
	Add 18% of GST				145235.53
	TOTAL				952100.00

3.28.35 400 KVA (losses at 50% loading < 1430watt, losses at 100% loading < 4100watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4630	400 KVA (losses at 50% loading < 1150watt, losses at 100% loading < 3330watt)	Nos.	1	839800	839800.00
	TOTAL				839800.00
	Cartage@ 1% of A				8398.00
	TOTAL A				848198.000
	(B) LABOUR				
	ITC @4% of A				33927.92
	TOTAL B				33927.92
	TOTAL (A+B)				882125.92
	Overhead & Profit @15%				132318.89
	TOTAL				1014444.81
	Labours cess@1%				10144.45
	TOTAL				1024589.26
	Add 18% of GST				184426.07
	TOTAL				1209015.00

3.28.46 500 KVA (losses at 50% loading < 1430watt, losses at 100% loading < 4100watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4631	500 KVA (losses at 50% loading < 1430watt, losses at 100% loading < 4100watt)	Nos.	1	1049750	1049750.00
	TOTAL				1049750.00
	Cartage@ 1% of A				10497.50
	TOTAL A				1060247.500
	(B) LABOUR				
	ITC @4% of A				42409.90
	TOTAL B				42409.90
	TOTAL (A+B)				1102657.40
	Overhead & Profit @15%				165398.61
	TOTAL				1268056.01
	Labours cess@1%				12680.56
	TOTAL				1280736.57
	Add 18% of GST				230532.58
	TOTAL				1511269.00

3.28.37 630 KVA (losses at 50% loading < 1745watt, losses at 100% loading < 4850watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4632	630 KVA (losses at 50% loading < 1745watt, losses at 100% loading < 4850watt)	Nos.	1	1322685	1322685.00
	TOTAL				1322685.00
	Cartage@ 1% of A				13226.85
	TOTAL A				1335911.850
	(B) LABOUR				
	ITC @4% of A				53436.47
	TOTAL B				53436.47
	TOTAL (A+B)				1389348.32
	Overhead & Profit @15%				208402.25
	TOTAL				1597750.57
	Labours cess@1%				15977.51
	TOTAL				1613728.08
	Add 18% of GST				290471.05
	TOTAL				1904199.00

3.28.38 1000 KVA (losses at 50% loading < 2620watt, losses at 100% loading < 7000watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4633	1000 KVA (losses at 50% loading < 2620watt, losses at 100% loading < 7000watt)	Nos.	1	2099500	2099500.00

TOTAL	2099500.00
Cartage@ 1% of A	20995.00
TOTAL A	2120495.000
(B) LABOUR	
ITC @4% of A	84819.80
TOTAL B	84819.80
TOTAL (A+B)	2205314.80
Overhead & Profit @15%	330797.22
TOTAL	2536112.02
Labours cess@1%	25361.12
TOTAL	2561473.14
Add 18% of GST	461065.17
TOTAL	3022538.00

3.28.39 1250 KVA (losses at 50% loading < 3220watt, losses at 100% loading < 8400watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4634	1250 KVA (losses at 50% loading < 3220watt, losses at 100% loading < 8400watt)	Nos.	1	2624375	2624375.00
	TOTAL				2624375.00
	Cartage@ 1% of A				26243.75
	TOTAL A				2650618.750
	(B) LABOUR				
	ITC @4% of A				106024.75
	TOTAL B				106024.75
	TOTAL (A+B)				2756643.50
	Overhead & Profit @15%				413496.53
	TOTAL				3170140.03
	Labours cess@1%				31701.40
	TOTAL				3201841.43
	Add 18% of GST				576331.46
	TOTAL				3778173.00

3.28.40 1600 KVA (losses at 50% loading < 3970watt, losses at 100% loading < 11300watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4635	1600 KVA (losses at 50% loading < 3970watt, losses at 100% loading < 11300watt)	Nos.	1	3359200	3359200.00
	TOTAL				3359200.00
	Cartage@ 1% of A				33592.00
	TOTAL A				3392792.000
	(B) LABOUR				
	ITC @4% of A				135711.68
	TOTAL B				135711.68
	TOTAL (A+B)				3528503.68

Overhead & Profit @15%	529275.55
TOTAL	4057779.23
Labours cess@1%	40577.79
TOTAL	4098357.02
Add 18% of GST	737704.26
TOTAL	4836061.00

3.28.41 2000 KVA (losses at 50% loading < 4790watt, losses at 100% loading < 14100watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4636	2000 KVA (losses at 50% loading < 4790watt, losses at 100% loading < 14100watt)	Nos.	1	4199000	4199000.00
	TOTAL				4199000.00
	Cartage@ 1% of A				41990.00
	TOTAL A				4240990.000
	(B) LABOUR				
	ITC @4% of A				169639.60
	TOTAL B				169639.60
	TOTAL (A+B)				4410629.60
	Overhead & Profit @15%				661594.44
	TOTAL				5072224.04
	Labours cess@1%				50722.24
	TOTAL				5122946.28
	Add 18% of GST				922130.33
	TOTAL				6045077.00

3.28.42 2500 KVA (losses at 50% loading < 5900watt, losses at 100% loading < 17500watt)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4637	2500 KVA (losses at 50% loading < 5900watt, losses at 100% loading < 17500watt)	Nos.	1	5248750	5248750.00
	TOTAL				5248750.00
	Cartage@ 1% of A				52487.50
	TOTAL A				5301237.500
	(B) LABOUR				
	ITC @4% of A				212049.50
	TOTAL B				212049.50
	TOTAL (A+B)				5513287.00
	Overhead & Profit @15%				826993.05
	TOTAL				6340280.05
	Labours cess@1%				63402.80
	TOTAL				6403682.85
	Add 18% of GST				1152662.91
	TOTAL				7556346.00

CHAPTER-4

Automatic Power Factor Correction (APFC) Panel

- 4.1 Supply, Installation, testing and commissioning of Automatic Power Factor Correction (APFC) panel, indoor type floor mounted free standing totally enclosed, extendable, IP 42, of following capacity for 3 phase, 415 V + 10 %, 50 Hz AC System for Ambient temperature -5°C to +40°C, fabricated in compartmentalised designed made of CRCA sheet steel of 2.0mm thick for framework & covers, 3 mm thick for gland plate i/c cleaning & finishing complete with 9 tank process for powder coated of approved shade (RAL 7032-Siemens gray or as approved by Engineer-in-Charge), having front section (switch gear and control accessories) and rear section capacitor and reactor, front and rear access, having suitable current carrying capacity, extensible TPN Aluminium alloy bus bar of high conductivity, DMC/SMC bus bar supports, bottom base channel of MS Section, fabrication shall be done in transportable section, entire panel shall have common copper earth bar of minimum size of 25mm x 5mm with 2 nos. earth studs, the earth terminals provided on the body of capacitor bank shall also be bonded to the main capacitor panel earth bus with 2 nos. 8 SWG or 6 SWG GI earth wires/ equivalent size of copper conductor cable, forced ventilation for maintaining temperature rise not more than 5°C from ambient, interconnections, connections with 14% detuned reactor and heavy duty 525 V ISI marked Impregnated MPP (Metalized Polypropylene) Capacitor (IS 13340 Part -1 & 2) APFC Panel shall be in compliance with IS :16636 & CPWD Specifications etc. as per below details**

(A) Incomers

Suitable capacity MCCB Microprocessor base with O/C, S/C, E/L release of TPN 50KA breaking capacity ($I_{cs}=I_{cu}$), ON, OFF, Trip, R, Y, B - LED Indicating Lamp set alongwith required Instruments and accessories with extended rotary handel and door interlocking arrangment. Current rating of the Incomer in ampere shall be APFC Panel rating in KVAR x 1.4 x 1.5 or Nearest higher standards rating

(B) Instruments & Indications

i) 3-Phase current sensing APFC microprocessor relay/controller , advance 8/12 stages (8 stages for capacity below 100 KVAR and 12 stages 100 KVAR & above) with Communication Ethernet/RS485/SNMP port open protocol for BMS integration as per approved by Engineering in charge and having display of Phase wise V, A, PF, Cos-Phi, Kw, KVA, KVAR, THD-V , THD-I, harmonics up to 31 level. 3 nos of dual core CT's accuracy class 1, 15VA at incomer of PCC Panel for APFC relay.

- ii) Auto Manual Selector switch, auxiliary contactors with timer for delay in manual mode.
- iii) Digital Multi function meter with LED Display for V, A, PF, KW, KVA, KVAR, THD-V & I, Frequency.
- iv) Suitable rating control transformer shall be provided for control and indication circuit.
- v) All components like control transformer, meter, relay and indicating lamp shall be protected by using suitable rating individual MCB's.
- vi) Wiring of the control circuit shall be done by using 2.5 sq mm, FRLS 1100 V grade, PVC insulated multi stranded copper control wire.

(C) Bus Bars

1.3 Amp per Sq.mm,TPN, Electrolytic grade Aluminium bus bar of capacity 1.25 times of incomer rating as per CPWD specification.

(D) Outgoings (APFC Section)

Selection of the capacitors combinations shall be for continuous rating and each capacitor bank shall have suitable capacity Heavy Duty ISI Marked Capacitor, capacitor duty contactor, the capacitor shall be mounted on channel with base of perforated M S Powder coated sheet, connections inter connections etc. and other features as per CPWD Specifications and relevant IS Code having following:

- (i) Capacitor bank ratings & stages shall be as per the technical specifications sheet of NIT.
- (ii) Capacitor will be MPP self healing type with discharge resistor, pressure release mechanism.
- (iii) Since Capacitor Voltage is 525 Volts, thus higher KVAR has to be considered to get rated output at 415 Volts.
- (iv) 14% Detuned Reactor of class H insulation & 150% linearity in series with Capacitor.

(Note: Technical specifications sheet for selection of the capacitors combinations shall be provided by the NIT Approving Authority with due consideration of number of capacitors i.e. 1 KVAR, 2 KVAR, 3 KVAR, 5 KVAR, 10 KVAR.....for smooth correction).

4.1.1 50 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4638	50 KVAR	set	1	152750.00	152750.00
	Cartage@ 1% of A				1527.50
	TOTAL A				154277.50
	(B) LABOUR				
	ITC @4% of A TOTAL B				6171.10
	TOTAL (A+B)				160448.60
	Overhead & Profit @15%				24067.29
	TOTAL				184515.89
	Labours cess@1%				1845.16
	TOTAL				186361.05
	Add 18% of GST				33544.99
	TOTAL				219906.00

4.1.2 75 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4639	75 KVAR	set	1	188500.00	188500.00
	Cartage@ 1% of A				1885.00
	TOTAL A				190385.00
	(B) LABOUR				
	ITC @4% of A TOTAL B				7615.40

TOTAL (A+B)	198000.40
Overhead & Profit @15%	29700.06
TOTAL	227700.46
Labours cess@1%	2277.00
TOTAL	229977.46
Add 18% of GST	41395.94
TOTAL	271373.00

4.1.3 100 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4640	100 KVAR	set	1	206700.00	206700.00
	Total				206700.00
	Cartage@ 1% of A				2067.00
	TOTAL A				208767.00
	(B) LABOUR				
	ITC @4% of A TOTAL B				8350.68
	TOTAL (A+B)				217117.68
	Overhead & Profit @15%				32567.65
	TOTAL				249685.33
	Labours cess@1%				2496.85
	TOTAL				252182.19
	Add 18% of GST				45392.79
	TOTAL				297575.00

4.1.4 125 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4641	125 KVAR	set	1	222300.00	222300.00
	Total				222300.00
	Cartage@ 1% of A				2223.00
	TOTAL A				224523.00
	(B) LABOUR				
	ITC @4% of A TOTAL B				8980.92
	TOTAL (A+B)				233503.92
	Overhead & Profit @15%				35025.59
	TOTAL				268529.51
	Labours cess@1%				2685.30
	TOTAL				271214.80
	Add 18% of GST				48818.66
	TOTAL				320033.00

4.1.5 150 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4642	150 KVAR	set	1	260325.00	260325.00
	Total				260325.00

Cartage@ 1% of A	2603.25
TOTAL A	262928.25
(B) LABOUR	
ITC @4% of A TOTAL B	10517.13
TOTAL (A+B)	273445.38
Overhead & Profit @15%	41016.81
TOTAL	314462.19
Labours cess@1%	3144.62
TOTAL	317606.81
Add 18% of GST	57169.23
TOTAL	374776.00

4.1.6 175 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4643	175 KVAR	set	1	279500.00	279500.00
	Total				279500.00
	Cartage@ 1% of A				2795.002
	TOTAL A				82295.00
	(B) LABOUR				
	ITC @4% of A TOTAL B				11291.80
	TOTAL (A+B)				293586.80
	Overhead & Profit @15%				44038.02
	TOTAL				337624.82
	Labours cess@1%				3376.25
	TOTAL				341001.07
	Add 18% of GST				61380.19
	TOTAL				402381.00

4.1.7 200 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4644	200 KVAR	set	1	297700.00	297700.00
	Total				297700.00
	Cartage@ 1% of A				2977.00
	TOTAL A				300677.00
	(B) LABOUR				
	ITC @4% of A TOTAL B				12027.08
	TOTAL (A+B)				312704.08
	Overhead & Profit @15%				46905.61
	TOTAL				359609.69
	Labours cess@1%				3596.10
	TOTAL				363205.79
	Add 18% of GST				65377.04
	TOTAL				428583.00

4.2 HYBRID Power Factor Correction System

Supply, Installation, testing and commissioning of HYBRID APFC Panel, 3 phase 4 wire, 415 V, 50 Hz AC System for Ambient temperature -5°C to +40°C of following capacity with passive solution of 60% capacity and active solution of 40% capacity, 3Phase 4 wire Hybrid Power Factor Correction Solution (with arrangement for neutral current balance) to achieve >0.99 lag and TDDI/THDV values within IEEE recommended limits. APFC should be designed as per IS 16636 Or IEC 61921. The active section and passive section shall work in sync to give optimized output. The degree of protection of passive section should be IP 42, and of active section should be minimum IP 21. The switching device for APFC passive section should be through capacitor duty contactor and for the active compensation system shall be IGBT based with 3 level topology having 12 IGBT in inverter circuit. The active compensation system should filter harmonics from 2nd to 50th individual harmonic order and shall be selectable for the entire range. The active compensation system should have feature to improve PF correction and harmonic filtration having response time <25Micro second. The hybrid panel shall be indoor type floor mounted free standing totally enclosed, extensible, fabricated in compartmentalised designed made of CRCA sheet steel of 2.0mm thick for framework & covers, 3 mm thick for gland plate i/c cleaning & finishing complete with 9 tank process for powder coated of approved shade (RAL 7032-Siemens gray or as approved by Engineer-in-Charge), having front section (switch gear and control accessories) and rear section (capacitor and reactor), front and rear access, having suitable current carrying capacity, extensible TPN Aluminium alloy bus bar of high conductivity, DMC/SMC bus bar supports, bottom base channel of MS Section, fabrication shall be done in transportable section, entire panel shall have common copper earth bar of minimum size of 25mm x 5mm with 2 nos. earth studs, the earth terminals provided on the body of capacitor bank shall also be bonded to the main capacitor panel earth bus with 2 nos. 8 SWG or 6 SWG GI earth wires/ equivalent size of copper conductor cable, forced ventilation for maintaining temperature rise not more than 5°C from ambient, interconnections, connections with 14% detuned reactor and heavy duty 525 V ISI marked Impregnated MPP (Metalized Polypropylene) Capacitor (IS 13340 Part -1 & 2) APFC Panel shall be in compliance with IS :16636 & CPWD Specifications etc. as per below details.

4.2.1 250 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4645	250 KVAR	set	1	948350.00	948350.00
	Total				948350.00
	Cartage@ 1% of A				9483.50
	TOTAL A				957833.50
	(B) LABOUR				
	ITC @4% of A TOTAL B				38313.34
	TOTAL (A+B)				996146.84
	Overhead & Profit @15%				149422.03
	TOTAL				1145568.87

Labours cess@1%	11455.69
TOTAL	1157024.55
Add 18% of GST	208264.42
TOTAL	1365289.00

4.2.2 300 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4646	300 KVAR	set	1	1128400.00	1128400.00
	Total				1128400.00
	Cartage@ 1% of A				11284.00
	TOTAL A				1139684.00
	(B) LABOUR				
	ITC @4% of A TOTAL B				45587.36
	TOTAL (A+B)				1185271.36
	Overhead & Profit @15%				177790.70
	TOTAL				1363062.06
	Labours cess@1%				13630.62
	TOTAL				1376692.68
	Add 18% of GST				247804.68
	TOTAL				1624497.00

4.2.3 350 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4647	350 KVAR	set	1	1262950.00	1262950.00
	Total				1262950.00
	Cartage@ 1% of A				12629.50
	TOTAL A				1275579.50
	(B) LABOUR				
	ITC @4% of A TOTAL B				51023.18
	TOTAL (A+B)				1326602.68
	Overhead & Profit @15%				198990.40
	TOTAL				1525593.08
	Labours cess@1%				15255.93
	TOTAL				1540849.01
	Add 18% of GST				277352.82
	TOTAL				1818202.00

4.2.4 400 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4648	400 KVAR	set	1	1516450.00	1516450.00
	Total				1516450.00
	Cartage@ 1% of A				15164.50
	TOTAL A				1531614.50
	(B) LABOUR				

ITC @4% of A TOTAL B	61264.58
TOTAL (A+B)	1592879.08
Overhead & Profit @15%	238931.86
TOTAL	1831810.94
Labours cess@1%	18318.11
TOTAL	1850129.05
Add 18% of GST	333023.23
TOTAL	2183152.00

4.2.5 450 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4649	450 KVAR	set	1	1632800.00	1632800.00
	Total				1632800.00
	Cartage@ 1% of A				16328.00
	TOTAL A				1649128.00
	(B) LABOUR				
	ITC @4% of A TOTAL B				65965.12
	TOTAL (A+B)				1715093.12
	Overhead & Profit @15%				257263.97
	TOTAL				1972357.09
	Labours cess@1%				19723.57
	TOTAL				1992080.66
	Add 18% of GST				358574.52
	TOTAL				2350655.00

4.2.6 500 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4650	500 KVAR	set	1	1849250.00	1849250.00
	Total				1849250.00
	Cartage@ 1% of A				18492.50
	TOTAL A				1867742.50
	(B) LABOUR				
	ITC @4% of A TOTAL B				74709.70
	TOTAL (A+B)				1942452.20
	Overhead & Profit @15%				291367.83
	TOTAL				2233820.03
	Labours cess@1%				22338.20
	TOTAL				2256158.23
	Add 18% of GST				406108.48
	TOTAL				2662267.00

4.2.7 550 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4651	550 KVAR	set	1	1981850.00	1981850.00

Total	1981850.00
Cartage@ 1% of A	19818.50
TOTAL A	2001668.50
(B) LABOUR	
ITC @4% of A TOTAL B	80066.74
TOTAL (A+B)	2081735.24
Overhead & Profit @15%	312260.29
TOTAL	2393995.53
Labours cess@1%	23939.96
TOTAL	2417935.48
Add 18% of GST	435228.39
TOTAL	2853164.00

4.2.8 600 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4652	600 KVAR	set	1	2175550.00	2175550.00
	Total				2175550.00
	Cartage@ 1% of A				21755.50
	TOTAL A				2197305.50
	(B) LABOUR				
	ITC @4% of A TOTAL B				87892.22
	TOTAL (A+B)				2285197.72
	Overhead & Profit @15%				342779.66
	TOTAL				2627977.38
	Labours cess@1%				26279.77
	TOTAL				2654257.15
	Add 18% of GST				477766.29
	TOTAL				3132023.00

4.2.9 650 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4653	650 KVAR	set	1	2302300.00	2302300.00
	Total				2302300.00
	Cartage@ 1% of A				23023.00
	TOTAL A				2325323.00
	(B) LABOUR				
	ITC @4% of A TOTAL B				93012.92
	TOTAL (A+B)				2418335.92
	Overhead & Profit @15%				362750.39
	TOTAL				2781086.31
	Labours cess@1%				27810.86
	TOTAL				2808897.17
	Add 18% of GST				505601.49
	TOTAL				3314499.00

4.2.10 700 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4654	700 KVAR	set	1	2477150.00	2477150.00
	Total				2477150.00
	Cartage@ 1% of A				24771.50
	TOTAL A				2501921.50
	(B) LABOUR				
	ITC @4% of A TOTAL B				100076.86
	TOTAL (A+B)				2601998.36
	Overhead & Profit @15%				390299.75
	TOTAL				2992298.11
	Labours cess@1%				29922.98
	TOTAL				3022221.10
	Add 18% of GST				543999.80
	TOTAL				3566221.00

4.2.11 750 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4655	750 KVAR	set	1	2692950.00	2692950.00
	Total				2692950.00
	Cartage@ 1% of A				26929.50
	TOTAL A				2719879.50
	(B) LABOUR				
	ITC @4% of A TOTAL B				108795.18
	TOTAL (A+B)				2828674.68
	Overhead & Profit @15%				424301.20
	TOTAL				3252975.88
	Labours cess@1%				32529.76
	TOTAL				3285505.64
	Add 18% of GST				591391.02
	TOTAL				3876897.00

4.2.12 800 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4656	800 KVAR	set	1	2825550.00	2825550.00
	Total				2825550.00
	Cartage@ 1% of A				28255.50
	TOTAL A				2853805.50
	(B) LABOUR				
	ITC @4% of A TOTAL B				114152.22
	TOTAL (A+B)				2967957.72
	Overhead & Profit @15%				445193.66
	TOTAL				3413151.38

Labours cess@1%	34131.51
TOTAL	3447282.89
Add 18% of GST	620510.92
TOTAL	4067794.00

4.2.13 850 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4657	850 KVAR	set	1	2927600.00	2927600.00
	Total				2927600.00
	Cartage@ 1% of A				29276.00
	TOTAL A				2956876.00
	(B) LABOUR				
	ITC @4% of A TOTAL B				118275.04
	TOTAL (A+B)				3075151.04
	Overhead & Profit @15%				461272.66
	TOTAL				3536423.70
	Labours cess@1%				35364.24
	TOTAL				3571787.93
	Add 18% of GST				642921.83
	TOTAL				4214710.00

4.2.14 900 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4658	900 KVAR	set	1	3113500.00	3113500.00
	Total				3113500.00
	Cartage@ 1% of A				31135.00
	TOTAL A				3144635.00
	(B) LABOUR				
	ITC @4% of A TOTAL B				125785.40
	TOTAL (A+B)				3270420.40
	Overhead & Profit @15%				490563.06
	TOTAL				3760983.46
	Labours cess@1%				37609.83
	TOTAL				3798593.29
	Add 18% of GST				683746.79
	TOTAL				4482340.00

4.2.15 950 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4659	950 KVAR	set	1	3293550.00	3293550.00
	Total				3293550.00
	Cartage@ 1% of A				32935.50
	TOTAL A				3326485.50
	(B) LABOUR				

ITC @4% of A TOTAL B	133059.42
TOTAL (A+B)	3459544.92
Overhead & Profit @15%	518931.74
TOTAL	3978476.66
Labours cess@1%	39784.77
TOTAL	4018261.42
Add 18% of GST	723287.06
TOTAL	4741548.00

4.2.16 1000 KVAR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4660	1000 KVAR	set	1	3467750.00	3467750.00
	Total				3467750.00
	Cartage@ 1% of A				34677.50
	TOTAL A				3502427.50
	(B) LABOUR				
	ITC @4% of A TOTAL B				140097.10
	TOTAL (A+B)				3642524.60
	Overhead & Profit @15%				546378.69
	TOTAL				4188903.29
	Labours cess@1%				41889.03
	TOTAL				4230792.32
	Add 18% of GST				761542.62
	TOTAL				4992335.00

CHAPTER-5 UPS

- 5.1 Online UPS - Input supply: Single Phase, Output Supply : Single Phase Supplying, installation, Testing & Commissioning of following capacity at full load (Unity Power Factor) ON LINE Uninterrupted Power Supply (UPS) system suitable for Single Phase input, Single Phase output AC Supply. The UPS shall include a Rectifier, inverter, battery bank suitable for 30 minutes back up (Battery VAH capacity shall not be less than 1600 VAH per KVA of UPS rating per Hour backup time) on full load (Battery shall be VRLA, SMF in ABS Container) and Static Bypass switch alongwith provision for manual bypass, suitable isolation transformer for additional protection against neutral faults etc. The UPS systems shall be Microprocessor based Digital Control, using Insulated Gate Bipolar Transistor (IGBT)'s both for the rectifier & inverter with PWM (Pulse Width Modulation) Technology. The quality of design, manufacturing and inspection process should confirm to the relevant Inter-national standards such as IEC/EN/VDE.**

The operating efficiency of the UPS systems shall be >95% at 100% non-linear loads. Current total harmonic distortion(ITHD)/ total demand distortion (TDD) on the input grid shall be < 5% at 100 %load. (The required LC filters shall be included in UPS cost), extreme power factor kit to be include to limit the input pf to 0.99 and output power factor shall be unity (i.e. kw rating of the UPS shall be kva rating x 1) however UPS shall be suitable to take load at 0.7 lagging to 0.7 leading power factor loads. UPS shall be suitable for incoming supply AC single phase 160-270V 50 Hz and delivering output AC supply true sine wave single phase 220/230/240 Volt, 50 Hz +/- 0.2Hz, Overload capacity of 120% for 10 mins and 150% for 1 minute.

Operating temperature 0 to 40 deg C, Relative humidity 0-95% non condensing, noise level less than 60db at 1 meter distance, Protection for Under voltage, over voltage, abnormal output voltage, battery over charging, output over current, short circuit, battery deep discharge , 10 KV surge. Display for watt/VA,Amp and Voltage power parameters etc. UPS shall comply with low voltage electromagnetic compatibility (EMC) achieved as per EN 6204, EN6204 Part I and Part 2, it shall be a Voltage and Frequency Independent (VFI) type UPS (as per standard IEC 62040-1, 2 & 3) . The UPS should be with IGBT Based Inverter Technology, Communication RS232/RS485/SNMP port open protocol for BMS integration as per approved by Engineering in charge. Required battery racks, DC breaker of suitable rating and interconnecting copper conductor cable of suitable size and connectors and all required accoseries are inclusive in the cost. The UPS should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc.

5.1.1 2KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4661	2KVA	NO.	1	21603.81	21603.81
4680	Battery 12 V 120 AH	NO.	1	7565	7565.00
	Battery Rack i/c connections	NO.	1	500	500.00
	Total				29668.81

Cartage@ 1% of A	296.69
TOTAL A	29965.502
(B) LABOUR	
ITC @4% of A	1198.62
TOTAL B	1198.62
TOTAL (A+B)	31164.12
Overhead & Profit @15%	4674.62
TOTAL	35838.74
Labours cess@1%	358.39
TOTAL	36197.13
Add 18% of GST	6515.48
TOTAL	42713.00

5.1.2 3KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4662	3KVA	NO.	1	23510.59	23510.59
4680	Battery 12 V 120 AH	NO.	1	7565	7565.00
	Battery 12 V 65 AH	NO.	1	4080	4080.00
	Battery Rack i/c connections	NO.	2	500	1000.00
	Total				36155.59
	Cartage@ 1% of A				361.56
	TOTAL A				36517.149
	(B) LABOUR				
	ITC @4% of A				1460.69
	TOTAL B				1460.69
	TOTAL (A+B)				37977.84
	Overhead & Profit @15%				5696.68
	TOTAL				43674.51
	Labours cess@1%				436.75
	TOTAL				44111.26
	Add 18% of GST				7940.03
	TOTAL				52051.00

5.1.3 6 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4663	6 KVA	NO.	1	45438.56	45438.56
4680	Battery 12 V 120 AH	NO.	3	7565	22695.00
	Battery Rack i/c connections	NO.	3	500	1500.00
	Total				69633.56
	Cartage@ 1% of A				696.34
	TOTAL A				70329.895
	(B) LABOUR				
	ITC @4% of A				2813.20
	TOTAL B				2813.20
	TOTAL (A+B)				73143.09

Overhead & Profit @15%	10971.46
TOTAL	84114.55
Labours cess@1%	841.15
TOTAL	84955.70
Add 18% of GST	15292.03
TOTAL	100248.00

5.1.4 6 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4664	6 KVA	NO.	1	75947.03	75947.03
4680	Battery 12 V 120 AH	NO.	4	9775	39100.00
	Battery Rack i/c connections	NO.	4	500	2000.00
	Total				117047.03
	Cartage@ 1% of A				1170.47
	TOTAL A				118217.504
	(B) LABOUR				
	ITC @4% of A				4728.70
	TOTAL B				4728.70
	TOTAL (A+B)				122946.20
	Overhead & Profit @15%				18441.93
	TOTAL				141388.14
	Labours cess@1%				1413.88
	TOTAL				142802.02
	Add 18% of GST				25704.36
	TOTAL				168506.00

5.2 Online UPS- Input supply: Three Phase, Output supply: Three Phase Supplying, installation, Testing & Commissioning of of following capacity at full load (Unity Power Factor) at operating temperature 0 to 40 deg C, Relative humidity 0 to 95%, Online double conversion true sine wave Uninterrupted hot swappable (allow for the replacement or addition of battery modules without shutting down the entire system) modular Power Supply (UPS) system with N+1 modules (N denotes total number of moduels requird for rated capacity). The UPS shall include a Rectifier, inverter, battery bank suitable for 30 minutes back up (Battery VAH capacity shall not be less than 1600 VAH per KVA of UPS rating per Hour backup time) on full load (Battery shall be VRLA, SMF in ABS Container) and Static Bypass switch alongwith provision for manual bypass, suitable isolation transformer for additional protection against neutral faults etc. UPS shall have inbuilt phase sequence correction. The UPS systems offered are to be of the latest technology with Digital Control Microprocessor based for reliable operation using Insulated Gate Bipolar Transistor (IGBT)'s both for the rectifier & inverter (3 Level) with PWM (Pulse Width Modulation). The quality of design, manufacturing and inspection process should confirm to the relevant Inter-national standards such as IEC/EN/VDE. The operating efficiency of the UPS systems shall be >96% while operating on battery mode and delivering quality power to the 100% non-linear loads. Current total harmonic effect(ITHD) on the input grid shall be < 5% at 50 %load. (The required LC (inductor (L) and a capacitor (C)) filters shall be included in UPS cost), extreme power factor kit to be included to limit the input power factor

(PF) to 0.99 and output power factor shall be unity (i.e. kw rating of the UPS shall be kva rating x 1), however UPS shall be suitable to take load at 0.7 lagging to 0.7 leading power factor loads. UPS shall be suitable for incoming supply AC : 3Phase 400V +/-20%, 50 Hz +/-5 Hz, AC Output voltage: 3Phase 415 Volt, 50 Hz +/-0.2Hz, Overload capacity of 120% for 10 mins, Sine wave output. Non condensing, noise level less than 60db at 1 meter distance, protections: Input Under voltage over voltage, abnormal out voltage, battery over charging, output over current, short circuit protection, battery deep discharge protection, 10KV surge. UPS must comply with low voltage electromagnetic compatibility (EMC) achieved as per EN 6204, EN6204 Part I and Part 2, it shall be a Voltage and Frequency Independent (VFI)-type UPS. . Communication RS232/RS485/SNMP port open protocol for BMS integration, all hardware & software for IoT Communication as per approved by Engineering in charge. Required battery racks and interconnecting copper conductor cables of suitable size and connectors and all required accessories are inclusive of the cost). This system must provide a means for logging and alarming of all monitored points plus email notification. Forced air-cooling with integral inbuilt fans with redundancy (if one fan fail UPS should be able to handle at least 80% of the load, Noise Level 65 DB at 1 meter distance. The system shall be in compliance IEC 62040- 1,2 & 3, IS: 16242 and CPWD Specification. Display Panel (minimum) (In-build 5 inch or more LC Display / LED) to display : a) Input: Voltage, current, Frequency. b) Bypass: Voltage, Frequency. c) Output: Voltage, frequency, Current. d) Battery: Voltage, Capacity. e) Load: KVA, KW, Percentage. f)Temperature: STS, Inverter, PFC. g) Event Logging & Statistical Data (On LCD/LED): UPS should capture and display up to 3000 events like: Over temperature / DC Bus Fail / Fan Fail / Fuse Fail / Overload / Short-circuit / Device Fail / Inverter Fail / Rectifier Fail / Bypass Fail, etc. h) Statistical Data: No. of power failures / Transfers to Bypass / Total Running time, etc. i) Mains Mode of Operation /Battery Mode of Operation / Bypass feeding the load / UPS Fault /Battery charging and discharging, overload, battery voltage and battery capacity. j) Audible Alarms : Mains Failure, Battery Low Alarm, UPS Overload, Fault, Shutdown, Input Over, Under Voltage, Output Over, Under Voltage, Battery Over, Under Voltage, Over Load and short circuit, Over Temperature. The UPS should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc.

5.2.1 10KVA (Each Power module shall be < 10 KVA)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4665	10KVA (Each Power module shall be<10KVA)	NO.	1	104000	104000.00
4680	Battery 12 V 150 AH	NO.	4	9775	39100.00
	Battery Rack i/c connections	NO.	4	500	2000.00
	Total				145100.00
	Cartage@ 1% of A				1451.00
	TOTAL A				146551.000
	(B) LABOUR				
	ITC @4% of A				5862.04
	TOTAL B				5862.04
	TOTAL (A+B)				152413.04
	Overhead & Profit @15%				22861.96

TOTAL	175275.00
Labours cess@1%	1752.75
TOTAL	177027.75
Add 18% of GST	31864.99
TOTAL	208893.00

5.2.2 20KVA (Each Power module shall be < 10 KVA)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4666	20KVA (Each Power module shall be<10KVA)	NO.	1	155200	155200.00
4680	Battery 12 V 150 AH	NO.	8	9775	78200.00
	Battery Rack i/c connections	NO.	8	500	4000.00
	Total				237400.00
	Cartage@ 1% of A				2374.00
	TOTAL A				239774.000
	(B) LABOUR				
	ITC @4% of A				9590.96
	TOTAL B				9590.96
	TOTAL (A+B)				249364.96
	Overhead & Profit @15%				37404.74
	TOTAL				286769.70
	Labours cess@1%				2867.70
	TOTAL				289637.40
	Add 18% of GST				52134.73
	TOTAL				341772.00

5.2.3 30KVA (Each Power module shall be < 10 KVA)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4667	30KVA (Each Power module shall be<10KVA)	NO.	1	228000	228000.00
4680	Battery 12 V 150 AH	NO.	12	9775	117300.00
	Battery Rack i/c connections	NO.	12	500	6000.00
	Total				351300.00
	Cartage@ 1% of A				3513.00
	TOTAL A				354813.000
	(B) LABOUR				
	ITC @4% of A				14192.52
	TOTAL B				14192.52
	TOTAL (A+B)				369005.52
	Overhead & Profit @15%				55350.83
	TOTAL				424356.35
	Labours cess@1%				4243.56
	TOTAL				428599.91
	Add 18% of GST				77147.98
	TOTAL				505748.00

5.2.4 40KVA (Each Power module shall be < 10 KVA)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4668	40KVA (Each Power module shall be<10KVA)	NO.	1	252000	252000.00
4680	Battery 12 V 150 AH	NO.	16	9775	156400.00
	Battery Rack i/c connections	NO.	16	500	8000.00
	Total				416400.00
	Cartage@ 1% of A				4164.00
	TOTAL A				420564.000
	(B) LABOUR				
	ITC @4% of A				16822.56
	TOTAL B				16822.56
	TOTAL (A+B)				437386.56
	Overhead & Profit @15%				65607.98
	TOTAL				502994.54
	Labours cess@1%				5029.95
	TOTAL				508024.49
	Add 18% of GST				91444.41
	TOTAL				599469.00

5.2.5 60KVA (Each Power module shall be < 10 KVA)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4669	60KVA (Each Power module shall be<10KVA)	NO.	1	38800	388000.00
4680	Battery 12 V 150 AH	NO.	24	0977	234600.00
	Battery Rack i/c connections	NO.	24	5500	12000.00
	Total				634600.00
	Cartage@ 1% of A				6346.00
	TOTAL A				640946.000
	(B) LABOUR				
	ITC @4% of A				25637.84
	TOTAL B				25637.84
	TOTAL (A+B)				666583.84
	Overhead & Profit @15%				99987.58
	TOTAL				766571.42
	Labours cess@1%				7665.71
	TOTAL				774237.13
	Add 18% of GST				139362.68
	TOTAL				913600.00

5.2.6 80KVA (Each Power module shall be < 25 KVA)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4670	80KVA (Each Power module shall be<25KVA)	NO.	1	452000	452000.00
4680	Battery 12 V 150 AH	NO.	32	9775	312800.00
	Battery Rack i/c connections	NO.	32	500	16000.00

Total	780800.00
Cartage@ 1% of A	7808.00
TOTAL A	788608.000
(B) LABOUR	
ITC @4% of A	31544.32
TOTAL B	31544.32
TOTAL (A+B)	820152.32
Overhead & Profit @15%	123022.85
TOTAL	943175.17
Labours cess@1%	9431.75
TOTAL	952606.92
Add 18% of GST	171469.25
TOTAL	1124076.00

5.2.7 100KVA (Each Power module shall be < 25 KVA)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4671	100KVA (Each Power module shall be<25KVA) NO.	NO.	1	476000	476000.00
4680	Battery 12 V 150 AH	NO.	40	9775	391000.00
	Battery Rack i/c connections	NO.	40	500	20000.00
	Total				887000.00
	Cartage@ 1% of A				8870.00
	TOTAL A				895870.000
	(B) LABOUR				
	ITC @4% of A				35834.80
	TOTAL B				35834.80
	TOTAL (A+B)				931704.80
	Overhead & Profit @15%				139755.72
	TOTAL				1071460.52
	Labours cess@1%				10714.61
	TOTAL				1082175.13
	Add 18% of GST				194791.52
	TOTAL				1276967.00

5.2.8 120KVA (Each Power module shall be < 25 KVA)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4672	120KVA (Each Power module shall be<25KVA) NO.	NO.	1	524000	524000.00
4680	Battery 12 V 150 AH	NO.	48	9775	469200.00
	Battery Rack i/c connections	NO.	48	500	24000.00
	Total				1017200.00
	Cartage@ 1% of A				10172.00
	TOTAL A				1027372.000
	(B) LABOUR				
	ITC @4% of A				41094.88
	TOTAL B				41094.88
	TOTAL (A+B)				1068466.88

Overhead & Profit @15%	160270.03
TOTAL	1228736.91
Labours cess@1%	12287.37
TOTAL	1241024.28
Add 18% of GST	223384.37
TOTAL	1464409.00

5.2.9 160KVA (Each Power module shall be < 25 KVA)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4673	160KVA (Each Power module shall be<25KVA) NO.	NO.	1	744000	744000.00
4680	Battery 12 V 150 AH	NO.	60	9775	586500.00
	Battery Rack i/c connections	NO.	60	500	30000.00
	Total				1360500.00
	Cartage@ 1% of A				13605.00
	TOTAL A				1374105.000
	(B) LABOUR				
	ITC @4% of A				54964.20
	TOTAL B				54964.20
	TOTAL (A+B)				1429069.20
	Overhead & Profit @15%				214360.38
	TOTAL				1643429.58
	Labours cess@1%				16434.30
	TOTAL				1659863.88
	Add 18% of GST				298775.50
	TOTAL				1958639.00

5.2.10 200KVA (Each Power module shall be < 50 KVA)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4674	200KVA (Each Power module shall be<50KVA) NO.	NO.	1	828000	828000.00
4680	Battery 12 V 150 AH	NO.	80	9775	782000.00
	Battery Rack i/c connections	NO.	80	500	40000.00
	Total				1650000.00
	Cartage@ 1% of A				16500.00
	TOTAL A				666500.000
	(B) LABOUR				
	ITC @4% of A				66660.00
	TOTAL B				66660.00
	TOTAL (A+B)				1733160.00
	Overhead & Profit @15%				259974.00
	TOTAL				1993134.00
	Labours cess@1%				19931.34
	TOTAL				2013065.34
	Add 18% of GST				362351.76
	TOTAL				2375417.00

5.2.11 300KVA (Each Power module shall be < 50 KVA)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4675	300KVA (Each Power module shall be<50KVA) NO.	NO.	1	1520000	1520000.00
4680	Battery 12 V 150 AH	NO.	120	9775	1173000.00
	Battery Rack i/c connections	NO.	120	500	60000.00
	Total				2753000.00
	Cartage@ 1% of A				27530.00
	TOTAL A				2780530.000
	(B) LABOUR				
	ITC @4% of A				111221.20
	TOTAL B				111221.20
	TOTAL (A+B)				2891751.20
	Overhead & Profit @15%				433762.68
	TOTAL				3325513.88
	Labours cess@1%				33255.14
	TOTAL				3358769.02
	Add 18% of GST				604578.42
	TOTAL				3963347.00

5.2.12 400KVA (Each Power module shall be < 50 KVA)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4676	400KVA (Each Power module shall be<50KVA) NO.	NO.	1	1920000	1920000.00
4680	Battery 12 V 150 AH	NO.	160	9775	1564000.00
	Battery Rack i/c connections	NO.	160	500	80000.00
	Total				3564000.00
	Cartage@ 1% of A				35640.00
	TOTAL A				3599640.000
	(B) LABOUR				
	ITC @4% of A				143985.60
	TOTAL B				143985.60
	TOTAL (A+B)				3743625.60
	Overhead & Profit @15%				561543.84
	TOTAL				4305169.44
	Labours cess@1%				43051.69
	TOTAL				4348221.13
	Add 18% of GST				782679.80
	TOTAL				5130901.00

5.2.13 500KVA (Each Power module shall be < 50 KVA)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4677	500KVA (Each Power module shall be<50KVA) NO.	NO.	1	2240000	2240000.00
4680	Battery 12 V 150 AH	NO.	200	9775	1955000.00
	Battery Rack i/c connections	NO.	200	500	100000.00
	Total				4295000.00
	Cartage@ 1% of A				42950.00
	TOTAL A				4337950.000
	(B) LABOUR				
	ITC @4% of A				173518.00
	TOTAL B				173518.00
	TOTAL (A+B)				4511468.00
	Overhead & Profit @15%				676720.20
	TOTAL				5188188.20
	Labours cess@1%				51881.88
	TOTAL				5240070.08
	Add 18% of GST				943212.61
	TOTAL				6183283.00

CHAPTER-6 DIESEL GENERATOR SET

6.0 Supply, installation, Testing & Commissioning of 'Silent Type Diesel Generating set as per CPCB IV + or better norms along with having Prime Power Rating of KVA as below, 415 volts at 1500 RPM, 0.8 lagging power factor at 415 V suitable for 50 Hz, 3 phase system & for 0.85 Load Factor, including testing at factory and site with fuel, load for test and other necessary arrangements Complete as per CPWD specifications, should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. and consisting of the followings:

(A) Diesel Engine:

Tourbocharged Diesel engine 4 stroke water cooled, multi cylinder, dynamically balanced fly wheel, electric start of suitable BHP at 1500 RPM suitable for above output of alternator at 40 Degree C, 50% RH & at 1000 Meter MSL , capable of taking 10% over loading for one hour after 12 hours of continuous operation. The engine will be with Electronic governor, Dry type Air filter with service indicator, first filling of engine fuel (after commissioning) lubricating Oil, Coolant and other consumables complete with all the required accessories, the Electronic governor shall be as per ISO 8528. The engine shall comply to the latest CPCB norms (CPCB IV + or better) and Conforming to BS 5514, BS 649, IS 10000, IS 10002, IS 13018 and as per CPWD specifications.

(B) Engine mounted Instrument Panel fitted with and having digital display for following:

- (i) Start-stop switch with key**
- (ii) Water temperature indication**
- (iii) Lubrication oil pressure indication**
- (iv) Lubrication oil temperature indication**
- (v) Battery charging indication and Voltage indication**
- (vi) RPM indication**
- (vii) Over speed indication**
- (viii) Low lubrication Oil trip indication**
- (ix) Engine Running Hours indication**
- (x) Fuel Level**

(C) Alternator:

Synchronous alternator rated of appropriate KVA, 415 volts at 1500 RPM, 3 phase 50 Hz, AC supply with 0.8 lagging power factor at 40 Degree C, 50% RH & at 1000 Meter MSL. The alternator shall be having Screen Protected Drip Proof (SPDP) enclosure IP23, brushless, continuous duty, dynamically balanced rotor, capable of taking 10% over loading for one hour after 12 hours of continuous operation, self cooled, self-excited and self-regulated through AVR conforming to IS13364(Part 2)/IS: 4722/BS 2613 suitable for tropical conditions and with class- H insulation.

(D) Base Frame & Foundation:

Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendations of manufacturer.

(E) FUEL TANK:

Daily service fuel tank of suitable liters capacity as per CPWD Specifications, fabricated out of 3 mm thick M.S. sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications & accessories as required as per specifications.

(F) Exhaust System:

Dry exhaust manifold with hospital type exhaust silencer and catalytic convertor

(G) Starting System:

12V/24V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with suitable numbers of batteries (180 AH capacity lead acid SMF type) as required as per specifications. The battery shall be housed inside the acoustic enclosure of DG Set.

(H) Acoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air in to the atmosphere and the temperature rise inside the enclosure, noise level outside enclosure. The acoustic enclosure should be suitable for cable connection/connection through bus-trunking. Such arrangements on acoustic enclosure should be water proof & dust-proof conforming to IP-65 protection. The enclosure shall be as per CPCB IV + or better norms etc. and as per CPWD specifications.

(I) AMF Panel:

Free standing floor mounted IP 42 automatic mains failure control panel including auto by-pass, suitable for KVA as below for silent type DG set complete with relays, timers, set of CTs for metering & protection and energy analyser to indicate currents, phase and line voltages, frequency, power factor, KWH, Kilo Volt Ampere Reactive Hour (KVARH), KVA (Phase & Total), KW & provision for overload, short circuit, restricted earth fault, under frequency, power (aluminium) and control (copper) cabling of suitable size upto 15 meter between AMF panel, LT Panel and DG Set including connection interconnection etc. as required, all complete and inter locking and communication/ Ethernet /RS485/SNMP port open protocol for BMS integration including suitable software, the panel shall be of DG Set OEM make etc. as per approved by Engineering in charge and including the following:

1. Suitable numbers and appropriate capacity 4 pole motorised electrically operated draw out with cradle type 3 position ACB/ MCCB with electronic release for O/C & E/F and shunt trip.

2. Auto/Manual/Test/Off selector switch

3. Protection for under and over voltage phase reversal (2 nos Over voltage relay, 2 Nos. reverse power relay and 2 Nos. under voltage relay).

4. 3 Sets of current transformers 15 P 10 accuracy for protection and 15 VA class-I for metering

5. Energy analyser unit to indicate current, Voltage(L-N & L_L), kW, kVA (Phase & Total), Frequency, KWH, PF.

6. LED Indicating lamps for load on mains and load on set
7. Fuse/ MCB for instruments
8. Battery charger, complete with transformer/ rectifier, D.C. voltmeter and ammeter, selector switch for trickle, off and boost and current adjustment.
9. Main supply failure monitor
10. Supply failure timer
11. Restoration timer
12. Control unit with three impulse automatic engine start/stop and failure to start lockout.
13. Impulse counter with locking and reset facility.
14. ON/OFF/Control circuit switch with indicator
15. Audio/Video annunciation for
 - (i) High water temperature
 - (ii) Low lubricating oil pressure
 - (iii) Engine over speed
 - (iv) Engine fails to start
 - (v) Full load/maximum load warning
16. Protection for over/under Frequency, Loss of AC sensing, Over Current, Unbalancing load with suitable number of relays and accessories.
17. Maintenance notification based on Engine Run Hour & due date.

6.1.1 25KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4681	25 kVA	Each	1	266000	266000.00
	Total				266000.00
	Cartage@ 1% of A				2660.00
	TOTAL A				268660.000
	(B) LABOUR				
	ITC @4% of A				10746.40
	TOTAL B				0746.40
	TOTAL (A+B)				279406.40
	Overhead & Profit @15%				41910.96
	TOTAL				321317.36
	Labours cess@1%				3213.17
	TOTAL				324530.53
	Add 18% of GST				58415.50
	TOTAL				382946.00

6.1.2 35 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4682	35 KVA	Each	1	294500	294500.00
	Total				294500.00
	Cartage@ 1% of A				2945.00
	TOTAL A				297445.000
	(B) LABOUR				
	ITC @4% of A				11897.80
	TOTAL B				11897.80
	TOTAL (A+B)				309342.80
	Overhead & Profit @15%				46401.42
	TOTAL				355744.22
	Labours cess@1%				3557.44
	TOTAL				359301.66
	Add 18% of GST				64674.30
	TOTAL				423976.00

6.1.3 40 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4683	40 KVA	Each	1	351500	351500.00
	Total				351500.00
	Cartage@ 1% of A				3515.00
	TOTAL A				355015.000
	(B) LABOUR				
	ITC @4% of A				14200.60
	TOTAL B				14200.60
	TOTAL (A+B)				369215.60
	Overhead & Profit @15%				55382.34
	TOTAL				424597.94
	Labours cess@1%				4245.98
	TOTAL				428843.92
	Add 18% of GST				77191.91
	TOTAL				506036.00

6.1.4 50 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4684	50 KVA	Each	1	372875	372875.00
	Total				372875.00
	Cartage@ 1% of A				3728.75
	TOTAL A				376603.750
	(B) LABOUR				
	ITC @4% of A				15064.15
	TOTAL B				15064.15

TOTAL (A+B)	391667.90
Overhead & Profit @15%	58750.19
TOTAL	450418.09
Labours cess@1%	4504.18
TOTAL	54922.27
Add 18% of GST	81886.01
TOTAL	536808.00

6.1.5 62.5 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4685	62.5 KVA	Each	1	394250	394250.00
	Total				394250.00
	Cartage@ 1% of A				3942.50
	TOTAL A				398192.500
	(B) LABOUR				
	ITC @4% of A				15927.70
	TOTAL B				15927.70
	TOTAL (A+B)				414120.20
	Overhead & Profit @15%				62118.03
	TOTAL				476238.23
	Labours cess@1%				4762.38
	TOTAL				481000.61
	Add 18% of GST				86580.11
	TOTAL				567581.00

6.1.6 82.5KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4686	82.5KVA	Each	1	489250	489250.00
	Total				489250.00
	Cartage@ 1% of A				4892.50
	TOTAL A				494142.500
	(B) LABOUR				
	ITC @4% of A				19765.70
	TOTAL B				19765.70
	TOTAL (A+B)				513908.20
	Overhead & Profit @15%				77086.23
	TOTAL				590994.43
	Labours cess@1%				5909.94
	TOTAL				596904.37
	Add 18% of GST				107442.79
	TOTAL				704347.00

6.1.7 100 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4687	100 KVA	Each	1	570000	570000.00
	Total				570000.00
	Cartage@ 1% of A				5700.00
	TOTAL A				575700.000
	(B) LABOUR				
	ITC @4% of A				23028.00
	TOTAL B				23028.00
	TOTAL (A+B)				598728.00
	Overhead & Profit @15%				89809.20
	TOTAL				688537.20
	Labours cess@1%				6885.37
	TOTAL				695422.57
	Add 18% of GST				125176.06
	TOTAL				820599.00

6.1.8 125KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4688	125KVA	Each	1	584250	584250.00
	Total				584250.00
	Cartage@ 1% of A				5842.50
	TOTAL A				590092.500
	(B) LABOUR				
	ITC @4% of A				23603.70
	TOTAL B				23603.70
	TOTAL (A+B)				613696.20
	Overhead & Profit @15%				92054.43
	TOTAL				705750.63
	Labours cess@1%				7057.51
	TOTAL				712808.14
	Add 18% of GST				128305.46
	TOTAL				841114.00

6.1.9 160KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4689	160KVA	Each	1	824600	824600.00
	Total				824600.00
	Cartage@ 1% of A				8246.00
	TOTAL A				832846.000
	(B) LABOUR				
	ITC @4% of A				33313.84

TOTAL B	33313.84
TOTAL (A+B)	866159.84
Overhead & Profit @15%	129923.98
TOTAL	996083.82
Labours cess@1%	9960.84
TOTAL	1006044.65
Add 18% of GST	181088.04
TOTAL	1187133.00

6.1.10 200 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4690	200 KVA	Each	1	1021250	1021250.00
	Total				1021250.00
	Cartage@ 1% of A				10212.50
	TOTAL A				1031462.500
	(B) LABOUR				
	ITC @4% of A				41258.50
	TOTAL B				41258.50
	TOTAL (A+B)				1072721.00
	Overhead & Profit @15%				160908.15
	TOTAL				1233629.15
	Labours cess@1%				12336.29
	TOTAL				1245965.44
	Add 18% of GST				224273.78
	TOTAL				1470239.00

6.1.11 250KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4691	250KVA	Each	1	1235000	1235000.00
	Total				1235000.00
	Cartage@ 1% of A				12350.00
	TOTAL A				1247350.000
	(B) LABOUR				
	ITC @4% of A				49894.00
	TOTAL B				49894.00
	TOTAL (A+B)				1297244.00
	Overhead & Profit @15%				194586.60
	TOTAL				1491830.60
	Labours cess@1%				14918.31
	TOTAL				1506748.91
	Add 18% of GST				271214.80
	TOTAL				1777964.00

6.1.12 320 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4692	320 KVA	Each	1	1615000	1615000.00
	Total				1615000.00
	Cartage@ 1% of A				16150.00
	TOTAL A				1631150.000
	(B) LABOUR				
	ITC @4% of A				65246.00
	TOTAL B				65246.00
	TOTAL (A+B)				1696396.00
	Overhead & Profit @15%				254459.40
	TOTAL				1950855.40
	Labours cess@1%				19508.55
	TOTAL				1970363.95
	Add 18% of GST				354665.51
	TOTAL				2325029.00

6.1.13 380KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4693	380KVA	Each	1	1876250	1876250.00
	Total				1876250.00
	Cartage@ 1% of A				18762.50
	TOTAL A				1895012.500
	(B) LABOUR				
	ITC @4% of A				75800.50
	TOTAL B				75800.50
	TOTAL (A+B)				1970813.00
	Overhead & Profit @15%				295621.95
	TOTAL				2266434.95
	Labours cess@1%				22664.35
	TOTAL				2289099.30
	Add 18% of GST				412037.87
	TOTAL				2701137.00

6.1.14 400KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4694	400KVA	Each	1	1947500	1947500.00
	Total				1947500.00
	Cartage@ 1% of A				19475.00
	TOTAL A				1966975.000
	(B) LABOUR				
	ITC @4% of A				78679.00

TOTAL B	78679.00
TOTAL (A+B)	2045654.00
Overhead & Profit @15%	306848.10
TOTAL	2352502.10
Labours cess@1%	23525.02
TOTAL	2376027.12
Add 18% of GST	427684.88
TOTAL	2803712.00

6.1.15 500 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4695	500 KVA	Each	1	2280000	2280000.00
	Total				2280000.00
	Cartage@ 1% of A				22800.00
	TOTAL A				2302800.000
	(B) LABOUR				
	ITC @4% of A				92112.00
	TOTAL B				92112.00
	TOTAL (A+B)				2394912.00
	Overhead & Profit @15%				359236.80
	TOTAL				2754148.80
	Labours cess@1%				27541.49
	TOTAL				2781690.29
	Add 18% of GST				500704.25
	TOTAL				3282395.00

6.1.16 625 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4696	625 KVA	Each	1	3325000	3325000.00
	Total				3325000.00
	Cartage@ 1% of A				33250.00
	TOTAL A				3358250.000
	(B) LABOUR				
	ITC @4% of A				134330.00
	TOTAL B				134330.00
	TOTAL (A+B)				3492580.00
	Overhead & Profit @15%				523887.00
	TOTAL				4016467.00
	Labours cess@1%				40164.67
	TOTAL				4056631.67
	Add 18% of GST				730193.70
	TOTAL				4786825.00

6.1.17 750 KVA

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4697	750 KVA	Each	1	4227500	4227500.00
	Total				4227500.00
	Cartage@ 1% of A				42275.00
	TOTAL A				4269775.000
	(B) LABOUR				
	ITC @4% of A				170791.00
	TOTAL B				170791.00
	TOTAL (A+B)				4440566.00
	Overhead & Profit @15%				666084.90
	TOTAL				5106650.90
	Labours cess@1%				51066.51
	TOTAL				5157717.41
	Add 18% of GST				928389.13
	TOTAL				6086107.00

CHAPTER-7 VRV/VRF

OUTDOOR UNIT

- 7.1 Supply, Installation, Testing & Commissioning of Modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling/heating having 100% hermetically sealed inverter type twin Rotary/Scroll Compressor(s), minimum two compressors (with individual separate PCB) for above 14HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R-410-A Refrigerant or equivalent, vibration Isolators with suitable foundation etc. complete as required. To have better efficiency condensor fan shall be capable to operate at different speed with respect to load. The unit shall deliver the rated capacity and in confirmation as per IS 18728:2024 and CPWD Specifications and work even at 50°C ambient temperature without tripping. The system shall be able to deliver 100% of the rated capacity upto 39 Degree Celcius. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply and BMS compatible. The unit shall be filled with first charge of the refrigerant and ready for use as required. The condenser should be coated with a hydrophilic film to prevent water accumulation on the surface of the heat exchanger, enhance water dispersion, and reduce the risk of degradation, thereby improving overall performance and durability. The Indian Seasonal Energy Efficiency Ratio (ISEER) of the unit shall be as per Energy Conservation and Sustainable Building Code (ECSBC) 2024 as below and complete as per CPWD specification, connections, inter connections etc. as required. (For capacity <40 kW ISEER 5.4, Capacity > 40 and <70 ISEER 5.5, Capacity > 70 ISEER 5.6 for ECSBC Building)**

For Cooling or Heating or Both

7.1.1 6 HP to 8 HP

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4698	Basic Price for Per HP i/c accessories, fittings, supports etc	Each	1	14550	14550.00
	Cartage@ 1% of A				145.50
	TOTAL A				14695.50
	ITC @4% of A				587.82
	TOTAL				15283.32
	Overhead & Profit @15%				2292.50
	TOTAL				17575.82
	Labours cess@1%				175.76
	TOTAL				17751.58
	Add 18% of GST				3195.28
	TOTAL				20946.86
	Say RS.				20947.00

7.1.2 10 HP to 12 HP

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4699	Basic Price for Per HP i/c accessories, fittings, supports etc	Each	1	13950	13950.00
	Cartage@ 1% of A				139.50
	TOTAL A				14089.50
	ITC @4% of A				563.58
	TOTAL				14653.08
	Overhead & Profit @15%				2197.96
	TOTAL				16851.04
	Labours cess@1%				168.51
	TOTAL				17019.55
	Add 18% of GST				3063.52
	TOTAL				20083.07
	Say RS.				20083.00

7.1.3 14 HP to 22 HP

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4700	Basic Price for Per HP i/c accessories, fittings, supports etc	Each	1	13275	13275.00
	Cartage@ 1% of A				132.75
	TOTAL A				13407.75
	ITC @4% of A				536.31
	TOTAL				13944.06
	Overhead & Profit @15%				2091.61
	TOTAL				16035.67
	Labours cess@1%				160.36
	TOTAL				16196.03
	Add 18% of GST				2915.28
	TOTAL				19111.31
	Say RS.				19111.00

7.2 Supply, Installation, Testing & Commissioning of Modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling/heating having 100% hermetically sealed inverter type twin Rotary/Scroll Compressor(s), minimum two compressors (with individual separate PCB) for above 14HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R-410-A Refrigerant or equivalent, vibration Isolators with suitable foundation etc. complete as required. To have better efficiency condensor fan shall be capable to operate at different speed with respect to load. The unit shall deliver the rated capacity and in confirmation as per IS 18728:2024 and CPWD Specifications and work even at 50°C ambient temperature without tripping. The system shall be able to deliver 100% of the rated capacity upto 39 Degree Celcius. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply and BMS compatible. The unit shall be filled with first charge of the

refrigerant and ready for use as required. The condenser should be coated with a hydrophilic film to prevent water accumulation on the surface of the heat exchanger, enhance water dispersion, and reduce the risk of degradation, thereby improving overall performance and durability. The Indian Seasonal Energy Efficiency Ratio (ISEER) of the unit shall be as per Energy Conservation and Sustainable Building Code (ECSBC) 2024 as below and complete as per CPWD specification, connections, inter connections etc. as required. (For capacity <40 kW ISEER 6.4, Capacity > 40 and <70 ISEER 6.5, Capacity > 70 ISEER 6.6 for ECSBC+ Building)

For Cooling or Heating or Both

7.2.1 6 HP to 8 HP

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4701	Basic Price for Per HP i/c accessories, fittings, supports etc	Each	1	15520	15520.00
	Cartage@ 1% of A				155.20
	TOTAL A				15675.20
	ITC @4% of A				627.01
	TOTAL				16302.21
	Overhead & Profit @15%				2445.33
	TOTAL				18747.54
	Labours cess@1%				187.48
	TOTAL				18935.01
	Add 18% of GST				3408.30
	TOTAL				22343.32
	Say RS.				22343.00

7.2.2 10 HP to 12 HP

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4702	Basic Price for Per HP i/c accessories, fittings, supports etc	Each	1	14880	14880.00
	Cartage@ 1% of A				148.80
	TOTAL A				15028.80
	ITC @4% of A				601.15
	TOTAL				15629.95
	Overhead & Profit @15%				2344.49
	TOTAL				17974.44
	Labours cess@1%				179.74
	TOTAL				18154.19
	Add 18% of GST				3267.75
	TOTAL				21421.94
	Say RS.				21422.00

7.2.3 14 HP to 22 HP

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4703	Basic Price for Per HP i/c accessories, fittings, supports etc	Each	1	14160	14160.00
	Cartage@ 1% of A				141.60
	TOTAL A				14301.60
	ITC @4% of A				572.06
	TOTAL				14873.66
	Overhead & Profit @15%				2231.05
	TOTAL				17104.71
	Labours cess@1%				171.05
	TOTAL				17275.76
	Add 18% of GST				3109.64
	TOTAL				20385.40
	Say RS.				20385.00

- 7.3 Supply, Installation, Testing & Commissioning of Modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling/heating having 100% hermetically sealed inverter type twin Rotary/Scroll Compressor(s), minimum two compressors (with individual separate PCB) for above 14HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R-410-A Refrigerant or equivalent, vibration Isolators with suitable foundation etc. complete as required. To have better efficiency condensor fan shall be capable to operate at different speed with respect to load. The unit shall deliver the rated capacity and in confirmation as per IS 18728:2024 and CPWD Specifications and work even at 50°C ambient temperature without tripping. The system shall be able to deliver 100% of the rated capacity upto 39 Degree Celcius. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply and BMS compatible. The unit shall be filled with first charge of the refrigerant and ready for use as required. The condenser should be coated with a hydrophilic film to prevent water accumulation on the surface of the heat exchanger, enhance water dispersion, and reduce the risk of degradation, thereby improving overall performance and durability. The Indian Seasonal Energy Efficiency Ratio (ISEER) of the unit shall be as per Energy Conservation and Sustainable Building Code (ECSBC) 2024 as below and complete as per CPWD specification, connections, inter connections etc. as required. (For capacity <40 kW ISEER 7.4, Capacity > 40 and <70 ISEER 7.5, Capacity > 70 ISEER 7.6 for Super ECSBC Building)**

For Cooling or Heating or Both

7.3.1 6 HP to 8 HP

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4704	Basic Price for Per HP i/c accessories, fittings, supports etc	Each	1	16490	16490.00
	Cartage@ 1% of A				164.90
	TOTAL A				16654.90

ITC @4% of A	666.20
TOTAL	17321.10
Overhead & Profit @15%	2598.16
TOTAL	19919.26
Labours cess@1%	199.19
TOTAL	20118.45
Add 18% of GST	3621.32
TOTAL	23739.77
Say RS.	23740.00

7.3.2 10 HP to 12 HP

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4705	Basic Price for Per HP i/c accessories, fittings, supports etc	Each	1	15810	15810.00
	Cartage@ 1% of A				158.10
	TOTAL A				15968.10
	ITC @4% of A				638.72
	TOTAL				16606.82
	Overhead & Profit @15%				2491.02
	TOTAL				19097.85
	Labours cess@1%				190.98
	TOTAL				19288.83
	Add 18% of GST				3471.99
	TOTAL				22760.81
	Say RS.				22761.00

7.3.3 14 HP to 22 HP

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4706	Basic Price for Per HP i/c accessories, fittings, supports etc	Each	1	15045	15045.00
	Cartage@ 1% of A				150.45
	TOTAL A				15195.45
	ITC @4% of A				607.82
	TOTAL				15803.27
	Overhead & Profit @15%				2370.49
	TOTAL				18173.76
	Labours cess@1%				181.74
	TOTAL				18355.50
	Add 18% of GST				3303.99
	TOTAL				21659.49
	Say RS.				21659.00

- 7.4 Supply, Installation, Testing and Commissioning of following minimum capacity 4 way Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V \pm 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a singal from the BMS System/Fire Singnals. The system shall be capable to adjust air flow as per room requirement in auto mode. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)**

7.4.1 0.8 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4707	Basic Price for 0.8 TR i/c accessories, fittings,supports etc	Each	1	15493	15492.60
	Cartage@ 1% of A				154.93
	TOTAL A				15647.53
	ITC @4% of A				625.90
	TOTAL				16273.43
	Overhead & Profit @15%				2441.01
	TOTAL				18714.44
	Labours cess@1%				187.14
	TOTAL				18901.59
	Add 18% of GST				3402.29
	TOTAL				22303.87
	Say RS.				22304.00

7.4.2 1.0 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4708	Basic Price for 1.0 TR i/c accessories, fittings, supports etc	Each	1	19365.75	19365.75
	Cartage@ 1% of A				193.66
	TOTAL A				19559.41
	ITC @4% of A				782.38
	TOTAL				20341.78
	Overhead & Profit @15%				3051.27
	TOTAL				23393.05
	Labours cess@1%				233.93
	TOTAL				23626.98
	Add 18% of GST				4252.86
	TOTAL				27879.84
	Say RS.				27880.00

7.4.3 1.2 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4709	Basic Price for 1.2 TR i/c accessories, fittings,supports etc	Each	1	26812.5	26812.50
	Cartage@ 1% of A				268.13
	TOTAL A				27080.63
	ITC @4% of A				1083.23
	TOTAL				28163.85
	Overhead & Profit @15%				4224.58
	TOTAL				32388.43
	Labours cess@1%				323.88
	TOTAL				32712.31
	Add 18% of GST				5888.22
	TOTAL				38600.53
	Say RS.				38601.00

7.4.4 1.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4710	Basic Price for 1.6 TR i/c accessories, fittings, supports etc	Each	1	27412.5	27412.50
	Cartage@ 1% of A				274.13
	TOTAL A				27686.63
	ITC @4% of A				1107.47
	TOTAL				28794.09
	Overhead & Profit @15%				4319.11
	TOTAL				33113.20
	Labours cess@1%				331.13
	TOTAL				33444.34
	Add 18% of GST				6019.98
	TOTAL				39464.32
	Say RS.				39464.00

7.4.5 2.0 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4711	Basic Price for 2.0 TR i/c accessories, fittings, supports etc	Each	1	27600	27600.00
	Cartage@ 1% of A				276.00
	TOTAL A				27876.00
	ITC @4% of A				1115.04
	TOTAL				28991.04
	Overhead & Profit @15%				4348.66
	TOTAL				33339.70

Labours cess@1%	333.40
TOTAL	33673.09
Add 18% of GST	6061.16
TOTAL	39734.25
Say RS.	39734.00

7.4.6 2.4 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4712	Basic Price for 2.4 TR i/c accessories, fittings, supports etc	Each	1	28350	28350.00
	Cartage@ 1% of A				283.50
	TOTAL A				28633.50
	ITC @4% of A				1145.34
	TOTAL				29778.84
	Overhead & Profit @15%				4466.83
	TOTAL				34245.67
	Labours cess@1%				342.46
	TOTAL				34588.12
	Add 18% of GST				6225.86
	TOTAL				40813.98
	Say RS.				40814.00

7.4.7 2.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4713	Basic Price for 2.6 TR i/c accessories, fittings, supports etc	Each	1	28350	28350.00
	Cartage@ 1% of A				283.50
	TOTAL A				28633.50
	ITC @4% of A				1145.34
	TOTAL				29778.84
	Overhead & Profit @15%				4466.83
	TOTAL				34245.67
	Labours cess@1%				342.46
	TOTAL				34588.12
	Add 18% of GST				6225.86
	TOTAL				40813.98
	Say RS.				40814.00

7.4.8 3.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4714	Basic Price for 3.6 TR i/c accessories, fittings, supports etc	Each	1	30750	30750.00
	Cartage@ 1% of A				307.50
	TOTAL A				31057.50

ITC @4% of A	1242.30
TOTAL	32299.80
Overhead & Profit @15%	4844.97
TOTAL	37144.77
Labours cess@1%	371.45
TOTAL	37516.22
Add 18% of GST	6752.92
TOTAL	44269.14
Say RS.	44269.00

7.4.9 4.1 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4715	Basic Price for 4.1 TR i/c accessories, fittings, supports etc	Each	1	31800	31800.00
	Cartage@ 1% of A				318.00
	TOTAL A				32118.00
	ITC @4% of A				1284.72
	TOTAL				33402.72
	Overhead & Profit @15%				5010.41
	TOTAL				38413.13
	Labours cess@1%				384.13
	TOTAL				38797.26
	Add 18% of GST				6983.51
	TOTAL				45780.77
	Say RS.				45781.00

7.4.10 4.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4716	Basic Price for 4.6 TR i/c accessories, fittings, supports etc	Each	1	36675	36675.00
	Cartage@ 1% of A				366.75
	TOTAL A				37041.75
	ITC @4% of A				1481.67
	TOTAL				38523.42
	Overhead & Profit @15%				5778.51
	TOTAL				44301.93
	Labours cess@1%				443.02
	TOTAL				4744.95
	Add 18% of GST				8054.09
	TOTAL				52799.04
	Say RS.				52799.00

- 7.5 Supply, Installation, Testing and Commissioning of following minimum capacity 4-way compact VRV/VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V \pm 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)**

7.5.1 0.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4717	Basic Price for 0.6 TR i/c accessories, fittings, supports etc	Each	1	15705	15705.00
	Cartage@ 1% of A				157.05
	TOTAL A				15862.05
	ITC @4% of A				634.48
	TOTAL				16496.53
	Overhead & Profit @15%				2474.48
	TOTAL				18971.01
	Labours cess@1%				189.71
	TOTAL				19160.72
	Add 18% of GST				3448.93
	TOTAL				22609.65
	Say RS.				22610.00

7.5.2 0.8 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4718	Basic Price for 0.8 TR i/c accessories, fittings, supports etc	Each	1	17450	17450.00
	Cartage@ 1% of A				174.50
	TOTAL A				17624.50
	ITC @4% of A				704.98
	TOTAL				18329.48
	Overhead & Profit @15%				2749.42
	TOTAL				21078.90
	Labours cess@1%				210.79
	TOTAL				21289.69
	Add 18% of GST				3832.14
	TOTAL				25121.84
	Say RS.				25122.00

7.5.3 1.0 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4719	Basic Price for 1.0 TR i/c accessories, fittings, supports etc	Each	1	27375	27375.00
	Cartage@ 1% of A				273.75
	TOTAL A				27648.75
	ITC @4% of A				1105.95
	TOTAL				28754.70
	Overhead & Profit @15%				4313.21
	TOTAL				33067.91
	Labours cess@1%				330.68
	TOTAL				33398.58
	Add 18% of GST				6011.75
	TOTAL				39410.33
	Say RS.				39410.00

7.5.4 1.2 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4720	Basic Price for 1.2 TR i/c accessories, fittings, supports etc	Each	1	27750	27750.00
	Cartage@ 1% of A				277.50
	TOTAL A				28027.50
	ITC @4% of A				1121.10
	TOTAL				29148.60
	Overhead & Profit @15%				4372.29
	TOTAL				33520.89
	Labours cess@1%				335.21
	TOTAL				33856.10
	Add 18% of GST				6094.10
	TOTAL				39950.20
	Say RS.				39950.00

7.5.5 1.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4721	Basic Price for 1.6 TR i/c accessories, fittings, supports etc	Each	1	27750	27750.00
	Cartage@ 1% of A				277.50
	TOTAL A				28027.50
	ITC @4% of A				1121.10
	TOTAL				29148.60
	Overhead & Profit @15%				4372.29
	TOTAL				33520.89
	Labours cess@1%				335.21

TOTAL	33856.10
Add 18% of GST	6094.103
TOTAL	9950.20
Say RS.	39950.00

- 7.6 Supply, Installation, Testing and Commissioning of following minimum capacity Single way wall/corner VRV/VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V \pm 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)**

7.6.1 0.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4722	Basic Price for 0.6 TR i/c accessories, fittings, supports etc	Each	1	21000	21000.00
	Cartage@ 1% of A				210.00
	TOTAL A				21210.00
	ITC @4% of A				848.40
	TOTAL				22058.40
	Overhead & Profit @15%				3308.76
	TOTAL				25367.16
	Labours cess@1%				253.67
	TOTAL				25620.83
	Add 18% of GST				4611.75
	TOTAL				30232.58
	Say RS.				30233.00

7.6.2 0.8 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4723	Basic Price for 0.8 TR i/c accessories, fittings, supports etc	Each	1	21450	21450.00
	Cartage@ 1% of A				214.50
	TOTAL A				21664.50
	ITC @4% of A				866.58
	TOTAL				22531.08
	Overhead & Profit @15%				3379.66
	TOTAL				25910.74
	Labours cess@1%				259.11
	TOTAL				26169.85

Add 18% of GST	4710.57
TOTAL	30880.42
Say RS.	30880.00

7.6.3 1.0 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4724	Basic Price for 1.0 TR i/c accessories, fittings, supports etc	Each	1	22500	22500.00
	Cartage@ 1% of A				225.00
	TOTAL A				22725.00
	ITC @4% of A				909.00
	TOTAL				23634.00
	Overhead & Profit @15%				3545.10
	TOTAL				27179.10
	Labours cess@1%				271.79
	TOTAL				27450.89
	Add 18% of GST				4941.16
	TOTAL				32392.05
	Say RS.				32392.00

7.6.4 1.2 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4725	Basic Price for 1.2 TR i/c accessories, fittings, supports etc	Each	1	29400	29400.00
	Cartage@ 1% of A				294.00
	TOTAL A				29694.00
	ITC @4% of A				1187.76
	TOTAL				30881.76
	Overhead & Profit @15%				4632.26
	TOTAL				35514.02
	Labours cess@1%				355.14
	TOTAL				35869.16
	Add 18% of GST				6456.45
	TOTAL				42325.61
	Say RS.				42326.00

7.6.5 1.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4726	Basic Price for 1.6 TR i/c accessories, fittings, supports etc	Each	1	29400	29400.00
	Cartage@ 1% of A				294.00
	TOTAL A				29694.00
	ITC @4% of A				1187.76

TOTAL	30881.76
Overhead & Profit @15%	4632.26
TOTAL	35514.02
Labours cess@1%	355.14
TOTAL	35869.16
Add 18% of GST	6456.45
TOTAL	42325.61
Say RS.	42326.00

7.6.6 2.0 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4727	Basic Price for 2.0 TR i/c accessories, fittings, supports etc	Each	1	30300	30300.00
	Cartage@ 1% of A				303.00
	TOTAL A				30603.00
	ITC @4% of A				1224.12
	TOTAL				31827.12
	Overhead & Profit @15%				4774.07
	TOTAL				36601.19
	Labours cess@1%				366.01
	TOTAL				36967.20
	Add 18% of GST				6654.10
	TOTAL				43621.30
	Say RS.				43621.00

7.7 Supply, Installation, Testing and Commissioning of following minimum capacity Double way VRV/VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V ± 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a singal from the BMS System/Fire Singnals. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)

7.7.1 0.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4728	Basic Price for 0.6 TR i/c accessories, fittings, supports etc	Each	1	30600	30600.00
	Cartage@ 1% of A				306.00
	TOTAL A				30906.00
	ITC @4% of A				1236.24
	TOTAL				32142.24
	Overhead & Profit @15%				4821.34

TOTAL	36963.58
Labours cess@1%	369.64
TOTAL	37333.21
Add 18% of GST	6719.98
TOTAL	44053.19
Say RS.	44053.00

7.7.2 1.0 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4729	Basic Price for 1.0 TR i/c accessories, fittings, supports etc	Each	1	32550	32550.00
	Cartage@ 1% of A				325.50
	TOTAL A				32875.50
	ITC @4% of A				1315.02
	TOTAL				34190.52
	Overhead & Profit @15%				5128.58
	TOTAL				39319.10
	Labours cess@1%				393.19
	TOTAL				39712.29
	Add 18% of GST				7148.21
	TOTAL				46860.50
	Say RS.				46861.00

7.7.3 2.0 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4730	Basic Price for 2.0 TR i/c accessories, fittings, supports etc	Each	1	39750	39750.00
	Cartage@ 1% of A				397.50
	TOTAL A				40147.50
	ITC @4% of A				1605.90
	TOTAL				41753.40
	Overhead & Profit @15%				6263.01
	TOTAL				48016.41
	Labours cess@1%				480.16
	TOTAL				48496.57
	Add 18% of GST				8729.38
	TOTAL				57225.96
	Say RS.				57226.00

7.7.4 3.3 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4731	Basic Price for 3.3 TR i/c accessories, fittings, supports etc	Each	1	42053	42052.50

Cartage@ 1% of A	420.53
TOTAL A	42473.03
ITC @4% of A	1698.92
TOTAL	44171.95
Overhead & Profit @15%	6625.79
TOTAL	50797.74
Labours cess@1%	507.98
TOTAL	51305.72
Add 18% of GST	9235.03
TOTAL	60540.74
Say RS.	60541.00

7.7.5 4.2 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4732	Basic Price for 4.2 TR i/c accessories, fittings, supports etc	Each	1	44575.5	44575.50
	Cartage@ 1% of A				445.76
	TOTAL A				45021.26
	ITC @4% of A				1800.85
	TOTAL				46822.11
	Overhead & Profit @15%				7023.32
	TOTAL				53845.42
	Labours cess@1%				538.45
	TOTAL				54383.88
	Add 18% of GST				9789.10
	TOTAL				64172.97
	Say RS.				64173.00

7.8 Supply, Installation, Testing and Commissioning of following minimum capacity High wall type Indoor unit equipped with and comfort washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, outer cabinet, cord less remote control, drain pan, necessary accessories etc., suitable for operation on 230 V ± 10%, 50 Hz, single phase AC supply, complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)

7.8.1 0.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4733	Basic Price for 0.6 TR i/c accessories, fittings, supports etc	Each	1	11662.5	11662.50
	Cartage@ 1% of A				116.63
	TOTAL A				11779.13
	ITC @4% of A				471.17

TOTAL	12250.29
Overhead & Profit @15%	1837.54
TOTAL	14087.83
Labours cess@1%	140.88
TOTAL	14228.71
Add 18% of GST	2561.17
TOTAL	16789.88
Say RS.	16790.00

7.8.2 0.8 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4734	Basic Price for 0.8 TR i/c accessories, fittings, supports etc	Each	1	12000	12000.00
	Cartage@ 1% of A				120.00
	TOTAL A				12120.00
	ITC @4% of A				484.80
	TOTAL				12604.80
	Overhead & Profit @15%				1890.72
	TOTAL				14495.52
	Labours cess@1%				144.96
	TOTAL				14640.48
	Add 18% of GST				2635.29
	TOTAL				17275.76
	Say RS.				17276.00

7.8.3 1.0 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4735	Basic Price for 1.0 TR i/c accessories, fittings, supports etc	Each	1	12375	12375.00
	Cartage@ 1% of A				123.75
	TOTAL A				12498.75
	ITC @4% of A				499.95
	TOTAL				12998.70
	Overhead & Profit @15%				1949.81
	TOTAL				14948.51
	Labours cess@1%				149.49
	TOTAL				15097.99
	Add 18% of GST				2717.64
	TOTAL				17815.63
	Say RS.				17816.00

7.8.4 1.2 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4736	Basic Price for 1.2 TR i/c accessories, fittings, supports etc	Each	1	15000	15000.00
	Cartage@ 1% of A				150.00
	TOTAL A				15150.00
	ITC @4% of A				606.00
	TOTAL				15756.00
	Overhead & Profit @15%				2363.40
	TOTAL				18119.40
	Labours cess@1%				181.19
	TOTAL				18300.59
	Add 18% of GST				3294.11
	TOTAL				21594.70
	Say RS.				21595.00

7.8.5 1.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4737	Basic Price for 1.6 TR i/c accessories, fittings, supports etc	Each	1	15300	15300.00
	Cartage@ 1% of A				153.00
	TOTAL A				15453.00
	ITC @4% of A				618.12
	TOTAL				16071.12
	Overhead & Profit @15%				2410.67
	TOTAL				18481.79
	Labours cess@1%				184.82
	TOTAL				18666.61
	Add 18% of GST				3359.99
	TOTAL				22026.59
	Say RS.				22027.00

7.8.6 2.0 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4737	Basic Price for 1.6 TR i/c accessories, fittings, supports etc	Each	1	15750	15750.00
	Cartage@ 1% of A				157.50
	TOTAL A				15907.50
	ITC @4% of A				636.30
	TOTAL				16543.80
	Overhead & Profit @15%				2481.57
	TOTAL				19025.37

Labours cess@1%	190.25
TOTAL	19215.62
Add 18% of GST	3458.81
TOTAL	22674.44
Say RS.	22674.00

- 7.9 Supply, Installation, Testing and Commissioning of following minimum capacity and external static pressure VRF/VRV ceiling mounted low static ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration Isolators, drain pan, drain pump, other necessary supports etc., suitable for operation on single phase AC supply 230 V \pm 10%, 50 Hz complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)**

Low static ductable units (minimum 19 to 29 pascal external static pressure)

7.9.1 0.5 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4739	Basic Price for 0.5 TR i/c accessories, fittings, supports etc	Each	1	21000	21000.00
	Cartage@ 1% of A				210.00
	TOTAL A				21210.00
	ITC @4% of A				848.40
	TOTAL				22058.40
	Overhead & Profit @15%				3308.76
	TOTAL				25367.16
	Labours cess@1%				253.67
	TOTAL				25620.83
	Add 18% of GST				4611.75
	TOTAL				30232.58
	Say RS.				30233.00

7.9.2 0.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4740	Basic Price for 0.6 TR i/c accessories, fittings, supports etc	Each	1	21450	21450.00
	Cartage@ 1% of A				214.50
	TOTAL A				21664.50
	ITC @4% of A				866.58
	TOTAL				22531.08
	Overhead & Profit @15%				3379.66

TOTAL	25910.74
Labours cess@1%	259.11
TOTAL	26169.85
Add 18% of GST	4710.57
TOTAL	30880.42
Say RS.	30880.00

7.9.3 0.8 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4741	Basic Price for 0.8 TR i/c accessories, fittings, supports etc	Each	1	21675	21675.00
	Cartage@ 1% of A				216.75
	TOTAL A				21891.75
	ITC @4% of A				875.67
	TOTAL				22767.42
	Overhead & Profit @15%				3415.11
	TOTAL				26182.53
	Labours cess@1%				261.83
	TOTAL				26444.36
	Add 18% of GST				4759.98
	TOTAL				31204.34
	Say RS.				31204.00

7.9.4 1.03 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4742	Basic Price for 1.03 TR i/c accessories, fittings, supports etc	Each	1	21975	21975.00
	Cartage@ 1% of A				219.75
	TOTAL A				22194.75
	ITC @4% of A				887.79
	TOTAL				23082.54
	Overhead & Profit @15%				3462.38
	TOTAL				26544.92
	Labours cess@1%				265.45
	TOTAL				26810.37
	Add 18% of GST				4825.87
	TOTAL				31636.24
	Say RS.				31636.00

7.9.5 1.3 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4743	Basic Price for 1.3 TR i/c accessories, fittings, supports etc	Each	1	23925	23925.00
	Cartage@ 1% of A				239.25

TOTAL A	24164.25
ITC @4% of A	966.57
TOTAL	25130.82
Overhead & Profit @15%	3769.62
TOTAL	28900.44
Labours cess@1%	289.00
TOTAL	29189.45
Add 18% of GST	5254.10
TOTAL	34443.55
Say RS.	34444.00

7.9.6 1.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4744	Basic Price for 1.6 TR i/c accessories, fittings, supports etc	Each	1	24300	24300.00
	Cartage@ 1% of A				243.00
	TOTAL A				24543.00
	ITC @4% of A				981.72
	TOTAL				25524.72
	Overhead & Profit @15%				3828.71
	TOTAL				29353.43
	Labours cess@1%				293.53
	TOTAL				29646.96
	Add 18% of GST				5336.45
	TOTAL				34983.42
	Say RS.				34983.00

7.9.7 2.0 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4745	Basic Price for 2.0 TR i/c accessories, fittings, supports etc	Each	1	25050	25050.00
	Cartage@ 1% of A				250.50
	TOTAL A				25300.50
	ITC @4% of A				1012.02
	TOTAL				26312.52
	Overhead & Profit @15%				3946.88
	TOTAL				30259.40
	Labours cess@1%				302.59
	TOTAL				30561.99
	Add 18% of GST				5501.16
	TOTAL				36063.15
	Say RS.				36063.00

- 7.10 Supply, Installation, Testing and Commissioning of following minimum capacity and external static pressure VRF/VRV ceiling mounted mid static ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration Isolators, drain pan, drain pump, other necessary supports etc., suitable for operation on single phase AC supply 230 V \pm 10%, 50 Hz complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)**

Mid static ductable units (minimum 30 to 48 pascal external static pressure)

7.10.1 1.2 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4746	Basic Price for 1.2 TR i/c accessories, fittings, supports etc	Each	1	23850	23850.00
	Cartage@ 1% of A				238.50
	TOTAL A				24088.50
	ITC @4% of A				963.54
	TOTAL				25052.04
	Overhead & Profit @15%				3757.81
	TOTAL				28809.85
	Labours cess@1%				288.10
	TOTAL				29097.94
	Add 18% of GST				5237.63
	TOTAL				34335.57
	Say RS.				34336.00

7.10.2 1.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4746	Basic Price for 1.6 TR i/c accessories, fittings, supports etc	Each	1	24300	24300.00
	Cartage@ 1% of A				243.00
	TOTAL A				24543.00
	ITC @4% of A				981.72
	TOTAL				25524.72
	Overhead & Profit @15%				3828.71
	TOTAL				29353.43
	Labours cess@1%				293.53
	TOTAL				9646.96
	Add 18% of GST				5336.45
	TOTAL				34983.42
	Say RS.				34983.00

7.10.3 2.0 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4748	Basic Price for 2.0 TR i/c accessories, fittings, supports etc	Each	1	25050	25050.00
	Cartage@ 1% of A				250.50
	TOTAL A				25300.50
	ITC @4% of A				1012.02
	TOTAL				26312.52
	Overhead & Profit @15%				3946.88
	TOTAL				30259.40
	Labours cess@1%				302.59
	TOTAL				30561.99
	Add 18% of GST				5501.16
	TOTAL				36063.15
	Say RS.				36063.00

7.10.4 2.4 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4749	Basic Price for 2.4 TR i/c accessories, fittings, supports etc	Each	1	26175	26175.00
	Cartage@ 1% of A				261.75
	TOTAL A				26436.75
	ITC @4% of A				1057.47
	TOTAL				27494.22
	Overhead & Profit @15%				4124.13
	TOTAL				31618.35
	Labours cess@1%				316.18
	TOTAL				31934.54
	Add 18% of GST				5748.22
	TOTAL				37682.75
	Say RS.				37683.00

7.10.5 3.2 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4750	Basic Price for 3.2 TR i/c accessories, fittings, supports etc	Each	1	27900	27900.00
	Cartage@ 1% of A				279.00
	TOTAL A				28179.00
	ITC @4% of A				1127.16
	TOTAL				29306.16
	Overhead & Profit @15%				4395.92
	TOTAL				33702.08
	Labours cess@1%				337.02

TOTAL	34039.10
Add 18% of GST	6127.04
TOTAL	40166.14
Say RS.	40166.00

- 7.11 Supply, Installation, Testing and Commissioning of following minimum capacity and external static pressure VRF/VRV ceiling mounted mid high static ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration Isolators, drain pan, drain pump, other necessary supports etc., suitable for operation on single phase AC supply 230 V \pm 10%, 50 Hz complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)**

High Static Ductable units (minimum 49 to 77 pascal external static pressure)

7.11.1 0.8 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4751	Basic Price for 0.8 TR i/c accessories, fittings, supports etc	Each	1	21887.25	21887.25
	Cartage@ 1% of A				218.87
	TOTAL A				22106.12
	ITC @4% of A				884.24
	TOTAL				22990.37
	Overhead & Profit @15%				3448.56
	TOTAL				26438.92
	Labours cess@1%				264.39
	TOTAL				26703.31
	Add 18% of GST				4806.60
	TOTAL				31509.91
	Say RS.				31510.00

7.11.2 1.03 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4752	Basic Price for 1.03 TR i/c accessories, fittings, supports etc	Each	1	22734.75	22734.75
	Cartage@ 1% of A				227.35
	TOTAL A				22962.10
	ITC @4% of A				918.48
	TOTAL				23880.58
	Overhead & Profit @15%				3582.09
	TOTAL				27462.67

Labours cess@1%	274.63
TOTAL	27737.30
Add 18% of GST	4992.71
TOTAL	32730.01
Say RS.	32730.00

7.11.3 1.2 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4753	Basic Price for 1.2 TR i/c accessories, fittings, supports etc	Each	1	23973.75	23973.75
	Cartage@ 1% of A				239.74
	TOTAL A				24213.49
	ITC @4% of A				968.54
	TOTAL				25182.03
	Overhead & Profit @15%				3777.30
	TOTAL				28959.33
	Labours cess@1%				289.59
	TOTAL				29248.92
	Add 18% of GST				5264.81
	TOTAL				34513.73
	Say RS.				34514.00

7.11.4 1.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4754	Basic Price for 1.6 TR i/c accessories, fittings, supports etc	Each	1	24300	24300.00
	Cartage@ 1% of A				243.00
	TOTAL A				24543.00
	ITC @4% of A				981.72
	TOTAL				25524.72
	Overhead & Profit @15%				3828.71
	TOTAL				29353.43
	Labours cess@1%				293.53
	TOTAL				29646.96
	Add 18% of GST				5336.45
	TOTAL				34983.42
	Say RS.				34983.00

7.11.5 2.0 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4755	Basic Price for 2.0 TR i/c accessories, fittings, supports etc	Each	1	25050	25050.00
	Cartage@ 1% of A				250.50
	TOTAL A				25300.50

ITC @4% of A	1012.02
TOTAL	26312.52
Overhead & Profit @15%	3946.88
TOTAL	30259.40
Labours cess@1%	302.59
TOTAL	30561.99
Add 18% of GST	5501.16
TOTAL	36063.15
Say RS.	36063.00

7.11.6 2.4 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4756	Basic Price for 2.4 TR i/c accessories, fittings, supports etc	Each	1	26175	26175.00
	Cartage@ 1% of A				261.75
	TOTAL A				26436.75
	ITC @4% of A				1057.47
	TOTAL				27494.22
	Overhead & Profit @15%				4124.13
	TOTAL				31618.35
	Labours cess@1%				316.18
	TOTAL				31934.54
	Add 18% of GST				5748.22
	TOTAL				37682.75
	Say RS.				37683.00

7.11.7 3.2 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4757	Basic Price for 3.2 TR i/c accessories, fittings, supports etc	Each	1	27900	27900.00
	Cartage@ 1% of A				279.00
	TOTAL A				28179.00
	ITC @4% of A				1127.16
	TOTAL				29306.16
	Overhead & Profit @15%				4395.92
	TOTAL				33702.08
	Labours cess@1%				337.02
	TOTAL				34039.10
	Add 18% of GST				6127.04
	TOTAL				40166.14
	Say RS.				40166.00

7.11.8 4.0TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4758	Basic Price for 4.0 TR i/c accessories, fittings, supports etc	Each	1	31950	31950.00
	Cartage@ 1% of A				319.50
	TOTAL A				32269.50
	ITC @4% of A				1290.78
	TOTAL				33560.28
	Overhead & Profit @15%				5034.04
	TOTAL				38594.32
	Labours cess@1%				385.94
	TOTAL				38980.27
	Add 18% of GST				7016.45
	TOTAL				45996.71
	Say RS.				45997.00

7.11.9 4.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4759	Basic Price for 4.6 TR i/c accessories, fittings, supports etc	Each	1	44850	44850.00
	Cartage@ 1% of A				448.50
	TOTAL A				45298.50
	ITC @4% of A				1811.94
	TOTAL				47110.44
	Overhead & Profit @15%				7066.57
	TOTAL				54177.01
	Labours cess@1%				541.77
	TOTAL				54718.78
	Add 18% of GST				9849.38
	TOTAL				64568.16
	Say RS.				64568.00

- 7.12 Supply, Installation, Testing and Commissioning of following minimum capacity and external static pressure VRF/VRV ceiling mounted high ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration Isolators, drain pan, drain pump, other necessary supports etc., suitable for operation on single phase AC supply 230 V ± 10%, 50 Hz complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)**

7.12.1 5.5TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4760	Basic Price for High Static Ductable units i/c accessories, fittings, supports etc	Each	1	51675	51675.00
	Cartage@ 1% of A				516.75
	TOTAL A				52191.75
	ITC @4% of A				2087.67
	TOTAL				54279.42
	Overhead & Profit @15%				8141.91
	TOTAL				62421.33
	Labours cess@1%				624.21
	TOTAL				63045.55
	Add 18% of GST				11348.20
	TOTAL				74393.74
	Say RS.				74394.00

7.12.2 4.6 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4761	Basic Price for High Static Ductable units i/c accessories, fittings, supports etc	Each	1	54225	54225.00
	Cartage@ 1% of A				542.25
	TOTAL A				54767.25
	ITC @4% of A				2190.69
	TOTAL				56957.94
	Overhead & Profit @15%				8543.69
	TOTAL				65501.63
	Labours cess@1%				655.02
	TOTAL				66156.65
	Add 18% of GST				11908.20
	TOTAL				78064.84
	Say RS.				78065.00

7.12.3 8.0 TR

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4762	Basic Price for High Static Ductable units i/c accessories, fittings, supports etc	Each	1	59175	59175.00
	Cartage@ 1% of A				591.75
	TOTAL A				59766.75
	ITC @4% of A				2390.67
	TOTAL				62157.42
	Overhead & Profit @15%				9323.61
	TOTAL				71481.03

Labours cess@1%	714.81
TOTAL	72195.84
Add 18% of GST	12995.25
TOTAL	85191.10
Say RS.	85191.00

7.13 Supply, Installation, Testing and Commissioning of Y/T/Multi Joints. Joints shall be of same Original Equipment Manufacturer (OEM) make as of ODUs and IDUs

7.13.1 Indoor Units

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4763	Basic Price for Y/T/Multi Joints i/c accessories, fittings, supports etc	Each	1	3150	3150.00
	Cartage@ 1% of A				31.50
	TOTAL A				3181.50
	ITC @4% of A				127.26
	TOTAL				3308.76
	Overhead & Profit @15%				496.31
	TOTAL				3805.07
	Labours cess@1%				38.05
	TOTAL				3843.12
	Add 18% of GST				691.76
	TOTAL				4534.89
	Say RS.				4535.00

7.13.2 Outdoor Multi Joint

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4764	Basic Price for Y/T/Multi Joints i/c accessories, fittings, supports etc	Each	1	5625	5625.00
	Cartage@ 1% of A				56.25
	TOTAL A				5681.25
	ITC @4% of A				227.25
	TOTAL				5908.50
	Overhead & Profit @15%				886.28
	TOTAL				6794.78
	Labours cess@1%				67.95
	TOTAL				6862.72
	Add 18% of GST				1235.29
	TOTAL				8098.01
	Say RS.				8098.00

**CONTROLS
COPPER REFRIGERANT PIPING**

- 7.14 Supply, Installation, testing and commissioning including vaccumiazation and Nitrogen testing of following nominal sizes of soft/hard drawn copper refrigerant piping for VRV/VRF system, complete with fittings, with suitable adjustable ring type hanger supports, jointing/brazing including accessories, insulated with XPLE Class-O tubular insulation/with Class-O closed cell elastometric nitrile rubber tubular sleeves sections of 19 mm thick insulation as given below for Suction and Liquid lines, all accessories as per specifications etc. as required :**

7.14.1 6.4 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4765	Basic price for VRV/VRF system	Each	1	178	178.00
	i/c accessories,fittings,supports etc				1.78
	Cartage@ 1% of A				
	TOTAL A				179.78
	ITC @4% of A				7.19
	TOTAL				186.97
	Overhead & Profit @15%				28.05
	TOTAL				215.02
	Labours cess@1%				2.15
	TOTAL				217.17
	Add 18% of GST				39.09
	TOTAL				256.26
	Say RS.				256.00

7.14.2 9.5 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4766	Basic price for VRV/VRF system	Each	1	240	240.00
	i/c accessories,fittings,supports etc				
	Cartage@ 1% of A				2.40
	TOTAL A				242.40
	ITC @4% of A				9.70
	TOTAL				252.10
	Overhead & Profit @15%				37.81
	TOTAL				289.91
	Labours cess@1%				2.90
	TOTAL				292.81
	Add 18% of GST				52.71
	TOTAL				345.52
	Say RS.				346.00

7.14.3 12.7 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4767	Basic price for VRV/VRF system	Each	1	338	338.00
	i/c accessories,fittings,supports etc				

Cartage@ 1% of A	3.38
TOTAL A	341.38
ITC @4% of A	13.66
TOTAL	355.04
Overhead & Profit @15%	53.26
TOTAL	408.29
Labours cess@1%	4.08
TOTAL	412.37
Add 18% of GST	74.23
TOTAL	486.60
Say RS.	487.00

7.14.4 15.86 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4768	Basic price for VRV/VRF system i/c accessories, fittings, supports etc	Each	1	427	427.00
	Cartage@ 1% of A				4.27
	TOTAL A				431.27
	ITC @4% of A				17.25
	TOTAL				448.52
	Overhead & Profit @15%				67.28
	TOTAL				515.80
	Labours cess@1%				5.16
	TOTAL				520.96
	Add 18% of GST				93.77
	TOTAL				614.73
	Say RS.				615.00

7.14.5 19 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4769	Basic price for VRV/VRF system i/c accessories, fittings, supports etc	Each	1	513	513.00
	Cartage@ 1% of A				5.13
	TOTAL A				518.13
	ITC @4% of A				20.73
	TOTAL				538.86
	Overhead & Profit @15%				80.83
	TOTAL				619.68
	Labours cess@1%				6.20
	TOTAL				625.88
	Add 18% of GST				112.66
	TOTAL				738.54
	Say RS.				739.00

7.14.6 22.2 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4770	Basic price for VRV/VRF system i/c accessories, fittings, supports etc	Each	1	628	628.00
	Cartage@ 1% of A				6.28
	TOTAL A				634.28
	ITC @4% of A				25.37
	TOTAL				659.65
	Overhead & Profit @15%				98.95
	TOTAL				758.60
	Labours cess@1%				7.59
	TOTAL				766.18
	Add 18% of GST				137.91
	TOTAL				904.10
	Say RS.				904.00

7.14.7 25.4 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4771	Basic price for VRV/VRF system i/c accessories, fittings, supports etc	Each	1	742	742.00
	Cartage@ 1% of A				7.42
	TOTAL A				749.42
	ITC @4% of A				29.98
	TOTAL				779.40
	Overhead & Profit @15%				116.91
	TOTAL				896.31
	Labours cess@1%				8.96
	TOTAL				905.27
	Add 18% of GST				162.95
	TOTAL				1068.22
	Say RS.				1068.00

7.14.8 28.58 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4772	Basic price for VRV/VRF system i/c accessories, fittings, supports etc	Each	1	804	804.00
	Cartage@ 1% of A				8.04
	TOTAL A				812.04
	ITC @4% of A				32.48
	TOTAL				844.52
	Overhead & Profit @15%				126.68
	TOTAL				971.20
	Labours cess@1%				9.71

TOTAL	980.91
Add 18% of GST	176.56
TOTAL	1157.48
Say RS.	1157.00

7.14.9 31.8 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4773	Basic price for VRV/VRF system i/c accessories, fittings, supports etc	Each	1	849	849.00
	Cartage@ 1% of A				8.49
	TOTAL A				857.49
	ITC @4% of A				34.30
	TOTAL				891.79
	Overhead & Profit @15%				133.77
	TOTAL				1025.56
	Labours cess@1%				10.26
	TOTAL				1035.81
	Add 18% of GST				186.45
	TOTAL				1222.26
	Say RS.				1222.00

7.14.10 34.9 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4775	Basic price for VRV/VRF system i/c accessories, fittings, supports etc	Each	1	893	893.00
	Cartage@ 1% of A				8.93
	TOTAL A				901.93
	ITC @4% of A				36.08
	TOTAL				938.01
	Overhead & Profit @15%				140.70
	TOTAL				1078.71
	Labours cess@1%				10.79
	TOTAL				1089.50
	Add 18% of GST				196.11
	TOTAL				1285.60
	Say RS.				1286.00

7.14.11 38.1 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4775	Basic price for VRV/VRF system i/c accessories, fittings, supports etc	Each	1	918	918.00
	Cartage@ 1% of A				9.18
	TOTAL A				927.18
	ITC @4% of A				37.09

TOTAL	964.27
Overhead & Profit @15%	144.64
TOTAL	1108.91
Labours cess@1%	11.09
TOTAL	1120.00
Add 18% of GST	201.60
TOTAL	1321.60
Say RS.	1322.00

7.14.12 41.27 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4776	Basic price for VRV/VRF system i/c accessories, fittings, supports etc	Each	1	950	950.00
	Cartage@ 1% of A				9.50
	TOTAL A				959.50
	ITC @4% of A				38.38
	TOTAL				997.88
	Overhead & Profit @15%				149.68
	TOTAL				1147.56
	Labours cess@1%				11.48
	TOTAL				1159.04
	Add 18% of GST				208.63
	TOTAL				1367.66
	Say RS.				1368.00

CHAPTER-8 UNITARY SYSTEM

WINDOW AC UNITS

- 8.1 Supply , Installation, Testing and Comissioning of Window type Air conditioners complete with copper power cable upto 3 Mtr, wireless Remote, suitable for working between 180- 260V with low & high voltage cutoff and 50 hz ,1 phase AC supply capable of performing, cooling, dehumidification, air circulation, R-32/R-410A /R-407B Green Refrigerant with Scroll / rotary compressor with min 5 year Original Equipment Manufacturer (OEM) warranty both compressor and Printed Circuit Board (PCB), antifreeze thermostat on the coil as a safety feature, complete with fixing including T&P & labour etc as required complete in all respect as specified of following capacity. Sound level of up to 50dB inside the room is acceptable. The unit shall be in confirmation with IS 1391 Part-I 2023 and CPWD Specification. The system shall be able to deliver 100% of the rated capacity upto 42 Degree Celcius. The system shall be able to operate up to 50°C (out door ambient temperature).**

Non Inverter Type

8.1.1 1.0 TR with fixed speed 5 Star BEE rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4777	Basic Price for 1.0 TR i/c accessories, fittings, supports etc	Each	1	21549	21549.22
	Cartage@ 1% of A				15.49
	TOTAL A				221764.69
	ITC @4% of A				2870.59
	TOTAL				22635.28
	Overhead & Profit @15%				3395.29
	TOTAL				26030.57
	Labours cess@1%				260.31
	TOTAL				26290.88
	Add 18% of GST				4732.36
	TOTAL				31023.24
	Say RS.				31023.00

8.1.2 1.5 TR with fixed speed 5 Star BEE rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4777	Basic Price for 1.0 TR i/c accessories, fittings, supports etc	Each	1	23966	23965.75
	Cartage@ 1% of A				239.65
	TOTAL A				7524205.40
	ITC @4% of A				75968.22
	TOTAL				25173.62
	Overhead & Profit @15%				3776.04
	TOTAL				28949.67

Labours cess@1%	289.50
TOTAL	29239.16
Add 18% of GST	5263.05
TOTAL	34502.21
Say RS.	34502.00

8.1.3 1.0 TR with Inverter 5 Star BEE rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4779	Basic Price for 1.0 TR i/c accessories, fittings,supports etc	Each	1	22572	22571.75
	Cartage@ 1% of A				225.71
	TOTAL A				7522797.46
	ITC @4% of A				75911.90
	TOTAL				23709.37
	Overhead & Profit @15%				3556.40
	TOTAL				27265.77
	Labours cess@1%				272.66
	TOTAL				27538.43
	Add 18% of GST				4956.92
	TOTAL				32495.35
	Say RS.				32495.00

8.1.4 1.5 TR with Inverter 5 Star BEE rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4779	Basic Price for 1.5 TR i/c accessories, fittings, supports etc	Each	1	23899	23899.45
	Cartage@ 1% of A				238.99
	TOTAL A				4524138.44
	ITC @4% of A				45965.54
	TOTAL				25103.98
	Overhead & Profit @15%				3765.60
	TOTAL				28869.58
	Labours cess@1%				288.70
	TOTAL				29158.28
	Add 18% of GST				5248.49
	TOTAL				34406.76
	Say RS.				34407.00

8.1 Supply , Installation, Testing and Comissioning of Air Cooled Hi Wall split type Air conditioners complete with Indoor unit(IDU), Out door unit (ODU), surface / concealed copper Refrigerant piping with insulation (closed cell elastomeric nitrile rubber tubular pipe section) upto 3 Mtr (IDU to ODU), copper power cable upto 3.5 Mtr (IDU to ODU) i/c drain pipe R-32/R-410/ R-407 Green Refrigerant, wireless Remote control, suitable for working between 180-260V with low & high voltage cutoff and 50 hz ,1 phase AC supply capable of performing cooling,

dehumidification, air circulation of following capacity with Scroll / rotary compressor. The system shall be able to deliver 100% of the rated capacity upto 42 Degree Celcius. Min 5 year Original Equipment Manufacturer (OEM) warranty both compressor and Printed Circuit Board (PCB). Must comply : Electrical cable IS 694 or IS 9968 temperature sensing control IS /International Electrotechnical Commission (IEC) 60730, hermetic compressor IS 10617, heat exchanger IS 11329, capacitor IS 2993 and motor IS 12615. Complete as per CPWD specification and IS : 1391 Part II 2023. The system shall be able to operate up to 50°C (out door ambient temperature).

Inverter Type - Cooling only

8.2.1 0.75 TR with 5 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4781	Basic Price for 0.75 TR i/c accessories, fittings, supports etc	Each	1	26230	26230.15
	Cartage@ 1% of A				262.30
	TOTAL A				1526492.45
	ITC @4% of A				151059.70
	TOTAL				27552.15
	Overhead & Profit @15%				4132.82
	TOTAL				31684.97
	Labours cess@1%				316.85
	TOTAL				32001.82
	Add 18% of GST				5760.33
	TOTAL				37762.15
	Say RS.				37762.00

8.2.2 1.0 TR with 5 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4782	Basic Price for 1.0 TR i/c accessories, fittings, supports etc	Each	1	27226	27226.35
	Cartage@ 1% of A				272.26
	TOTAL A				3527498.61
	ITC @4% of A				351099.94
	TOTAL				28598.56
	Overhead & Profit @15%				4289.78
	TOTAL				32888.34
	Labours cess@1%				328.88
	TOTAL				33217.23
	Add 18% of GST				5979.10
	TOTAL				39196.33
	Say RS.				39196.00

8.2.3 1.5 TR with 5 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4783	Basic Price for 1.5 TR i/c accessories, fittings, supports etc	Each	1	29212	29211.95
	Cartage@ 1% of A				292.11
	TOTAL A				9529504.06
	ITC @4% of A				951180.16
	TOTAL				30684.23
	Overhead & Profit @15%				4602.63
	TOTAL				35286.87
	Labours cess@1%				352.87
	TOTAL				35639.74
	Add 18% of GST				6415.15
	TOTAL				42054.89
	Say RS.				42055.00

8.2.4 2.0 TR with 5 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4784	Basic Price for 2.0 TR i/c accessories, fittings, supports etc	Each	1	38509	38509.25
	Cartage@ 1% of A				385.09
	TOTAL A				2538894.34
	ITC @4% of A				251555.77
	TOTAL				40450.12
	Overhead & Profit @15%				6067.52
	TOTAL				46517.63
	Labours cess@1%				465.18
	TOTAL				46982.81
	Add 18% of GST				8456.91
	TOTAL				55439.72
	Say RS.				55440.00

8.2.5 1.0 TR with 3 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4785	Basic Price for 2.0 TR i/c accessories, fittings, supports etc	Each	1	24298	24298.12
	Cartage@ 1% of A				42.98
	TOTAL A				124541.08
	ITC @4% of A				1981.64
	TOTAL				25522.72
	Overhead & Profit @15%				3828.41
	TOTAL				29351.13
	Labours cess@1%				293.51

TOTAL	29644.64
Add 18% of GST	5336.04
TOTAL	34980.68
Say RS.	34981.00

8.2.6 1.5 TR with 3 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4786	Basic Price for 1.5 TR i/c accessories, fittings, supports etc	Each	1	29146	29145.65
	Cartage@ 1% of A				291.45
	TOTAL A				6529437.10
	ITC @4% of A				651177.48
	TOTAL				30614.59
	Overhead & Profit @15%				4592.19
	TOTAL				35206.78
	Labours cess@1%				352.07
	TOTAL				35558.85
	Add 18% of GST				6400.59
	TOTAL				41959.44
	Say RS.				41959.00

- 8.3 Supply, Installtion, Testing and Commissioning of air cooled ducted split type air conditioning machine with each having a capacity and details as mentioned below suitable for operation on R 32/R-410A /R-407 Green refrigerant comprising of Scroll type compressor hermatically sealed complete with automatic capacity, safety switches, lubrication system with min 5 year (OEM) warranty for both compressor and Printed Circuit Board (PCB) , Suitable capacity squirrel cage induction motor having class 'B' insulation suitable for operation on 415 + 10% volts, 50 Hz, A.C. supply for Blower motor, Necessary drive arrangement for blower motor, Matching Air cooled condenser with necessary fittings for refrigerant piping connections, necessary structural support for mounting condensers, Microprocessor based control panel complete with accessories, machine Isolation / disconnect switch, valves and accessories to inter connect compressor and condenser including pressure testing, vacuum. Necessary starters suitable for Indoor & outdoor unit complete with O/L ,U/V, phase reversal protection, single phase preventors i/c copper conductor control and power cable and drain pipe of suitable size and length etc complete as required. The total cooling capacity/heating capacity of tested unit shall have a capacity as per relevant IS code. The lab testing reports as per IS: 8148 shall be submitted from National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited as per ISO/International Electrotechnical Commission (IEC) 17025 standards / Central Power Research Institute (CPRI) / Electrical Research and Development Association (ERDA) with Original Equipment Manufacturer (OEM) etc. complete as per CPWD specification as required.**

Inverter

8.3.1 1.5 TR (BEE 4 Star Rated)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4787	Basic Price for 1.5 TR i/c accessories, fittings, supports etc	Each	1	34320	34320
	Cartage@ 1% of A				343.23
	TOTAL A				4663.21
	ITC @4% of A				386.53
	TOTAL				36049.73
	Overhead & Profit @15%				5407.46
	TOTAL				41457.19
	Labours cess@1%				414.57
	TOTAL				41871.76
	Add 18% of GST				7536.92
	TOTAL				49408.68
	Say RS.				49409.00

8.3.2 2.2 TR (BEE 4 Star Rated)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4788	Basic Price for 2.2 TR i/c accessories, fittings, supports etc	Each	1	38935	38935
	Cartage@ 1% of A				389.35
	TOTAL A				39324.35
	ITC @4% of A				1572.97
	TOTAL				40897.32
	Overhead & Profit @15%				6134.60
	TOTAL				47031.92
	Labours cess@1%				470.32
	TOTAL				47502.24
	Add 18% of GST				8550.40
	TOTAL				56052.65
	Say RS.				56053.00

8.3.3 3 TR (BEE 4 Star Rated)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4789	Basic Price for 3 TR i/c accessories, fittings, supports etc	Each	1	52975	52975
	Cartage@ 1% of A				529.75
	TOTAL A				53504.75
	ITC @4% of A				2140.19
	TOTAL				55644.94
	Overhead & Profit @15%				8346.74
	TOTAL				63991.68
	Labours cess@1%				639.92

TOTAL	64631.60
Add 18% of GST	11633.69
TOTAL	76265.29
Say RS.	76265.00

8.3.4 3.5 TR (3.2 EER)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4790	Basic Price for 3.5 TR i/c accessories, fittings, supports etc	Each	1	76473	76472.5
	Cartage@ 1% of A				764.725
	TOTAL A				77237.225
	ITC @4% of A				3089.49
	TOTAL				80326.71
	Overhead & Profit @15%				12049.01
	TOTAL				92375.72
	Labours cess@1%				923.76
	TOTAL				93299.48
	Add 18% of GST				16793.91
	TOTAL				110093.38
	Say RS.				110093.00

8.3.5 4.0 TR (3.2 EER)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4791	Basic Price for 4.0 TR i/c accessories, fittings, supports etc	Each	1	86580	86580
	Cartage@ 1% of A				865.8
	TOTAL A				87445.8
	ITC @4% of A				3497.83
	TOTAL				90943.63
	Overhead & Profit @15%				13641.54
	TOTAL				104585.18
	Labours cess@1%				1045.85
	TOTAL				105631.03
	Add 18% of GST				19013.59
	TOTAL				124644.61
	Say RS.				124645.00

8.3.6 1.0 TR (BEE 4 Star Rated)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4792	Basic Price for 1.0 TR i/c accessories, fittings, supports etc	Each	1	25090	25090
	Cartage@ 1% of A				250.9

TOTAL A	25340.9
ITC @4% of A	1013.64
TOTAL	26354.54
Overhead & Profit @15%	3953.18
TOTAL	30307.72
Labours cess@1%	303.08
TOTAL	30610.79
Add 18% of GST	5509.94
TOTAL	36120.74
Say RS.	36121.00

8.3.7 1.5 TR (BEE 4 Star Rated)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4793	Basic Price for 1.5 TR i/c accessories, fittings, supports etc	Each	1	26260	26260
	Cartage@ 1% of A				262.6
	TOTAL A				26522.6
	ITC @4% of A				1060.90
	TOTAL				27583.50
	Overhead & Profit @15%				4137.53
	TOTAL				31721.03
	Labours cess@1%				317.21
	TOTAL				32038.24
	Add 18% of GST				5766.88
	TOTAL				37805.12
	Say RS.				37805.00

8.3.8 2.0 TR (BEE 4 Star Rated)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4794	Basic Price for 2.0 TR i/c accessories, fittings, supports etc	Each	1	34216	34216
	Cartage@ 1% of A				342.16
	TOTAL A				34558.16
	ITC @4% of A				1382.33
	TOTAL				35940.49
	Overhead & Profit @15%				5391.07
	TOTAL				41331.56
	Labours cess@1%				413.32
	TOTAL				41744.87
	Add 18% of GST				7514.08
	TOTAL				49258.95
	Say RS.				49259.00

8.3.9 2.5 TR (BEE 4 Star Rated)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4795	Basic Price for 2.5 TR i/c accessories, fittings, supports etc	Each	1	44590	44590
	Cartage@ 1% of A				445.9
	TOTAL A				45035.9
	ITC @4% of A				1801.44
	TOTAL				46837.34
	Overhead & Profit @15%				7025.60
	TOTAL				53862.94
	Labours cess@1%				538.63
	TOTAL				54401.57
	Add 18% of GST				9792.28
	TOTAL				64193.85
	Say RS.				64194.00

8.3.10 3.0 TR (BEE 4 Star Rated)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4796	Basic Price for 2.0 TR i/c accessories, fittings, supports etc	Each	1	48230	48230
	Cartage@ 1% of A				482.3
	TOTAL A				48712.3
	ITC @4% of A				1948.49
	TOTAL				50660.79
	Overhead & Profit @15%				7599.12
	TOTAL				58259.91
	Labours cess@1%				582.60
	TOTAL				58842.51
	Add 18% of GST				10591.65
	TOTAL				69434.16
	Say RS.				69434.00

8.3.11 3.5 TR (3.2 EER)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4797	Basic Price for 3.5 TR i/c accessories, fittings, supports etc	Each	1	53105	53105
	Cartage@ 1% of A				531.05
	TOTAL A				53636.05
	ITC @4% of A				2145.44
	TOTAL				55781.49
	Overhead & Profit @15%				8367.22
	TOTAL				64148.72
	Labours cess@1%				641.49

TOTAL	64790.20
Add 18% of GST	11662.24
TOTAL	76452.44
Say RS.	76452.00

8.3.12 4.0 TR (3.2 EER)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4798	Basic Price for 4.0 TR i/c accessories, fittings, supports etc	Each	1	58955	589555
	Cartage@ 1% of A				89.55
	TOTAL A				59544.55
	ITC @4% of A				2381.78
	TOTAL				61926.33
	Overhead & Profit @15%				9288.95
	TOTAL				71215.28
	Labours cess@1%				712.15
	TOTAL				71927.43
	Add 18% of GST				12946.94
	TOTAL				84874.37
	Say RS.				84874.00

8.3.13 4.5 TR (3.2 EER)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4799	Basic Price for 4.5 TR i/c accessories, fittings, supports etc	Each	1	68566	68565.9
	Cartage@ 1% of A				685.659
	TOTAL A				69251.559
	ITC @4% of A				2770.06
	TOTAL				72021.62
	Overhead & Profit @15%				10803.24
	TOTAL				82824.86
	Labours cess@1%				828.25
	TOTAL				83653.11
	Add 18% of GST				15057.56
	TOTAL				98710.67
	Say RS.				98711.00

8.3.14 5.5 TR (3.2 EER)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4800	Basic Price for 5.5 TR i/c accessories, fittings, supports etc	Each	1	74685	74685
	Cartage@ 1% of A				746.85
	TOTAL A				75431.85
	ITC @4% of A				3017.27

TOTAL	78449.12
Overhead & Profit @15%	11767.37
TOTAL	90216.49
Labours cess@1%	902.16
TOTAL	91118.66
Add 18% of GST	16401.36
TOTAL	107520.02
Say RS.	107520.00

8.3.15 8.5 TR (3.2 EER)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4801	Basic Price for 8.5 TR i/c accessories, fittings, supports etc	Each	1	98995	98995
	Cartage@ 1% of A				989.95
	TOTAL A				99984.95
	ITC @4% of A				3999.40
	TOTAL				103984.35
	Overhead & Profit @15%				15597.65
	TOTAL				119582.00
	Labours cess@1%				1195.82
	TOTAL				120777.82
	Add 18% of GST				21740.01
	TOTAL				142517.83
	Say RS.				142518.00

8.3.16 11.0 TR (3.2 EER)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4802	Basic Price for 4.5 TR i/c accessories, fittings, supports etc	Each	1	127335	127335
	Cartage@ 1% of A				1273.35
	TOTAL A				128608.35
	ITC @4% of A				5144.33
	TOTAL				133752.68
	Overhead & Profit @15%				20062.90
	TOTAL				153815.59
	Labours cess@1%				1538.16
	TOTAL				155353.74
	Add 18% of GST				27963.67
	TOTAL				183317.42
	Say RS.				183317.00

8.3.17 16.7 TR (3.2 EER)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4803	Basic Price for 16.7 TR i/c accessories, fittings, supports etc	Each	1	196950	196950
	Cartage@ 1% of A				1969.5
	TOTAL A				198919.5
	ITC @4% of A				7956.78
	TOTAL				206876.28
	Overhead & Profit @15%				31031.44
	TOTAL				237907.72
	Labours cess@1%				2379.08
	TOTAL				240286.80
	Add 18% of GST				43251.62
	TOTAL				283538.42
	Say RS.				283538.00

- 8.4 Supply, Installation, Testing and Comissioning of Air Cooled Cassette type Air conditioners complete with Indoor unit(IDU), Out door unit (ODU), R-32/R410A/R-407 Green Refrigerant, wireless Remote, inbuilt drain pump, suitable for 400/230V, 50 Hz ,1 /3 phase AC supply, including surface / concealed copper Refrigerant piping with insulation (closed cell elastomeric nitrile rubber tubular pipe section) upto 5.5 Mtr (IDU to ODU), copper power and control cable upto 5.5 Mtr (IDU to ODU) including drain pipe, the system shall be capable of performing cooling, dehumidification, Air circulation, filtration & ventilation of following capacity with Scroll/rotary compressor with min 5 year Original Equipment Manufacturer (OEM) warranty both compressor and Printed Circuit Board (PCB) as specified. The system shall be able to deliver 100% of the rated capacity as per relevant IS Code. The lab testing reports as per IS: 1391 shall be submitted from National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited as per International Electrotechnical Commission (IEC) 17025 standards / Central Power Research Institute (CPRI) / Electrical Research and Development Association (ERDA) with Original Equipment Manufacturer (OEM) etc. complete as per CPWD specification and as per IS: 1391 as required.**

Inverter Type- Cooling only

8.4.1 1.5 TR with 5 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4804	Basic Price for 1.5 TR i/c accessories, fittings, supports etc	Each	1	46605	46605
	Cartage@ 1% of A				466.05
	TOTAL A				47071.05
	ITC @4% of A				1882.84
	TOTAL				48953.89
	Overhead & Profit @15%				7343.08
	TOTAL				56296.98

Labours cess@1%	562.97
TOTAL	56859.95
Add 18% of GST	10234.79
TOTAL	67094.74
Say RS.	67095.00

8.4.2 2.0 TR with 5 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4805	Basic Price for 2.0 TR i/c accessories, fittings, supports etc	Each	1	51610	51610
	Cartage@ 1% of A				516.1
	TOTAL A				52126.1
	ITC @4% of A				2085.04
	TOTAL				4211.14
	Overhead & Profit @15%				8131.67
	TOTAL				62342.82
	Labours cess@1%				623.43
	TOTAL				62966.24
	Add 18% of GST				11333.92
	TOTAL				74300.17
	Say RS.				74300.00

8.4.3 2.5 TR with 5 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4806	Basic Price for 2.5 TR i/c accessories, fittings, supports etc	Each	1	71110	71110
	Cartage@ 1% of A				711.1
	TOTAL A				71821.1
	ITC @4% of A				2872.84
	TOTAL				74693.94
	Overhead & Profit @15%				11204.09
	TOTAL				85898.04
	Labours cess@1%				858.98
	TOTAL				86757.02
	Add 18% of GST				15616.26
	TOTAL				102373.28
	Say RS.				102373.00

8.4.5 3.0 TR with 5 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4808	Basic Price for 3.0 TR i/c accessories, fittings, supports etc	Each	1	74458	74457.5
	Cartage@ 1% of A				744.575

TOTAL A	75202.075
ITC @4% of A	3008.08
TOTAL	78210.16
Overhead & Profit @15%	11731.52
TOTAL	89941.68
Labours cess@1%	899.42
TOTAL	90841.10
Add 18% of GST	16351.40
TOTAL	107192.50
Say RS.	107192.00

8.4.6 3.5 TR with 5 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4809	Basic Price for 3.5 TR i/c accessories, fittings, supports etc	Each	1	84045	84045
	Cartage@ 1% of A				840.45
	TOTAL A				84885.45
	ITC @4% of A				3395.42
	TOTAL				88280.87
	Overhead & Profit @15%				13242.13
	TOTAL				101523.00
	Labours cess@1%				1015.23
	TOTAL				102538.23
	Add 18% of GST				18456.88
	TOTAL				120995.11
	Say RS.				120995.00

8.4.6 4.0 TR with 5 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4809	Basic Price for 4.0 TR i/c accessories, fittings, supports etc	Each	1	85605	85605
	Cartage@ 1% of A				856.05
	TOTAL A				86461.05
	ITC @4% of A				3458.44
	TOTAL				89919.49
	Overhead & Profit @15%				13487.92
	TOTAL				103407.42
	Labours cess@1%				1034.07
	TOTAL				104441.49
	Add 18% of GST				18799.47
	TOTAL				123240.96
	Say RS.				123241.00

8.4.8 1.5 TR with 3 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4810	Basic Price for 1.5 TR i/c accessories, fittings, supports etc	Each	1	36205	36205
	Cartage@ 1% of A				362.05
	TOTAL A				36567.05
	ITC @4% of A				1462.68
	TOTAL				38029.73
	Overhead & Profit @15%				5704.46
	TOTAL				3734.19
	Labours cess@1%				437.34
	TOTAL				44171.53
	Add 18% of GST				7950.88
	TOTAL				52122.41
	Say RS.				52122.00

8.4.9 2.0 TR with 3 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4811	Basic Price for 2.0 TR i/c accessories, fittings, supports etc	Each	1	40365	40365
	Cartage@ 1% of A				403.65
	TOTAL A				40768.65
	ITC @4% of A				1630.75
	TOTAL				42399.40
	Overhead & Profit @15%				6359.91
	TOTAL				48759.31
	Labours cess@1%				487.59
	TOTAL				49246.90
	Add 18% of GST				8864.44
	TOTAL				58111.34
	Say RS.				58111.00

8.4.10 2.5 TR with 3 Star BEE Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4812	Basic Price for 2.5 TR i/c accessories, fittings, supports etc	Each	1	48620	48620
	Cartage@ 1% of A				486.2
	TOTAL A				49106.2
	ITC @4% of A				1964.25
	TOTAL				51070.45
	Overhead & Profit @15%				7660.57
	TOTAL				58731.02

Labours cess@1%	587.31
TOTAL	59318.33
Add 18% of GST	10677.30
TOTAL	69995.62
Say RS.	69996.00

TOWER TYPE SPLIT UNITS

- 8.5 Supply, Installation, Testing and Comissioning of Air Cooled Floor standing Tower type split Air conditioners complete with Indoor unit(IDU), Out door unit (ODU), surface / concealed copper Refrigerant piping with insulation (closed cell elastomeric nitrile rubber tubular pipe section) upto 5 Mtr (IDU to ODU), copper power cable upto 5.5 Mtr (IDU to ODU), i/c drain pipe of suitable length and size. R-32/R-410/R-407C Green Refrigerant, wireless Remote control, suitable for working between 180-260V with low & high voltage cutoff and 50 hz ,1 phase AC supply capable of performing cooling, dehumidification, air circulation of following capacity with Scroll / rotary with min 5 year Original Equipment Manufacturer (OEM) warranty both compressor and Printed Circuit Board (PCB). as specified. The system shall be able to deliver 100% of the rated capacity as per relevant IS Code. The lab testing reports as per IS: 1391 shall be submitted from National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited as per International Electrotechnical Commission (IEC) 17025 standards / Central Power Research Institute (CPRI)/Electrical Research and Development Association (ERDA) with Original Equipment Manufacturer (OEM) etc. complete as per CPWD specification and as per IS: 1391 as required.**

Heat Pump (Heating & Cooling)

8.5.1 3.3 TR BEE 4 Star Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4813	Basic Price for 3.3 TR i/c accessories, fittings, supports etc	Each	1	78975	78975
	Cartage@ 1% of A				789.75
	TOTAL A				79764.75
	ITC @4% of A				0.00
	TOTAL				79764.75
	Overhead & Profit @15%				11964.71
	TOTAL				91729.46
	Labours cess@1%				917.29
	TOTAL				92646.76
	Add 18% of GST				16676.42
	TOTAL				109323.17
	Say RS.				109323.00

8.5.2 3.8 TR BEE 4 Star Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4814	Basic Price for 3.8 TR i/c accessories, fittings, supports etc	Each	1	83525	83525

Cartage@ 1% of A	835.25
TOTAL A	84360.25
ITC @4% of A	0.00
TOTAL	84360.25
Overhead & Profit @15%	12654.04
TOTAL	97014.29
Labours cess@1%	970.14
TOTAL	97984.43
Add 18% of GST	17637.20
TOTAL	115621.63
Say RS.	115622.00

8.5.3 4.6 TR BEE 4 Star Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4815	Basic Price for 4.6 TR i/c accessories, fittings, supports etc	Each	1	88075	88075
	Cartage@ 1% of A				880.75
	TOTAL A				88955.75
	ITC @4% of A				0.00
	TOTAL				88955.75
	Overhead & Profit @15%				13343.36
	TOTAL				102299.11
	Labours cess@1%				1022.99
	TOTAL				103322.10
	Add 18% of GST				18597.98
	TOTAL				121920.08
	Say RS.				121920.00

8.5.4 2.4 TR BEE 5 Star Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4816	Basic Price for 2.4 TR i/c accessories, fittings, supports etc	Each	1	56355	56355
	Cartage@ 1% of A				563.55
	TOTAL A				56918.55
	ITC @4% of A				2276.74
	TOTAL				59195.29
	Overhead & Profit @15%				8879.29
	TOTAL				68074.59
	Labours cess@1%				680.75
	TOTAL				68755.33
	Add 18% of GST				12375.96
	TOTAL				81131.29
	Say RS.				81131.00

8.5.5 3.3 TR BEE 5 Star Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4817	Basic Price for 3.3 TR i/c accessories, fittings, supports etc	Each	1	62660	62660
	Cartage@ 1% of A				626.6
	TOTAL A				63286.6
	ITC @4% of A				2531.46
	TOTAL				65818.06
	Overhead & Profit @15%				9872.71
	TOTAL				75690.77
	Labours cess@1%				756.917
	TOTAL				6447.68
	Add 18% of GST				13760.58
	TOTAL				90208.26
	Say RS.				90208.00

8.5.6 3.8 TR BEE 5 Star Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4818	Basic Price for 3.8 TR i/c accessories, fittings, supports etc	Each	1	66235	66235
	Cartage@ 1% of A				662.35
	TOTAL A				66897.35
	ITC @4% of A				2675.89
	TOTAL				69573.24
	Overhead & Profit @15%				10435.99
	TOTAL				80009.23
	Labours cess@1%				800.09
	TOTAL				80809.32
	Add 18% of GST				14545.68
	TOTAL				95355.00
	Say RS.				95355.00

8.5.7 4.6 TR BEE 5 Star Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4819	Basic Price for 3.8 TR i/c accessories, fittings, supports etc	Each	1	70005	70005
	Cartage@ 1% of A				700.05
	TOTAL A				70705.05
	ITC @4% of A				2828.20
	TOTAL				73533.25
	Overhead & Profit @15%				11029.99
	TOTAL				84563.24
	Labours cess@1%				845.63

TOTAL	85408.87
Add 18% of GST	15373.60
TOTAL	100782.47
Say RS	100782.00

AIR COOLED PACKAGE UNITS

- 8.6** Supplying, installation , testing and commissioning of Air cooled ductable type Packaged air-conditioning units complete with Hermetically sealed Scroll compressors fitted inside the indoor unit & first charge of refrigerant R410A or equilant permitted green refrigerant & oil, air cooled condenser, fan section with statically/dynamically balanced centrifugal blower driven by a Totally Enclosed Fan Cooled (TEFC) squirrel cage three speed motor, Multi rows cooling coil of copper with aluminium fins etc. The enclosures shall be fabricated of M.S. The Package unit shall be equipped with synthetic fiber filter, insulated drain pan, controls all encased in a unit. The casing shall be factory powder coated. Electrical panel board for Package units shall comprise of control and power panel with including all associries i/c Voltage scanner, overload, low voltage, high voltage & phase imbalance protection, along with VI Pads complete with all ancillaries including MS painted stand for Outdoor units of suitable size, foundation and allied minor civil works as per instructions of Engineer-in-charge of following ratings including electric control panel & fitting as per CPWD specifications and as per IS: 8148 complete as required.

Inverter

8.6.1 3.3 TR BEE 5 Star Rating

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4820	Basic Price for 3.3 TR i/c accessories, fittings, supports etc	Each	1	91260	91260
	Cartage@ 1% of A				912.6
	TOTAL A				92172.6
	ITC @4% of A				0.00
	TOTAL				92172.60
	Overhead & Profit @15%				13825.89
	TOTAL				105998.49
	Labours cess@1%				1059.98
	TOTAL				107058.47
	Add 18% of GST				19270.53
	TOTAL				126329.00
	Say RS.				126329.00

8.6.2 8.0 TR (2.8 EER)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4821	Basic Price for 3.3 TR i/c accessories, fittings, supports etc	Each	1	123370	123370
	Cartage@ 1% of A				1233.7

TOTAL A	124603.7
ITC @4% of A	0.00
TOTAL	124603.70
Overhead & Profit @15%	18690.56
TOTAL	143294.26
Labours cess@1%	1432.94
TOTAL	144727.20
Add 18% of GST	26050.90
TOTAL	170778.09
Say RS.	170778.00

8.6.3 11.0 TR (2.8 EER)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4822	Basic Price for 11.0 TR i/c accessories, fittings, supports etc	Each	1	149305	149305
	Cartage@ 1% of A				1493.05
	TOTAL A				150798.05
	ITC @4% of A				0.00
	TOTAL				150798.05
	Overhead & Profit @15%				22619.71
	TOTAL				173417.76
	Labours cess@1%				1734.18
	TOTAL				175151.94
	Add 18% of GST				31527.35
	TOTAL				206679.28
	Say RS.				206679.00

8.6.4 16.5 TR (2.8 EER)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4823	Basic Price for 16.5 TR i/c accessories, fittings, supports etc	Each	1	209105	209105
	Cartage@ 1% of A				2091.05
	TOTAL A				211196.05
	ITC @4% of A				0.00
	TOTAL				211196.05
	Overhead & Profit @15%				31679.41
	TOTAL				242875.46
	Labours cess@1%				2428.75
	TOTAL				245304.21
	Add 18% of GST				44154.76
	TOTAL				289458.97
	Say RS.				289459.00

8.6.5 22.0 TR (2.8 EER)

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4824	Basic Price for 22.0 TR i/c accessories, fittings, supports etc	Each	1	273390	273390
	Cartage@ 1% of A				2733.92
	TOTAL A				76123.9
	ITC @4% of A				0.00
	TOTAL				276123.90
	Overhead & Profit @15%				41418.59
	TOTAL				317542.49
	Labours cess@1%				3175.42
	TOTAL				320717.91
	Add 18% of GST				57729.22
	TOTAL				378447.13
	Say RS.				378447.00

CHAPTER-9 CHILLERS

AIR COOLED CHILLERS

AIR COOLED SCREW CHILLERS

- 9.1 Supply, installation, testing and commissioning of AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified Air-Cooled (suitable for out door installation) Screw Chiller package complete with VFD (Variable Frequency Drive), hermetic/semi hermetic, screw type compressor each with step less capacity control of 25 % to 100 % of the rated capacity, with microprocessor based control panel compatible for BMS operation, motor, starter panel (VFD), machine mounted, air- cooled condensers with Copper tube and Aluminium fins, factory fitted chiller insulation, water flow switch, vibration spring Isolators, victaulic couplings, integral refrigerant piping and wiring with single/ two circuits, automatic and safety controls mounted in central console panel and all mounted on a steel frame (complete as per specifications) i/c suitable foundation/mounting structure made of RCC/MS Structure i/c anticorrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge. Motor shall be suitable for $415 \pm 10\%$ 50 cycles. 3 phase AC supply. Refrigerant gas used shall be R-134A the chiller shall be Building Management System (BMS) compatible The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.

Chilled water Leaving Temp. (6.67 deg. C)

Chilled water Entering Temp. (12.2 deg. C)

Evaporator fouling factor = 0.018 m². 0C/kW

Condenser air entering temp. : As per Site Dry Bulb Temperature

9.1.1 Upto 74 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4822	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	19500	19500.00
	Cartage@ 1% of A				195.00
	TOTAL A				19695.00
	ITC @4% of A				787.80
	TOTAL				20482.80
	Overhead & Profit @15%				3072.42
	TOTAL				23555.22
	Labours cess@1%				235.55
	TOTAL				23790.77
	Add 18% of GST				4282.34
	TOTAL				28073.11
	Say RS.				28073.00

9.1.2 75 TR - 140 TR BEE 3 Star rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4826	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	18850	18850.00
	Cartage@ 1% of A				188.50
	TOTAL A				19038.50
	ITC @4% of A				761.54
	TOTAL				19800.04
	Overhead & Profit @15%				2970.01
	TOTAL				22770.05
	Labours cess@1%				227.70
	TOTAL				22997.75
	Add 18% of GST				4139.59
	TOTAL				27137.34
	Say RS.				27137.00

9.1.3 141 TR - 200 TR BEE 3 Star rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4827	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	17875	17875.00
	Cartage@ 1% of A				178.75
	TOTAL A				18053.75
	ITC @4% of A				722.15
	TOTAL				18775.90
	Overhead & Profit @15%				2816.39
	TOTAL				21592.29
	Labours cess@1%				215.92
	TOTAL				21808.21
	Add 18% of GST				3925.48
	TOTAL				25733.69
	Say RS.				25734.00

9.2 Supply, installation, testing and commissioning of AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified Air-Cooled Screw Chiller package complete with VFD (Variable Frequency Drive), hermetic/semi hermetic, multiple screw type compressor each with step less capacity control of 25 % to 100 % of the rated capacity, with microprocessor based control panel, motor, starter panel (VFD), machine mounted, air-cooled condensers with Copper tube and Aluminium fins, factory fitted chiller insulation, water flow switch, vibration spring Isolators, victaulic couplings, integral refrigerant piping and wiring with multiple circuits, automatic and safety controls mounted in central console panel and all mounted on a steel frame (complete as per specifications) i/c suitable foundation/mounting structure made of RCC/MS Structure i/c anticorrosive paint, anti vibration pad,

power control cable and connection inter connection etc. as per design approved by engineer-in-charge. Motor shall be suitable for 415±10% 50 cycles. 3 phase AC supply. Refrigerant gas used shall be R-134a. The chiller shall be Building Management System (BMS) compatible The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.

Chilled water Leaving Temp. (6.67 deg. C)

Chilled water Entering Temp. (12.2 deg. C)

Evaporator fouling factor = 0.018 m2. 0C/kW

Condenser air entering temp. : As per Site Dry Bulb Temperature

9.2.1 up to 200 TR - BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4828	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	20150	20150.00
	Cartage@ 1% of A				201.50
	TOTAL A				20351.50
	ITC @4% of A				814.06
	TOTAL				21165.56
	Overhead & Profit @15%				3174.83
	TOTAL				24340.39
	Labours cess@1%				243.40
	TOTAL				24583.80
	Add 18% of GST				4425.08
	TOTAL				29008.88
	Say RS.				29009.00

9.2.2 201 TR to 250 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4829	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	18525	18525.00
	Cartage@ 1% of A				185.25
	TOTAL A				18710.25
	ITC @4% of A				748.41
	TOTAL				19458.66
	Overhead & Profit @15%				2918.80
	TOTAL				22377.46
	Labours cess@1%				223.77
	TOTAL				22601.23
	Add 18% of GST				4068.22
	TOTAL				26669.46
	Say RS.				26669.00

9.2.3 251 TR - 300 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4830	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	17550	17550.00
	Cartage@ 1% of A				175.50
	TOTAL A				17725.50
	ITC @4% of A				709.02
	TOTAL				18434.52
	Overhead & Profit @15%				2765.18
	TOTAL				21199.70
	Labours cess@1%				212.00
	TOTAL				21411.69
	Add 18% of GST				3854.11
	TOTAL				25265.80
	Say RS.				25266.00

9.2.4 301 TR - 350 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4831	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	16900	16900.00
	Cartage@ 1% of A				169.00
	TOTAL A				17069.00
	ITC @4% of A				682.76
	TOTAL				17751.76
	Overhead & Profit @15%				2662.76
	TOTAL				20414.52
	Labours cess@1%				204.15
	TOTAL				20618.67
	Add 18% of GST				3711.36
	TOTAL				24330.03
	Say RS.				24330.00

9.2.5 351 TR - 400 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4832	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	16250	16250.00
	Cartage@ 1% of A				162.50
	TOTAL A				16412.50
	ITC @4% of A				656.50

TOTAL	17069.00
Overhead & Profit @15%	2560.35
TOTAL	19629.35
Labours cess@1%	196.29
TOTAL	19825.64
Add 18% of GST	3568.62
TOTAL	23394.26
Say RS.	23394.00

AIR COOLED SCROLL CHILLERS

- 9.3 Supply, installation, testing and commissioning of AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified Air-Cooled , Scroll Chiller package complete with VFD (Variable Frequency Drive), hermetic/semi hermetic, multiple scroll type compressors each with step less capacity control of 25 % to 100 % of the rated capacity, with microprocessor based control panel, motor, starter panel (VFD), machine mounted, air- cooled condensers, factory fitted chiller insulation, water flow switch , vibration spring Isolators, victaulic couplings, integral refrigerant piping and wiring with single/ two circuits, automatic and safety controls mounted in central console panel and all mounted on a steel frame (complete as per specifications) i/c suitable foundation/mounting structure made of RCC/MS Structure i/c anticorrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge. Motor shall be suitable for 415±10% 50 cycles. 3 phase AC supply. Refrigerant gas used shall be R-410A. The chiller shall be Building Management System (BMS) compatible. The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.**

Chilled water Leaving Temp. (6.67 deg. C)

Chilled water Entering Temp. (12.2 deg. C)

Evaporator fouling factor = 0.018 m². °C/kW

Condenser air entering temp. : As per Site Dry Bulb Temperature

9.3.1 Upto 50 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4833	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	15925	15925.00
	Cartage@ 1% of A				159.25
	TOTAL A				16084.25
	ITC @4% of A				643.37
	TOTAL				16727.62
	Overhead & Profit @15%				2509.14
	TOTAL				19236.76
	Labours cess@1%				192.37
	TOTAL				19429.13
	Add 18% of GST				3497.24
	TOTAL				22926.37
	Say RS.				22926.00

9.3.2 51 TR - 70 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4834	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	15600	15600.00
	Cartage@ 1% of A				156.00
	TOTAL A				15756.00
	ITC @4% of A				630.24
	TOTAL				16386.24
	Overhead & Profit @15%				2457.94
	TOTAL				18844.18
	Labours cess@1%				188.44
	TOTAL				19032.62
	Add 18% of GST				3425.87
	TOTAL				22458.49
	Say RS.				22458.00

9.3.3 71 TR - 100 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4835	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	15275	15275.00
	Cartage@ 1% of A				152.75
	TOTAL A				15427.75
	ITC @4% of A				617.11
	TOTAL				16044.86
	Overhead & Profit @15%				2406.73
	TOTAL				18451.59
	Labours cess@1%				184.52
	TOTAL				18636.10
	Add 18% of GST				3354.50
	TOTAL				21990.60
	Say RS.				21991.00

9.4 Supply, installation, testing and commissioning of AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified Air-Cooled Scroll Chiller package complete with VFD (Variable Frequency Drive), hermetic/semi hermetic, multiple scroll type compressors each with step less capacity control of 25 % to 100 % of the rated capacity, with microprocessor based control panel, motor, starter panel (VFD), machine mounted, air- cooled condensers, factory fitted chiller insulation, water flow switch, vibration spring Isolators, victaulic couplings, integral refrigerant piping and wiring with single/ two circuits, automatic and safety controls mounted in central console panel and i/c suitable foundation/mounting structure made of RCC/MS Structure i/c anticorrosive paint, anti vibration pad,

power control cable and connection inter connection etc. as per design approved by engineer-in-charge. Motor shall be suitable for 415±10% 50 cycles. 3 phase AC supply. Refrigerant gas used shall be R-410A. The chiller shall be Building Management System (BMS) compatible The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.

Chilled water Leaving Temp. (6.67 deg. C)

Chilled water Entering Temp. (12.2 deg. C)

Evaporator fouling factor = 0.018 m². 0C/kW

Condenser air entering temp. : As per Site Dry Bulb Temperature

9.4.1 Upto 50 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4836	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	15275	15275.00
	Cartage@ 1% of A				152.75
	TOTAL A				15427.75
	ITC @4% of A				617.11
	TOTAL				16044.86
	Overhead & Profit @15%				2406.73
	TOTAL				18451.59
	Labours cess@1%				184.52
	TOTAL				18636.10
	Add 18% of GST				3354.50
	TOTAL				21990.60
	Say RS.				21991.00

9.4.2 51 TR - 70 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4837	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	14300	14300.00
	Cartage@ 1% of A				143.00
	TOTAL A				14443.00
	ITC @4% of A				577.72
	TOTAL				15020.72
	Overhead & Profit @15%				2253.11
	TOTAL				17273.83
	Labours cess@1%				172.74
	TOTAL				17446.57
	Add 18% of GST				3140.38
	TOTAL				20586.95
	Say RS.				20587.00

9.4.3 71 TR - 100 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4838	Basic Price for AIR-COOLED VFD SCREW CHILLER i/c accessories, fittings, supports etc	Per TR	1	13975	13975.00
	Cartage@ 1% of A				139.75
	TOTAL A				14114.75
	ITC @4% of A				564.59
	TOTAL				14679.34
	Overhead & Profit @15%				2201.90
	TOTAL				16881.24
	Labours cess@1%				168.81
	TOTAL				17050.05
	Add 18% of GST				3069.01
	TOTAL				20119.06
	Say RS.				20119.00

WATER COOLED CHILLERS**WATER COOLED SCREW CHILLERS**

- 9.5** Supply, installation, testing and commissioning of floor-mounted AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified water cooled screw-type chiller machine complete with VFD (Variable Frequency Drive), single/multi semi-hermetic twin screw type compressor, water-cooled Shell & Tube type condenser, Shell & Tube horizontal flooded type evaporator with carbon steel shell and seamless copper tubes with 19 mm nitrile rubber insulation i/c suitable foundation/mounting structure made of RCC/MS Structure i/c anticorrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge, interconnected copper refrigerant piping and wiring, vibration Isolators, gauge panel, automatic safety controls, flow switch at evaporator and condenser and ozone friendly Chlorofluorocarbons (CFC)-free refrigerant gas R-134A. The refrigerant flow control shall use an electronic expansion valve. The chiller shall be designed for a Water Side working pressure of 150 PSI and hydraulically tested at 1.3 times of design pressure . A number of properly spaced baffles shall be provided for maintaining optimum water velocity and heat transfer and the tubes shall be adequately supported. The chiller shall be Building Management System (BMS) compatible The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.

Chilled water Leaving Temp. (6.67 deg. C)

Chilled water Entering Temp. (12.2 deg. C)

Evaporator fouling factor = 0.018 m². 0C/kW

Condenser water Entering Temp. (32.2 deg. C)

Condenser water Leaving Temp. (36.4 deg. C)

Suitable for Seismic Zone and Altitude as per location/site.

9.5.1 Upto 70 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4839	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	13325	13325.00
	Cartage@ 1% of A				133.25
	TOTAL A				13458.25
	ITC @4% of A				538.33
	TOTAL				13996.58
	Overhead & Profit @15%				2099.49
	TOTAL				16096.07
	Labours cess@1%				160.96
	TOTAL				16257.03
	Add 18% of GST				2926.26
	TOTAL				19183.29
	Say RS.				19183.00

9.5.2 71 TR - 110 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4840	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	11700	11700.00
	Cartage@ 1% of A				117.00
	TOTAL A				11817.00
	ITC @4% of A				472.68
	TOTAL				12289.68
	Overhead & Profit @15%				1843.45
	TOTAL				14133.13
	Labours cess@1%				141.33
	TOTAL				14274.46
	Add 18% of GST				2569.40
	TOTAL				16843.87
	Say RS.				16844.00

9.5.3 111 TR - 150 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4841	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	11700	11700.00

Cartage@ 1% of A	117.00
TOTAL A	11817.00
ITC @4% of A	472.68
TOTAL	12289.68
Overhead & Profit @15%	1843.45
TOTAL	14133.13
Labours cess@1%	141.33
TOTAL	14274.46
Add 18% of GST	2569.40
TOTAL	16843.87
Say RS.	16844.00

9.5.4 151 TR - 210 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4842	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	11700	11700.00
	Cartage@ 1% of A				117.00
	TOTAL A				11817.00
	ITC @4% of A				472.68
	TOTAL				12289.68
	Overhead & Profit @15%				1843.45
	TOTAL				14133.13
	Labours cess@1%				141.33
	TOTAL				14274.46
	Add 18% of GST				2569.40
	TOTAL				16843.87
	Say RS.				16844.00

9.5.5 211 TR - 260 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4843	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	11375	11375.00
	Cartage@ 1% of A				113.75
	TOTAL A				11488.75
	ITC @4% of A				459.55
	TOTAL				11948.30
	Overhead & Profit @15%				1792.25
	TOTAL				13740.55
	Labours cess@1%				137.41
	TOTAL				13877.95

Add 18% of GST	2498.03
TOTAL	16375.98
Say RS.	16376.00

9.5.6 261 TR - 300 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4844	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	11050	11050.00
	Cartage@ 1% of A				110.50
	TOTAL A				11160.50
	ITC @4% of A				446.42
	TOTAL				11606.92
	Overhead & Profit @15%				1741.04
	TOTAL				13347.96
	Labours cess@1%				133.48
	TOTAL				13481.44
	Add 18% of GST				2426.66
	TOTAL				15908.10
	Say RS.				15908.00

9.5.7 301 TR - 450 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4845	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	10400	10400.00
	Cartage@ 1% of A				104.00
	TOTAL A				10504.00
	ITC @4% of A				420.16
	TOTAL				10924.16
	Overhead & Profit @15%				1638.62
	TOTAL				12562.78
	Labours cess@1%				125.63
	TOTAL				12688.41
	Add 18% of GST				2283.91
	TOTAL				14972.33
	Say RS.				14972.00

9.5.8 451 TR -600 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4846	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	10075	10075.00
	Cartage@ 1% of A				100.75
	TOTAL A				10175.75
	ITC @4% of A				407.03
	TOTAL				10582.78
	Overhead & Profit @15%				1587.42
	TOTAL				12170.20
	Labours cess@1%				121.70
	TOTAL				12291.90
	Add 18% of GST				2212.54
	TOTAL				14504.44
	Say RS.				14504.00

- 9.6 Supply, Installation, Testing and Commissioning of floor-mounted AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified VFD (Variable Frequency Drive) Operated water cooled screw-type chiller machine complete with single/multi semi-hermetic twin screw type compressor, with independent circuits, water-cooled Shell & Tube type condenser, Shell & Tube horizontal flooded type evaporator with carbon steel shell and seamless copper tubes with 19 mm nitrile rubber insulation i/c suitable foundation/mounting structure made of RCC/MS Structure i/c anticorrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge, common base frame, interconnected copper refrigerant piping and wiring, vibration Isolators, gauge panel, automatic safety controls, flow switch at evaporator and condenser and ozone friendly Chlorofluorocarbons (CFC)-free refrigerant gas R-134A. The refrigerant flow control shall use an electronic expansion valve. The chiller shall be designed for a Water Side working pressure of 150 psig and hydraulically tested at 1.5 times of design pressure . A number of properly spaced baffles shall be provided for maintaining optimum water velocity and heat transfer and the tubes shall be adequately supported. The chiller shall be Building Management System (BMS) compatible The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.**

Chilled water Leaving Temp. (6.67 deg. C)

Chilled water Entering Temp. (12.2 deg. C)

Evaporator fouling factor = 0.018 m². 0C/kW

Condenser water Entering Temp. (32.2 deg. C)

Condenser water Leaving Temp. (36.4 deg. C)

Suitable for Seismic Zone and Altitude as per location/site.

9.6.1 Upto 74 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4847	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	14300	14300.00
	Cartage@ 1% of A				143.00
	TOTAL A				14443.00
	ITC @4% of A				577.72
	TOTAL				15020.72
	Overhead & Profit @15%				2253.11
	TOTAL				17273.83
	Labours cess@1%				172.74
	TOTAL				17446.57
	Add 18% of GST				3140.38
	TOTAL				20586.95
	Say RS.				20587.00

9.6.2 75 TR - 150 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4848	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	13650	13650.00
	Cartage@ 1% of A				136.50
	TOTAL A				13786.50
	ITC @4% of A				551.46
	TOTAL				14337.96
	Overhead & Profit @15%				2150.69
	TOTAL				16488.65
	Labours cess@1%				164.89
	TOTAL				6653.54
	Add 18% of GST				2997.64
	TOTAL				19651.18
	Say RS.				19651.00

9.6.3 75 TR - 150 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4849	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	12350	12350.00

Cartage@ 1% of A	123.50
TOTAL A	12473.50
ITC @4% of A	498.94
TOTAL	12972.44
Overhead & Profit @15%	1945.87
TOTAL	14918.31
Labours cess@1%	149.18
TOTAL	15067.49
Add 18% of GST	2712.15
TOTAL	17779.64
Say RS.	17780.00

9.6.4 301TR - 450 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4850	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	11700	11700.00
	Cartage@ 1% of A				117.00
	TOTAL A				11817.00
	ITC @4% of A				472.68
	TOTAL				12289.68
	Overhead & Profit @15%				1843.45
	TOTAL				14133.13
	Labours cess@1%				141.33
	TOTAL				14274.46
	Add 18% of GST				2569.40
	TOTAL				16843.87
	Say RS.				16844.00

9.6.5 451 TR - 525 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4851	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	10400	10400.00
	Cartage@ 1% of A				104.00
	TOTAL A				10504.00
	ITC @4% of A				420.16
	TOTAL				10924.16
	Overhead & Profit @15%				1638.62
	TOTAL				12562.78
	Labours cess@1%				125.63
	TOTAL				12688.41

Add 18% of GST	2283.91
TOTAL	14972.33
Say RS.	14972.00

9.6.6 526 TR - 600 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4852	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	9750	9750.00
	Cartage@ 1% of A				97.50
	TOTAL A				9847.50
	ITC @4% of A				393.90
	TOTAL				10241.40
	Overhead & Profit @15%				1536.21
	TOTAL				11777.61
	Labours cess@1%				117.78
	TOTAL				11895.39
	Add 18% of GST				2141.17
	TOTAL				14036.56
	Say RS.				14037.00

- 9.7 Supply, installation, testing and commissioning of floor-mounted Variable Frequency Drive (VFD) water cooled scroll-type chiller machine complete with hermetic scroll type single/ multi compressors with independent circuits, water-cooled carbon steel shell, seamless copper tubes condenser and evaporator with 19 mm nitrile rubber insulation, i/c suitable foundation/mounting structure made of RCC/MS Structure with anti-corrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge, gauge panel, automatic safety controls, flow switch at evaporator and condenser and ozone friendly Chlorofluorocarbons (CFC)-free refrigerant gas R-410A. The refrigerant flow control shall use an electronic expansion valve. The chiller shall be designed for a Water Side working pressure of 150 psig and hydraulically tested at 1.5 times of design pressure. A number of properly spaced baffles shall be provided for maintaining optimum water velocity and heat transfer and the tubes shall be adequately supported. The chiller shall be Building Management System (BMS) compatible The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.

Chilled water Leaving Temp. (6.67 deg. C)

Chilled water Entering Temp. (12.2 deg. C)

Evaporator fouling factor = 0.018 m². 0C/kW

Condenser water Entering Temp. (32.2 deg. C)

Condenser water Leaving Temp. (36.4 deg. C)

Suitable for Seismic Zone and Altitude as per location/site.

9.7.1 Upto 40 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4853	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	15925	15925.00
	Cartage@ 1% of A				159.25
	TOTAL A				16084.25
	ITC @4% of A				643.37
	TOTAL				16727.62
	Overhead & Profit @15%				2509.14
	TOTAL				19236.76
	Labours cess@1%				192.37
	TOTAL				19429.13
	Add 18% of GST				3497.24
	TOTAL				22926.37
	Say RS.				22926.00

9.7.2 41 TR - 75 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4854	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	15600	15600.00
	Cartage@ 1% of A				156.00
	TOTAL A				15756.00
	ITC @4% of A				630.24
	TOTAL				16386.24
	Overhead & Profit @15%				2457.94
	TOTAL				18844.18
	Labours cess@1%				188.44
	TOTAL				19032.62
	Add 18% of GST				3425.87
	TOTAL				22458.49
	Say RS.				22458.00

9.7.3 76 TR - 150 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4855	Basic Price for Variable Speed Drive (VFD) Operated water cooled screw-type chiller machine i/c accessories, fittings, supports etc	Per TR	1	15275	15275.00
	Cartage@ 1% of A				152.75

TOTAL A	15427.75
ITC @4% of A	617.11
TOTAL	16044.86
Overhead & Profit @15%	2406.73
TOTAL	18451.59
Labours cess@1%	184.52
TOTAL	18636.10
Add 18% of GST	3354.50
TOTAL	21990.60
Say RS.	21991.00

WATER COOLED CENTRIFUGAL CHILLERS

9.8

a) Supplying, Installation, Testing & Commissioning of Centrifugal Water Cooled Chilling Machine Air-Conditioning, Heating, and Refrigeration Institute (AHRI) certified complete with factory fitted (unit mounted/ free standing) (Variable Frequency Drive (VFD)) with active harmonic filter with IP54 protection having actual capacity as below. The scope of work shall include Lifting, shifting & positioning of the equipment at location shown on the drawing. Chiller given hereunder, comprising of following and complete as per specification/drawings and as directed by Engineer-in-charge. - Chilled water inlet temperature of 12.2°C (54°F) & Chilled water outlet temperature 6.7°C (44°F) with chilled water circulation, Evaporator side fouling factor 0.018 m².°C /kW - Condenser water inlet temperature Inlet - 32.2°C (90°F) & condenser water outlet temperature of 36.4°C (97.5°F) with water circulation, Condensor side fouling factor 0.044 m². 0C/Kw

b) Open/ Semi-Hermetic/ Fully hermetic Centrifugal Compressor complete with automatic capacity control system, safety switches, speed increasing mechanism, forced feed lubrication system etc. as per detailed specifications and compressor extended warranty of 1 year for refrigerent leakage & mechanical seal.

c) Suitable capacity TEFC/SPDP Squirrel Cage Induction Motor with enclosure IP 23/ as per Original Equipment Manufacturer (OEM) standard & class 'F' insulation suitable for operation on 415±10% Volt, 3 Phase, 50 HZ, AC Supply. Vendor must provide Junction box along with each set of unit including cable works from junction box to chiller.

d) Unit Mounted/ Free standing IP-54 protection (UL /EN certified) Variable Frequency Drive (VFD) Starter panel with air Cooled/ Refrigerant Cooled or as per Original Equipment Manufacturer (OEM) standard, suitable for compressor motor, complete having over-load protection, under-voltage protection, protection against phase reversal, current sensing independent single phasing protection etc. including multi-function meter and CTs, complete as per detailed specifications. Variable Frequency Drive (VFD)s shall comply with International Electrotechnical Commission (IEC) 61800-3 & have THD less than 5% at all Loads Active / passive filters must be use to achieve desired THD levels and other parameters as per IEEE - 519. Variable Frequency Drive (VFD)s shall be compatible for Modbus/BACnet Protocols. The power factor shall be > 0.95 at all loads. Original Equipment Manufacturer (OEM) shall ensure quality for each set of chiller & Variable Frequency Drive (VFD) before dispatch. Chiller performance parameters shall be as per IS 16590 and BEE star labeling. The chiller shall be Building Management System (BMS) compatible

e) Lubrication Device consisting of automatic electric oil pump, oil cooler, head tank, oil strainer, automatic pressure regulating valve, oil heater, thermal switch etc, as per detailed specifications and as required.

f) Matching Shell and Tube Water Cooled Condenser of M.S. Shell and integrally finned Copper Tubes, 2 pass heat exchanger. The Condenser shall have U-stamping / PED Certification. Note- In case of R514a refrigerant, the relaxation on U stamping is applicable only after providing proper justification / proof documentation from Original Equipment Manufacturer (OEM) .

g) Matching Shell and Tube Flooded type Chiller for centrifugal unit consisting of MS Shell and Copper Tubes, 2 pass Heat Exchanger, duly insulated at factory complete as per specifications and as required. The Evaporator shall have U-stamping.

h) Refrigerant Line Accessories comprising of safety valves, angle valve, liquid line indications, liquid level control, liquid line Isolation valve, etc. OR as per Original Equipment Manufacturer (OEM) design standard complete as per specifications.

l) DP/ Water Flow Switches at inlet and outlet of the condenser & chiller, water drain & air purge valves wherever required, complete as per specifications.

j) Suction Line and Chiller Insulation with minimum 19mm thick elastomeric nitrile rubber insulation complete as required from factory.

k) Foundation Frame Work for mounting the above condenser, chiller, compressor and motor with base plate, panel complete with anti-vibration pads (set of spring type), vibration isolators with Isolation efficiency more than 90%. Numbers shall be as per Original Equipment Manufacturer (OEM) standards.), complete as per specifications.

l) Initial/ First Charge of Refrigerant Gas and Compressor Oil.

m) Chiller shall be factory tested at 25%, 50%, 75% and 100% load at Constant Condenser Water inlet at AHRI test bed.

n) Each chiller shall be provided with set of grooved coupling along with the chiller for cooler and condenser inlet / outlet connection.

o) Chiller Original Equipment Manufacturer (OEM) shall provide undertaking in the name of end user for providing support for maintenance & spare availability for next 15 yrs from the date of Handover.

p) Software Selection Sheet to be Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Certified based on latest version. Which can be varified online through AHRI website.

q) Sound performance shall be as per relevant AHRI for all loads. This data shall be provided as apart of chiller technical submittal.

9.8.1 300 TR - 450 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4856	Basic Price for water cooled centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	17550	17550.00
	Cartage@ 1% of A				175.50
	TOTAL A				17725.50
	ITC @4% of A				709.02
	TOTAL				18434.52
	Overhead & Profit @15%				2765.18
	TOTAL				21199.70
	Labours cess@1%				212.00
	TOTAL				21411.69
	Add 18% of GST				3854.11
	TOTAL				25265.80
	Say RS.				25266.00

9.8.2 451 TR - 600 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4857	Basic Price for water cooled centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	17225	17225.00
	Cartage@ 1% of A				172.25
	TOTAL A				17397.25
	ITC @4% of A				695.89
	TOTAL				18093.14
	Overhead & Profit @15%				2713.97
	TOTAL				20807.11
	Labours cess@1%				208.07
	TOTAL				21015.18
	Add 18% of GST				3782.73
	TOTAL				24797.91
	Say RS.				24798.00

9.8.3 601 TR - 1000 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4858	Basic Price for water cooled centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	16900	16900.00
	Cartage@ 1% of A				169.00
	TOTAL A				17069.00
	ITC @4% of A				682.76

TOTAL	17751.76
Overhead & Profit @15%	2662.76
TOTAL	20414.52
Labours cess@1%	204.15
TOTAL	20618.67
Add 18% of GST	3711.36
TOTAL	24330.03
Say RS.	24330.00

9.8.4 1001 TR - 1600 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4859	Basic Price for water cooled centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	16575	16575.00
	Cartage@ 1% of A				165.75
	TOTAL A				16740.75
	ITC @4% of A				669.63
	TOTAL				17410.38
	Overhead & Profit @15%				2611.56
	TOTAL				20021.94
	Labours cess@1%				200.22
	TOTAL				20222.16
	Add 18% of GST				3639.99
	TOTAL				23862.14
	Say RS.				23862.00

9.8.5 1601 TR - 2000 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4860	Basic Price for water cooled centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	16575	16575.00
	Cartage@ 1% of A				165.75
	TOTAL A				16740.75
	ITC @4% of A				669.63
	TOTAL				17410.38
	Overhead & Profit @15%				2611.56
	TOTAL				20021.94
	Labours cess@1%				200.22
	TOTAL				20222.16
	Add 18% of GST				3639.99
	TOTAL				23862.14
	Say RS.				23862.00

WATER COOLED MAGNETIC CENTRIFUGAL CHILLERS

9.9	Supply, installation, testing & commissioning of AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified water cooled Magnetic centrifugal type chiller
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machine complete with hermetic single/ multi compressors with independent circuits, with R-134A or equivalent refrigerant, complete with single Semi /hermetically sealed refrigerant cooled motor of working on 415 + 10% volts, 3 Phase, 50 Hz AC supply. Shell & tube flooded chiller & condenser with descaling & drain valves, victaulic /Flange coupling on condenser & evaporator, microprocessor panel for multiple start ups, i/c suitable foundation/mounting structure made of RCC/MS Structure with anti-corrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge, electrical termination suitable for aluminium conductors along with thermal insulations anti vibration pads, flow switch and required accessories etc, Movable diffuser, Sight Glass at evaporator, Liquid line Isolation valves, Liquid Crystal Display (LCD) Human Machine Interface (HMI) . complete as per specifications and drawings. Complete with first charge of Refrigerant (Preferably at factory charge) .

Starter shall be Variable Frequency Drive (VFD) type and shall be Unit Mounted/ Floor Mounted \geq IP42 (UL Listed / CE Marked). Each Compressor shall be equipped with Suitable capacity Permanent Magnet Motor with class 'F' Insulation suitable for operation on 415 +/- 10% volts, 50 HZ, A.C. Supply. Chillers shall be factory AHRI tested at design conditions at 100%, 75%, 50% and 25% load respectively; test certificates shall be produced for all chillers. The chiller shall be Building Management System (BMS) compatible and shall have RS485/RS232 serial communication protocol; the motor shall be suitable for 3- Phase, 415 V \pm 10%, 50 Hz AC electric supply. The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.

Chilled water Leaving Temp. (6.67 deg. C)

Chilled water Entering Temp. (12.2 deg. C)

Evaporator fouling factor = 0.018 m². °C/kW

Condenser water Entering Temp. (32.2 deg. C)

Condenser water Leaving Temp. (36.4 deg. C)

Suitable for Seismic Zone and Altitude as per location/site.

9.9.1 121 TR - 150 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4861	Basic Price for water cooled Magnetic centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	19175	19175.00
	Cartage@ 1% of A				191.75
	TOTAL A				19366.75
	ITC @4% of A				774.67
	TOTAL				20141.42
	Overhead & Profit @15%				3021.21
	TOTAL				23162.63
	Labours cess@1%				231.63
	TOTAL				23394.26
	Add 18% of GST				4210.97
	TOTAL				27605.23
	Say RS.				27605.00

9.9.2 151 TR - 300 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4862	Basic Price for water cooled Magnetic centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	15600	15600.00
	Cartage@ 1% of A				156.00
	TOTAL A				15756.00
	ITC @4% of A				630.24
	TOTAL				16386.24
	Overhead & Profit @15%				2457.94
	TOTAL				18844.18
	Labours cess@1%				188.44
	TOTAL				19032.62
	Add 18% of GST				3425.87
	TOTAL				22458.49
	Say RS.				22458.00

9.9.3 301 TR - 450 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4863	Basic Price for water cooled Magnetic centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	15275	15275.00
	Cartage@ 1% of A				152.75
	TOTAL A				15427.75
	ITC @4% of A				617.11
	TOTAL				16044.86
	Overhead & Profit @15%				2406.73
	TOTAL				18451.59
	Labours cess@1%				184.52
	TOTAL				18636.10
	Add 18% of GST				3354.50
	TOTAL				21990.60
	Say RS.				21991.00

9.9.4 451 TR - 600 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4864	Basic Price for water cooled Magnetic centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	14040	14040.00
	Cartage@ 1% of A				140.40
	TOTAL A				14180.40
	ITC @4% of A				567.22

TOTAL	14747.62
Overhead & Profit @15%	2212.14
TOTAL	16959.76
Labours cess@1%	169.60
TOTAL	17129.36
Add 18% of GST	3083.28
TOTAL	20212.64
Say RS.	20213.00

- 9.10 Supply, installation, testing & commissioning of AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified water cooled Magnetic centrifugal type chiller machine complete with hermetic single/ multi compressors with independent circuits, with R-134A or equivalent refrigerant, complete with dual Semi/ hermetically sealed refrigerant cooled motor of working on 415 + 10% volts, 3 Phase, 50 Hz AC supply. Shell & tube flooded chiller & condenser with descaling & drain valves, victaulic /Flange coupling on condenser & evaporator, microprocessor panel for multiple start ups, i/c suitable foundation/mounting structure made of RCC/MS Structure with anti-corrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge, electrical termination suitable for aluminium conductors along with thermal insulations anti vibration pads, flow switch and required accessories etc, Movable diffuser, Sight Glass at evaporator, Liquid line Isolation valves, Liquid Crystal Display (LCD) Human Machine Interface (HMI). complete as per specifications and drawings. Complete with first charge of Refrigerant (Preferably at factory charge) .**

Starter shall be Variable Frequency Drive (VFD) type and shall be Unit Mounted/ Floor Mounted \geq IP42 (UL Listed / CE Marked). Each Compressor shall be equipped with Suitable capacity Permanent Magnet Motor with class 'F' Insulation suitable for operation on 415 +/- 10% volts, 50 HZ, A.C. Supply. Chillers shall be factory AHRI tested at design conditions at 100%, 75%, 50% and 25% load respectively; test certificates shall be produced for all chillers. The chiller shall be Building Management System (BMS) compatible and shall have RS485/RS232 serial communication protocol; the motor shall be suitable for 3- Phase, 415 V \pm 10%, 50 Hz AC electric supply. The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.

**Chilled water Leaving Temp. (6.67deg. C)
Chilled water Entering Temp. (12.2 deg. C)
Evaporator fouling factor = 0.018 m². °C/kW
Condenser water Entering Temp. (32.2 deg. C)
Condenser water Leaving Temp. (36.4 deg. C)
Condenser fouling factor = 0.044 m². °C/kW**

9.9.1 121 TR - 150 TR BEE 3 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4865	Basic Price for water cooled Magnetic centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	20800	20800.00

Cartage@ 1% of A	208.00
TOTAL A	21008.00
ITC @4% of A	840.32
TOTAL	21848.32
Overhead & Profit @15%	3277.25
TOTAL	25125.57
Labours cess@1%	251.26
TOTAL	25376.82
Add 18% of GST	4567.83
TOTAL	29944.65
Say RS.	29945.00

9.10.2 211 TR - 300 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4866	Basic Price for water cooled Magnetic centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	18850	18850.00
	Cartage@ 1% of A				188.50
	TOTAL A				19038.50
	ITC @4% of A				761.54
	TOTAL				19800.04
	Overhead & Profit @15%				2970.01
	TOTAL				22770.05
	Labours cess@1%				227.70
	TOTAL				22997.75
	Add 18% of GST				4139.59
	TOTAL				27137.34
	Say RS.				27137.00

9.9.3 301 TR - 355 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4867	Basic Price for water cooled Magnetic centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	16575	16575.00
	Cartage@ 1% of A				165.75
	TOTAL A				16740.75
	ITC @4% of A				669.63
	TOTAL				17410.38
	Overhead & Profit @15%				2611.56
	TOTAL				20021.94
	Labours cess@1%				200.22
	TOTAL				20222.16
	Add 18% of GST				3639.99
	TOTAL				23862.14
	Say RS.				23862.00

9.10.3 356 TR - 450 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4868	Basic Price for water cooled Magnetic centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	15275	15275.00
	Cartage@ 1% of A				152.75
	TOTAL A				15427.75
	ITC @4% of A				617.11
	TOTAL				16044.86
	Overhead & Profit @15%				2406.73
	TOTAL				18451.59
	Labours cess@1%				184.52
	TOTAL				18636.10
	Add 18% of GST				3354.50
	TOTAL				21990.60
	Say RS.				21991.00

9.9.4 451 TR - 600 TR BEE 4 Star Rated

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4869	Basic Price for water cooled Magnetic centrifugal type chiller machine i/c accessories, fittings, supports etc	Per TR	1	15210	15210.00
	Cartage@ 1% of A				152.10
	TOTAL A				15362.10
	ITC @4% of A				614.48
	TOTAL				15976.58
	Overhead & Profit @15%				2396.49
	TOTAL				18373.07
	Labours cess@1%				183.73
	TOTAL				18556.80
	Add 18% of GST				3340.22
	TOTAL				21897.03
	Say RS.				21897.00

CHAPTER-10 COOLING TOWERS

COOLING TOWER

- 10.1 Supply, Installation, testing and commissioning of Induced Draft counterflow cooling Towers(CTI approved). The Cooling Tower shall be of Fiber Reinforced Plastic (FRP) Construction. The casing, basin/sump, fan deck and fan cylinder shall be of FRP, with direct driven fans, Galvanised hardware complete with sump and drain connection with suitable valve, PVC Honey comb fill, louvers, drift eliminator complete with spray nozzle having self rotating sprinklers, steel ladder, Isolating switch and other accessories to make it fully operational and maintainance National Accreditation Board for Testing and Calibration Laboratories (NABL) & positioning of cooling tower at Terrace of Building. Propeller Type Fan, weather proof IP 55 and Direct driven. The fan motor shall be premium efficiency IE3 class , as per IS 12615 The Cooling tower shall be capable to communicate effectively with Building Management System (BMS). Range of CT: 6 deg C. Designed Duty Conditions :- EWT, LWT, D/WBT Complete as per CPWD specification/drawings and as directed by Engineer-in-charge. (Note - Cooling tower size depends on the ambient temperature conditions, contractor must check the required design temperature).**

10.1.1 300 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4870	Basic Price for 1000 GPM i/c accessories, fittings, supports etc	Each	1	222300	222300.00
	Cartage@ 1% of A				2223.00
	TOTAL A				224523.00
	ITC @4% of A				8980.92
	TOTAL				233503.92
	Overhead & Profit @15%				35025.59
	TOTAL				268529.51
	Labours cess@1%				2685.30
	TOTAL				271214.80
	Add 18% of GST				48818.66
	TOTAL				320033.47
	Say RS.				320033.00

10.1.2 450 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4871	Basic Price for 1000 GPM i/c accessories, fittings, supports etc	Each	1	296704	296703.55
	Cartage@ 1% of A				2967.04
	TOTAL A				299670.59
	ITC @4% of A				11986.82
	TOTAL				311657.41
	Overhead & Profit @15%				46748.61

TOTAL	358406.02
Labours cess@1%	3584.06
TOTAL	361990.08
Add 18% of GST	65158.21
TOTAL	427148.29
Say RS.	427148.00

10.1.3 600 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4872	Basic Price for 2000 GPM i/c accessories, fittings, supports etc	Each	1	414700	414700.00
	Cartage@ 1% of A				4147.00
	TOTAL A				418847.00
	ITC @4% of A				16753.88
	TOTAL				435600.88
	Overhead & Profit @15%				65340.13
	TOTAL				500941.01
	Labours cess@1%				5009.41
	TOTAL				505950.42
	Add 18% of GST				91071.08
	TOTAL				597021.50
	Say RS.				597021.00

10.1.4 750 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4873	Basic Price for 3000 GPM i/c accessories, fittings, supports etc	Each	1	556306	556305.75
	Cartage@ 1% of A				5563.06
	TOTAL A				561868.81
	ITC @4% of A				22474.75
	TOTAL				584343.56
	Overhead & Profit @15%				87651.53
	TOTAL				671995.09
	Labours cess@1%				6719.95
	TOTAL				678715.04
	Add 18% of GST				122168.71
	TOTAL				800883.75
	Say RS.				800884.00

10.1.5 900 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4874	Basic Price for 4000 GPM i/c accessories, fittings, supports etc	Each	1	646750	646750.00

Cartage@ 1% of A	6467.50
TOTAL A	653217.50
ITC @4% of A	26128.70
TOTAL	679346.20
Overhead & Profit @15%	101901.93
TOTAL	781248.13
Labours cess@1%	7812.48
TOTAL	789060.61
Add 18% of GST	142030.91
TOTAL	931091.52
Say RS.	931092.00

10.1.6 1050 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4875	Basic Price for 5000 GPM i/c accessories, fittings, supports etc	Each	1	709459	709458.75
	Cartage@ 1% of A				7094.58
	TOTAL A				75716553.3375
	ITC @4% of A				28662.13
	TOTAL				745215.47
	Overhead & Profit @15%				111782.32
	TOTAL				856997.79
	Labours cess@1%				8569.98
	TOTAL				865567.77
	Add 18% of GST				155802.20
	TOTAL				1021369.97
	Say RS.				1021370.00

10.1.7 1200 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4876	Basic Price for 1000 GPM i/c accessories, fittings, supports etc	Each	1	819000	819000.00
	Cartage@ 1% of A				8190.00
	TOTAL A				827190.00
	ITC @4% of A				33087.60
	TOTAL				860277.60
	Overhead & Profit @15%				129041.64
	TOTAL				989319.24
	Labours cess@1%				9893.19
	TOTAL				999212.43
	Add 18% of GST				179858.24
	TOTAL				1179070.67
	Say RS.				1179071.00

10.1.8 1350 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4877	Basic Price for 1000 GPM i/c accessories, fittings, supports etc	Each	1	865800	865800.00
	Cartage@ 1% of A				8658.00
	TOTAL A				874458.00
	ITC @4% of A				34978.32
	TOTAL				909436.32
	Overhead & Profit @15%				136415.45
	TOTAL				1045851.77
	Labours cess@1%				10458.52
	TOTAL				1056310.29
	Add 18% of GST				190135.85
	TOTAL				1246446.14
	Say RS.				1246446.00

10.1.9 1500 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4878	Basic Price for 2000 GPM i/c accessories, fittings, supports etc	Each	1	954200	954200.00
	Cartage@ 1% of A				9542.00
	TOTAL A				963742.00
	ITC @4% of A				38549.68
	TOTAL				1002291.68
	Overhead & Profit @15%				150343.75
	TOTAL				1152635.43
	Labours cess@1%				11526.35
	TOTAL				1164161.79
	Add 18% of GST				209549.12
	TOTAL				1373710.91
	Say RS.				1373711.00

10.1.10 1800 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4879	Basic Price for 3000 GPM i/c accessories, fittings, supports etc	Each	1	1175200	1175200.00
	Cartage@ 1% of A				11752.00
	TOTAL A				1186952.00
	ITC @4% of A				47478.08
	TOTAL				1234430.08
	Overhead & Profit @15%				185164.51
	TOTAL				1419594.59
	Labours cess@1%				14195.95

TOTAL	1433790.54
Add 18% of GST	258082.30
TOTAL	1691872.83
Say RS.	1691873.00

10.1.11 2100 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4880	Basic Price for 4000 GPM i/c accessories, fittings, supports etc	Each	1	1331230	1331229.90
	Cartage@ 1% of A				13312.30
	TOTAL A				1344542.20
	ITC @4% of A				53781.69
	TOTAL				1398323.89
	Overhead & Profit @15%				209748.58
	TOTAL				1608072.47
	Labours cess@1%				16080.72
	TOTAL				1624153.19
	Add 18% of GST				292347.58
	TOTAL				1916500.77
	Say RS.				1916501.00

10.1.12 2400 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4881	Basic Price for 5000 GPM i/c accessories, fittings, supports etc	Each	1	1581080	1581079.50
	Cartage@ 1% of A				15810.80
	TOTAL A				1596890.30
	ITC @4% of A				63875.61
	TOTAL				1660765.91
	Overhead & Profit @15%				249114.89
	TOTAL				1909880.79
	Labours cess@1%				19098.81
	TOTAL				1928979.60
	Add 18% of GST				347216.33
	TOTAL				2276195.93
	Say RS.				2276196.00

10.1.13 2700 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4882	Basic Price for 4000 GPM i/c accessories, fittings, supports etc	Each	1	1655404	1655403.75
	Cartage@ 1% of A				16554.04
	TOTAL A				1671957.79

ITC @4% of A	66878.31
TOTAL	1738836.10
Overhead & Profit @15%	260825.41
TOTAL	1999661.51
Labours cess@1%	19996.62
TOTAL	2019658.13
Add 18% of GST	363538.46
TOTAL	2383196.59
Say RS.	2383197.00

10.1.14 3000 GPM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4883	Basic Price for 5000 GPM i/c accessories, fittings, supports etc	Each	1	1770644	1770644.20
	Cartage@ 1% of A				17706.44
	TOTAL A				1788350.64
	ITC @4% of A				71534.03
	TOTAL				1859884.67
	Overhead & Profit @15%				278982.70
	TOTAL				2138867.37
	Labours cess@1%				21388.67
	TOTAL				2160256.04
	Add 18% of GST				388846.09
	TOTAL				2549102.13
	Say RS.				2549102.00

CHAPTER-11 AHU & FCU

CEILING SUSPENDED AHU

- 11.1 Supply, Installation, testing and commissioning of Factory built ceiling suspended chilled water double skin type horizontal/vertical air handling units of following capacity, made of 25mm thick panels consisting of pre plasticized G.I. casing of thickness 0.8mm outside layer and 0.8 mm inside layer with Polyurethane Foam (PUF) insulation factory injected between them by injection moulding machine, complete with blower section with blower suitable for static pressure as required, minimum 2 bend PVC eliminators, cooling coil section with aluminium finned copper tubes (tubes thickness not less than 0.5mm) cooling coil of 4 row deep, filter section with 50mm thick metal viscous/ washable synthetic type air prefilters, belt drive package with Totally Enclosed Fan Cooled (TEFC) drive motor of efficiency class IE3 suitable for $415 \pm 10\%$ volts, 50Hz, 3 Phase AC supply suitably designed for Variable Frequency Drive (VFD) applications, drain connections, stainless steel (18G) drain pan with PUF insulation, 150 mm dia. dial type pressure gauges (2 nos.) and industrial type thermometres (2 nos.) and industrial type thermometres (2 nos.) at the inlet and outlet of coil, auto purge valve wherever required, necessary vibration Isolation arrangement, noise level shall not exceed 70 dBA. AHU shall be AHRI/Eurovent certified, fan shall be AMCA certified etc. Complete as per CPWD specification/drawings and as directed by Engineer-in-Charge. (Total static pressure considered is max. 50 mm WC).**

11.1.1 1000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4884	Basic Price for 1000 CFM i/c accessories, fittings, supports etc	Each	1	44915	44915
	Cartage@ 1% of A				449.15
	TOTAL A				45364.15
	ITC @4% of A				1814.57
	TOTAL				47178.72
	Overhead & Profit @15%				7076.81
	TOTAL				54255.52
	Labours cess@1%				542.56
	TOTAL				54798.08
	Add 18% of GST				9863.65
	TOTAL				64661.73
	Say RS.				64662.00

11.1.2 1600 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4885	Basic Price for 1600 CFM i/c accessories, fittings, supports etc	Each	1	52325	52325
	Cartage@ 1% of A				523.25
	TOTAL A				52848.25

ITC @4% of A	2113.93
TOTAL	54962.18
Overhead & Profit @15%	8244.33
TOTAL	63206.51
Labours cess@1%	632.07
TOTAL	63838.57
Add 18% of GST	11490.94
TOTAL	75329.52
Say RS.	75330.00

11.1.3 2000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4886	Basic Price for 2000 CFM i/c accessories, fittings, supports etc	Each	1	55900	55900
	Cartage@ 1% of A				559
	TOTAL A				56459
	ITC @4% of A				2258.36
	TOTAL				58717.36
	Overhead & Profit @15%				8807.60
	TOTAL				67524.96
	Labours cess@1%				675.25
	TOTAL				68200.21
	Add 18% of GST				12276.04
	TOTAL				80476.25
	Say RS.				80476.00

11.1.4 2500 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4887	Basic Price for 2500 CFM i/c accessories, fittings, supports etc	Each	1	63700	63700
	Cartage@ 1% of A				637
	TOTAL A				64337
	ITC @4% of A				2573.48
	TOTAL				66910.48
	Overhead & Profit @15%				10036.57
	TOTAL				76947.05
	Labours cess@1%				769.47
	TOTAL				77716.52
	Add 18% of GST				13988.97
	TOTAL				91705.50
	Say RS.				91705.00

11.1.5 3000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4888	Basic Price for 3000 CFM i/c accessories, fittings, supports etc	Each	1	70200	70200
	Cartage@ 1% of A				702
	TOTAL A				70902
	ITC @4% of A				2836.08
	TOTAL				73738.08
	Overhead & Profit @15%				11060.71
	TOTAL				84798.79
	Labours cess@1%				847.99
	TOTAL				85646.78
	Add 18% of GST				15416.42
	TOTAL				101063.20
	Say RS.				101063.00

11.1.6 4000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4889	Basic Price for 4000 CFM i/c accessories, fittings, supports etc	Each	1	80600	80600
	Cartage@ 1% of A				806
	TOTAL A				81406
	ITC @4% of A				3256.24
	TOTAL				84662.24
	Overhead & Profit @15%				12699.34
	TOTAL				97361.58
	Labours cess@1%				973.62
	TOTAL				98335.19
	Add 18% of GST				17700.33
	TOTAL				116035.53
	Say RS.				116036.00

11.1.7 5000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4890	Basic Price for 5000 CFM i/c accessories, fittings, supports etc	Each	1	98800	98800
	Cartage@ 1% of A				988
	TOTAL A				99788
	ITC @4% of A				3991.52
	TOTAL				103779.52
	Overhead & Profit @15%				15566.93
	TOTAL				119346.45
	Labours cess@1%				1193.46

TOTAL	120539.91
Add 18% of GST	21697.18
TOTAL	142237.10
Say RS.	142237.00

11.1.8 6000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4891	Basic Price for 6000 CFM i/c accessories, fittings, supports etc	Each	1	111150	111150
	Cartage@ 1% of A				1111.51
	TOTAL A				12261.54
	ITC @4% of A				490.46
	TOTAL				116751.96
	Overhead & Profit @15%				17512.79
	TOTAL				134264.75
	Labours cess@1%				1342.65
	TOTAL				135607.40
	Add 18% of GST				24409.33
	TOTAL				160016.73
	Say RS.				160017.00

11.1.9 8000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4892	Basic Price for 8000 CFM i/c accessories, fittings, supports etc	Each	1	137800	137800
	Cartage@ 1% of A				1378
	TOTAL A				139178
	ITC @4% of A				5567.12
	TOTAL				144745.12
	Overhead & Profit @15%				21711.77
	TOTAL				166456.89
	Labours cess@1%				1664.57
	TOTAL				168121.46
	Add 18% of GST				30261.86
	TOTAL				198383.32
	Say RS.				198383.00

11.1.10 10000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4893	Basic Price for 10000 CFM i/c accessories, fittings, supports etc	Each	1	176800	176800
	Cartage@ 1% of A				1768
	TOTAL A				178568

ITC @4% of A	7142.72
TOTAL	185710.72
Overhead & Profit @15%	27856.61
TOTAL	213567.33
Labours cess@1%	2135.67
TOTAL	215703.00
Add 18% of GST	38826.54
TOTAL	254529.54
Say RS.	254530.00

11.1.11 12000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4894	Basic Price for 12000 CFM i/c accessories, fittings, supports etc	Each	1	212550	212550
	Cartage@ 1% of A				2125.5
	TOTAL A				214675.5
	ITC @4% of A				8587.02
	TOTAL				223262.52
	Overhead & Profit @15%				33489.38
	TOTAL				256751.90
	Labours cess@1%				2567.52
	TOTAL				259319.42
	Add 18% of GST				46677.50
	TOTAL				305996.91
	Say RS.				305997.00

FCU (FAN COIL UNIT)

DUCTABLE FAN COIL UNIT

- 11.2 Supply, installation, testing and commissioning of Ceiling Concealed Fan Coil Unit comprising of 3 rows deep chilled water cooling coil, centrifugal blowers, fractional horse power (FHP) motor, synthetic fibre filters, insulated & extended condensate drain pan along with L-type auxiliary tray, casing, coil piping connections, condensate drain piping connections & wiring. Fan coil units shall be suitable for operation on 220 +/- 6% Volts, 50Hz, single phase power supply of following sizes & capacities. Complete as per CPWD specification and as directed by Engineer-in-charge.

11.2.1 3.0 TR nominal capacity with 1200 CFM air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4895	Basic Price for 3.0 TR i/c accessories, fittings, supports etc	Each	1	16055	16055
	Cartage@ 1% of A				160.55
	TOTAL A				16215.55
	ITC @4% of A				648.62
	TOTAL				16864.17

Overhead & Profit @15%	2529.63
TOTAL	19393.80
Labours cess@1%	193.94
TOTAL	19587.74
Add 18% of GST	3525.79
TOTAL	23113.53
Say RS.	23114.00

11.2.2 2.5 TR nominal capacity with 1000 CFM air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4896	Basic Price for 2.5 TR i/c accessories, fittings, supports etc	Each	1	14820	14820
	Cartage@ 1% of A				148.2
	TOTAL A				14968.2
	ITC @4% of A				598.73
	TOTAL				15566.93
	Overhead & Profit @15%				2335.04
	TOTAL				17901.97
	Labours cess@1%				179.02
	TOTAL				18080.99
	Add 18% of GST				3254.58
	TOTAL				21335.56
	Say RS.				21336.00

11.2.3 2.0 TR nominal capacity with 800 CFM air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4897	Basic Price for 2.0 TR i/c accessories, fittings, supports etc	Each	1	12740	12740
	Cartage@ 1% of A				127.4
	TOTAL A				12867.4
	ITC @4% of A				514.70
	TOTAL				13382.10
	Overhead & Profit @15%				2007.31
	TOTAL				15389.41
	Labours cess@1%				153.89
	TOTAL				15543.30
	Add 18% of GST				2797.79
	TOTAL				18341.10
	Say RS.				18341.00

11.2.4 1.5 TR nominal capacity with 600 CFM air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4898	Basic Price for 1.5 TR i/c accessories, fittings, supports etc	Each	1	11115	11115

Cartage@ 1% of A	111.15
TOTAL A	11226.15
ITC @4% of A	449.05
TOTAL	11675.20
Overhead & Profit @15%	1751.28
TOTAL	13426.48
Labours cess@1%	134.26
TOTAL	13560.74
Add 18% of GST	2440.93
TOTAL	16001.67
Say RS.	16002.00

11.2.5 1.0 TR nominal capacity with 400 CFM air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4899	Basic Price for 1.0 TR i/c accessories, fittings, supports etc	Each	1	9815	9815
	Cartage@ 1% of A				98.15
	TOTAL A				9913.15
	ITC @4% of A				396.53
	TOTAL				10309.68
	Overhead & Profit @15%				1546.45
	TOTAL				11856.13
	Labours cess@1%				118.56
	TOTAL				11974.69
	Add 18% of GST				2155.44
	TOTAL				14130.13
	Say RS.				14130.00

CASSETTE FAN COIL UNIT

- 11.3 Supply, installation, testing and commissioning of Chilled Water Ceiling Suspended Hydronic Cassette type fan coil unit, four(4) way directional flow, low noise, each complete with two(2) rows of deep chilled water cooling coil, multi-blade centrifugal fan, test reports from National Accreditation Board for Testing and Calibration Laboratories (NABL)/AHRI accerded lab, electronic air cleaning system, required set of ball valves with & without strainers & 2 way Motorized valve, insulated condensate drain pans with drain pump assembly & drain pump failure alarm, pipe connections through copper pipes, Infra-red remote control, Liquid Crystal Display (LCD), four (4) speed motor , fan four(4) direction air flow, auto swing louver, decorative panel etc., condensation drain connections, All units shall be suitable for 220 +/- 10% Volts, 50 Hz, single phase power supply etc. complete as per specification. The wireless Remote temperature control / thermostat shall have memory back up for set point re-store in case of power failure and re-start. Four(4)hanger rods with required anchoring fasteners, hooks, washers etc. complete as per CPWD specification and as directed by Engineer-in-charge.

11.3.1 4.0 TR nominal capacity with 1600 CFM air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4901	Basic Price for 4.0 TR	Each	1	32520	32519.5
	Cartage@ 1% of A				325.195
	TOTAL A				32844.695
	ITC @4% of A				1313.79
	TOTAL				34158.48
	Overhead & Profit @15%				5123.77
	TOTAL				39282.26
	Labours cess@1%				392.82
	TOTAL				39675.08
	Add 18% of GST				7141.51
	TOTAL				46816.59
	Say RS.				46817.00

11.3.2 3.5TR nominal capacity with 1400 CFM air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4902	Basic Price for 3.5 TR	Each	1	30224	30224.35
	Cartage@ 1% of A				302.2435
	TOTAL A				30526.5935
	ITC @4% of A				1221.06
	TOTAL				31747.66
	Overhead & Profit @15%				4762.15
	TOTAL				36509.81
	Labours cess@1%				365.10
	TOTAL				36874.90
	Add 18% of GST				6637.48
	TOTAL				43512.39
	Say RS.				43512.00

11.3.3 3.0 TR nominal capacity with 1200 CFM air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4903	Basic Price for 3.0 TR	Each	1	16705	16705
	Cartage@ 1% of A				167.05
	TOTAL A				16872.05
	ITC @4% of A				674.88
	TOTAL				17546.93
	Overhead & Profit @15%				2632.04
	TOTAL				20178.97
	Labours cess@1%				201.79
	TOTAL				20380.76
	Add 18% of GST				3668.54
	TOTAL				24049.30
	Say RS.				24049.00

11.3.4 2.5 TR nominal capacity with 1000 CFM air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4904	Basic Price for 2.5 TR	Each	1	15210	15210
	Cartage@ 1% of A				152.1
	TOTAL A				15362.1
	ITC @4% of A				614.48
	TOTAL				15976.58
	Overhead & Profit @15%				2396.49
	TOTAL				18373.07
	Labours cess@1%				183.73
	TOTAL				18556.80
	Add 18% of GST				3340.22
	TOTAL				21897.03
	Say RS.				21897.00

11.3.5 2.0 TR nominal capacity with 800 CFMm air quantity

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4905	Basic Price for 2.0 TR	Each	1	11700	11700
	Cartage@ 1% of A				117
	TOTAL A				11817
	ITC @4% of A				472.68
	TOTAL				12289.68
	Overhead & Profit @15%				1843.45
	TOTAL				14133.13
	Labours cess@1%				141.33
	TOTAL				14274.46
	Add 18% of GST				2569.40
	TOTAL				16843.87
	Say RS.				16844.00

11.3.6 1.5 TR nominal capacity with 600 CFM air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4906	Basic Price for 1.5 TR	Each	1	10010	10010
	Cartage@ 1% of A				100.1
	TOTAL A				10110.1
	ITC @4% of A				404.40
	TOTAL				10514.50
	Overhead & Profit @15%				1577.18
	TOTAL				12091.68
	Labours cess@1%				120.92
	TOTAL				12212.60
	Add 18% of GST				2198.27
	TOTAL				14410.86
	Say RS.				14411.00

11.3.7 1.0TR nominal capacity with 400 CFM air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
0	Basic Price for 1.0 TR	Each	1	9425	9425
	Cartage@ 1% of A				94.25
	TOTAL A				9519.25
	ITC @4% of A				380.77
	TOTAL				9900.02
	Overhead & Profit @15%				1485.00
	TOTAL				11385.02
	Labours cess@1%				113.85
	TOTAL				11498.87
	Add 18% of GST				2069.80
	TOTAL				13568.67
	Say RS.				13569.00

HIGH WALL FAN COIL UNIT

- 11.4 Supply, installation, testing and commisioning of High wall Fan Coil Unit comprising of two 2 rows deep chilled water cooling coil, centrifugal blowers, fractional horsepower (FHP) motor , synthetic fibre filters, insulated & extended condensate drain pan, casing, coil piping connections, condensate drain piping connections & wiring. Fan coil units shall be suitable for operation on 220 +/- 6% Volts, 50Hz, single phase power supply of following sizes & capacities. Complete as per CPWD specification and as directed by Engineer-in-charge.**

11.4.1 2.0 TR nominal capacity with 800 Cfm air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4907	Basic Price for 2.0 TR	Each	1	17319	17318.6
	Cartage@ 1% of A				173.186
	TOTAL A				17491.786
	ITC @4% of A				699.67
	TOTAL				18191.46
	Overhead & Profit @15%				2728.72
	TOTAL				20920.18
	Labours cess@1%				209.20
	TOTAL				21129.38
	Add 18% of GST				3803.29
	TOTAL				24932.67
	Say RS.				24933.00

11.4.2 1.5 TR nominal capacity with 600 Cfm air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4908	Basic Price for 1.5 TR	Each	1	15228	15227.55

Cartage@ 1% of A	152.2755
TOTAL A	15379.8255
ITC @4% of A	615.19
TOTAL	15995.02
Overhead & Profit @15%	2399.25
TOTAL	18394.27
Labours cess@1%	183.94
TOTAL	18578.21
Add 18% of GST	3344.08
TOTAL	21922.29
Say RS.	21922.00

11.4.3 1.0 TR nominal capacity with 400 Cfm air quantity.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4909	Basic Price for 1.0 TR	Each	1	12426	12426.05
	Cartage@ 1% of A				124.2605
	TOTAL A				12550.31
	ITC @4% of A				05502.01
	TOTAL				13052.32
	Overhead & Profit @15%				1957.85
	TOTAL				15010.17
	Labours cess@1%				150.10
	TOTAL				15160.27
	Add 18% of GST				2728.85
	TOTAL				17889.12
	Say RS.				17889.00

CHAPTER-12 EVAPORATIVE COOLING

EVAPORATIVE COOLING

12.1 Supply, Installation, Testing and Commissioning of factory assembled double skin central evaporative cooling plant having specifications as per A, B, C, D, E, F, G

A. Air washer section comprising 50 mm thick pre-air filter made out from washable Aluminium wire mesh filter with 90 % down to 10 microns.

B. Humidification section comprising of Wet pads 200 mm thick impregnated cellulose paper media (Celdec pads) of imported origin with two (2) bend PVC eliminator, internal casing with blank off's of wet section in SS-304 construction.

C. Fan Section comprising of belt driven, Double Inlet Double Width (DIDW) backward curved fan with outlet velocity less than or equal to 10 m/s and minimum efficiency of 70% Air Movement & Control Association International (AMCA) certified centrifugal fan suitable for required cfm at 50 mm WC static pressure.

D. Totally Enclosed Fan Cooled (TEFC) motor of IE-3 class as required with pulley, belt.

E. The unit shall be fabricated with frame work hollow extruded aluminium profile with 0.80 mm precoated GSS on outside and on inside complete with 25 mm thick Chloroflouro Carbon (CFC) free Polyurthane Frame (PUF) insulation of minimum 40 kg/cum density sandwiched in between inner and outer skins, SS -304 (18 g) Sump tank, 25mm C-PVC piping, make up, drain & quick fill and drain connection, Butterfly/Gate valves for pumps, make up, drain & quick fill and drain connections of sump, 2 no. Pumps of suitable capacity and necessary fittings, stand, anti vibration pads etc. as required.

F. Starter panel DOL/Star-Delta suitable for operation of Blower motor & pump made out of 1.6 mm thick sheet steel powder coated enclosure comprising of over load protection relay, short circuit & single phasing protection, ON / OFF push buttons, ammeter, voltmeter, indicating lamps, MCB, contactor etc. (As per Specification of CPWD & direction of Engineer-in-charge) complete in all respect.

G. All as per pre approved by Engineer-in-charge.

12.1.1 5000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4910	Basic Price for 5000 CFM i/c accessories, fittings, supports etc	Each	1	68900	68900.00
	Cartage@ 1% of A				689.00
	TOTAL A				69589.00
	ITC @4% of A				2783.56
	TOTAL				72372.56
	Overhead & Profit @15%				10855.88
	TOTAL				83228.44
	Labours cess@1%				832.28

TOTAL	84060.73
Add 18% of GST	15130.93
TOTAL	99191.66
Say RS.	99192.00

12.1.2 8000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4911	Basic Price for 8000 CFM i/c accessories, fittings, supports etc.	Each	1	91650	91650.00
	Cartage@ 1% of A				916.50
	TOTAL A				92566.50
	ITC @4% of A				3702.66
	TOTAL				96269.16
	Overhead & Profit @15%				14440.37
	TOTAL				110709.53
	Labours cess@1%				1107.10
	TOTAL				111816.63
	Add 18% of GST				20126.99
	TOTAL				131943.62
	Say RS.				131944.00

12.1.3 10000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4912	Basic Price for 10000 CFM i/c accessories, fittings, supports etc.	Each	1	120900	120900.00
	Cartage@ 1% of A				1209.00
	TOTAL A				122109.00
	ITC @4% of A				4884.36
	TOTAL				126993.36
	Overhead & Profit @15%				19049.00
	TOTAL				146042.36
	Labours cess@1%				1460.42
	TOTAL				147502.79
	Add 18% of GST				26550.50
	TOTAL				174053.29
	Say RS.				174053.00

12.1.4 12000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4913	Basic Price for 12000 CFM i/c accessories, fittings, supports etc.	Each	1	143325	143325.00
	Cartage@ 1% of A				1433.25
	TOTAL A				144758.25
	ITC @4% of A				5790.33

TOTAL	150548.58
Overhead & Profit @15%	22582.29
TOTAL	173130.87
Labours cess@1%	1731.31
TOTAL	174862.18
Add 18% of GST	31475.19
TOTAL	206337.37
Say RS.	206337.00

12.1.5 15000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4914	Basic Price for 15000 CFM i/c accessories, fittings, supports etc.	Each	1	170950	170950.00
	Cartage@ 1% of A				1709.50
	TOTAL A				172659.50
	ITC @4% of A				6906.38
	TOTAL				179565.88
	Overhead & Profit @15%				26934.88
	TOTAL				206500.76
	Labours cess@1%				2065.01
	TOTAL				208565.77
	Add 18% of GST				37541.84
	TOTAL				246107.61
	Say RS.				246108.00

12.1.6 20000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4915	Basic Price for 20000 CFM i/c accessories, fittings, supports etc.	Each	1	239850	239850.00
	Cartage@ 1% of A				2398.50
	TOTAL A				242248.50
	ITC @4% of A				9689.94
	TOTAL				251938.44
	Overhead & Profit @15%				37790.77
	TOTAL				289729.21
	Labours cess@1%				2897.29
	TOTAL				292626.50
	Add 18% of GST				52672.77
	TOTAL				345299.27
	Say RS.				345299.00

12.1.7 25000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4916	Basic Price for 25000 CFM i/c accessories, fittings, supports etc.	Each	1	275600	275600.00

Cartage@ 1% of A	2756.00
TOTAL A	278356.00
ITC @4% of A	11134.24
TOTAL	289490.24
Overhead & Profit @15%	43423.54
TOTAL	332913.78
Labours cess@1%	3329.14
TOTAL	336242.91
Add 18% of GST	60523.72
TOTAL	396766.64
Say RS.	396767.00

12.1.8 30000 CFM

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4917	Basic Price for 30000 CFM i/c accessories, fittings, supports etc.	Each	1	336050	336050.00
	Cartage@ 1% of A				3360.50
	TOTAL A				339410.50
	ITC @4% of A				13576.42
	TOTAL				352986.92
	Overhead & Profit @15%				52948.04
	TOTAL				405934.96
	Labours cess@1%				4059.35
	TOTAL				409994.31
	Add 18% of GST				73798.98
	TOTAL				483793.28
	Say RS.				483793.00

CHAPTER-13
AIR COLLED HEAT PUMP FOR HOT WATER

AIR COOLED HEAT PUMP (FOR HOT WATER)

- 13.1** Supply, installation , testing & commissioning of Heat pumps system for hot water using heat energy source from ambient air to Hot water, of High efficiency and energy saving operation, capable of heating water at 55° to 60° C with silent operation (the sound level should not exceed 65 dB). The Heat Pump shall have LCD display control panel with built in diagnostic and troubleshooting information and an inbuilt cycle for defrosting in case icing occurs on evaporator including all other mounting, fitting and controls, all interconnecting wiring/cablig between heat pump and electric panel etc complete in all repsect with but not limited to following specifications. Power Supply V/Ph/Hz : 400~440V/3 PH/50Hz. Suggested Maximum output water temperature in Deg C : 55° to 60° C, ambient temperature range in Deg C : -5°C~45 °C , Type of Fan : Low Noise axial fan , Suggested Noise level: DBA <63, COP: 3.0 to 4.0. Hot Water Storage Tank consisting of GI/MS/SS cylindrical shape clarifier tank. (inlet temperature of hot water storage tank 60- 65 deg.C) suitable for minimum 4 Kg /Sqm working pressure. Tank shall be provided with water flow meter, inlet / outlet, overflow, drain connection with MH cover, 6 mm thick tank, pressure relief valves, pressure gauge at inlet / outlet with isolation cock, thermometer at inlet / outlet, ball Valve, safety valve, check valve etc. The complete system to be tested to a pressure of 10 Kg/cm2 complete in all respects including temperature indications, thermostat and other required accessories. Tank shall be insulated with 100 mm thick crown 150 grade & 50 mm rock wool pads of approved quality and cladded with 24 SWG aluminium sheet cladding.

13.1.1 200 LPH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4918	Basic Price for 200 litre/hr i/c accessories, fittings, supports etc	Each	1	78000	78000
	Cartage@ 1% of A				780.00
	TOTAL A				78780.00
	ITC @4% of A				3151.20
	TOTAL				81931.20
	Overhead & Profit @15%				12289.68
	TOTAL				94220.88
	Labours cess@1%				942.21
	TOTAL				95163.09
	Add 18% of GST				17129.36
	TOTAL				112292.44
	Say RS.				112292.00

13.1.2 300 LPH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4919	Basic Price for 300 litre/hr i/c accessories, fittings, supports etc	Each	1	104000	104000

Cartage@ 1% of A	1040
TOTAL A	105040
ITC @4% of A	4201.60
TOTAL	109241.60
Overhead & Profit @15%	16386.24
TOTAL	125627.84
Labours cess@1%	1256.28
TOTAL	126884.12
Add 18% of GST	22839.14
TOTAL	149723.26
Say RS.	149723.00

13.1.3 500 LPH

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4920	Basic Price for 500 litre/hr i/c accessories, fittings, supports etc	Each	1	136500	136500
	Cartage@ 1% of A				1365
	TOTAL A				137865
	ITC @4% of A				5514.60
	TOTAL				143379.60
	Overhead & Profit @15%				21506.94
	TOTAL				164886.54
	Labours cess@1%				1648.87
	TOTAL				166535.41
	Add 18% of GST				29976.37
	TOTAL				196511.78
	Say RS.				196512.00

CHAPTER-14

SOLAR WATER HEATING SYSTEM

14.1 Supplying, installation, Testing, Commissioning of following capacity Evacuated Tube Collector (ETC) Solar Water Heating System comprising of all glass ETC tube absorber. The inner layer of absorber shall be of solar selected absorbing coated tube, Vacuum jacket, cover glass tube, getter and getter mirror surface, as per IS 16543. The system shall have temperature gauges, strainer, 2 nos. water meters, Suitable capacity cold and hot water tank, all MS structure for installation including suitable electric control panel complete with control and power wiring, necessary plumbing including piping for cold and hot water line between tank and solar water system, water heater and thermostat including non-return valve, float valve and other valve etc. as required. The various component shall have following specification.

1. The Absorber area i.e. the number, dimension and thickness of solar evacuated tube as per IS: 16544 clause 5.4 and IS: 16543 clause 4.2
2. Boro Silicate Glass 3.3 for cover plat as per ISO: 3585
3. The material for three target coating shall be aluminum nitrate, aluminum nitrate stainless steel and copper multi layer selecting coating as per IS: 16543.
4. Manifold shall be of Mild steel section with PP coating and Inner material shall be of SS 304.
5. Recommended operating pressure:10 Bars.
6. The capacity of hot water tank shall be minimum 1.5 times the rated capacity system. Inner Material shall be Stainless Steel SS 316 b) as per IS 1730 grade SS304-2B (22SWG). The hot water tank shall be insulated with high density injected PUF insulation 50 mm thickness between inner and outer tank. Tank stand shall be of mild steel and shall be design to withstand wind velocity of 100km/hours (minimum) or more as per site.
7. Suitable nos. ISI Marked electrical heaters along control panel, MCCB, with all protections, and all safety provisions so as to achieve 60°C temperature rise in an hour. The range of thermostat shall be upto 80°C.

14.1.1 100 LPD

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4921	Evacuated Tube Collector (ETC) Solar Water Heating System comprising of all glass ETC Tube absorber of 100 LPD	Each	1	LPD 9750	9750.00
	Cold water tank 100 ltr @ 11 per /ltr	Each	100	Liter	1100.00
	Tank Connections and water inlet valve	LS	400		400.00
	Cartage @2%				195.00
	TOTAL A				11445.00
	LABOUR (B)				
	ITC i/c Structure & Foundation etc. @4%				457.80
	TOTAL (B)				11902.80
	Water Charges @1%				119.03
	TOTAL				12021.83
	Overhead & Profit @15%				1803.27
	TOTAL				13825.10

Labours cess@1%	138.25
TOTAL	13963.35
Add 18% of GST	2513.40
TOTAL	16476.76
Say RS.	16477.00

14.1.2 200 LPD

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4922	Evacuated Tube Collector (ETC) Solar Water Heating System comprising of all glass ETC Tube absorber of 200 LPD	Each	1	LPD 19500	19500.00
	Cold water tank 200 ltr @ 11 per /ltr	Each	200	Liter	2200.00
	Tank Connections and water inlet valve	LS	400		400.00
	Cartage @2%				390.00
	TOTAL A				22490.00
	LABOUR (B)				
	ITC i/c Structure & Foundation etc. @4%				899.60
	TOTAL (B)				23389.60
	Water Charges @1%				233.90
	TOTAL				23623.50
	Overhead & Profit @15%				3543.52
	TOTAL				27167.02
	Labours cess@1%				271.67
	TOTAL				27438.69
	Add 18% of GST				4938.96
	TOTAL				32377.65
	Say RS.				32378.00

14.1.3 300 LPD

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4923	Evacuated Tube Collector (ETC) Solar Water Heating System comprising of all glass ETC Tube absorber of 300 LPD	Each	1	LPD 29250	29250.00
	Cold water tank 300 ltr @ 11 per /ltr	Each	300	Liter	3300.00
	Tank Connections and water inlet valve	LS	450		450.00
	Cartage @2%				585.00
	TOTAL A				33585.00
	LABOUR (B)				
	ITC i/c Structure & Foundation etc. @4%				1343.40
	TOTAL (B)				34928.40
	Water Charges @1%				349.28
	TOTAL				35277.68
	Overhead & Profit @15%				5291.65
	TOTAL				40569.34
	Labours cess@1%				405.69

TOTAL	40975.03
Add 18% of GST	7375.51
TOTAL	48350.54
Say RS.	48351.00

14.1.4 500 LPD

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4924	Evacuated Tube Collector (ETC) Solar Water Heating System comprising of all glass ETC Tube absorber of 500 LPD	Each	1	LPD 39000	39000.00
	Cold water tank 500 ltr @ 11 per /ltr	Each	500	Liter	5500.00
	Tank Connections and water inlet valve	LS	450		450.00
	Cartage @2%				780.00
	TOTAL A				45730.00
	LABOUR (B)				
	ITC i/c Structure & Foundation etc. @4%				1829.20
	TOTAL (B)				47559.20
	Water Charges @1%				475.59
	TOTAL				48034.79
	Overhead & Profit @15%				7205.22
	TOTAL				55240.01
	Labours cess@1%				552.40
	TOTAL				55792.41
	Add 18% of GST				10042.63
	TOTAL				65835.04
	Say RS.				65835.00

- 14.2 Supply, Installation, Testing & Commissioning of Flat Plate collector (FPC) Solar Water Heating System comprising of solar flat plate collector ISI Marked made of copper sheet/copper tube, absorber toughened glass cover and aluminum extruded channel confirm to IS: 12933 (Part 1,2,3&5). The system shall have temperature gauges, strainer, water meter 2 nos., cold and hot water tank. The system shall have suitable electric backup complete with control and power wiring etc., as following.**
- 1. Cover plate:** cover plate shall be toughened glass and thickness of 4.0 mm (min) conforming to section -1 of IS: 12933(pt-2)/2003 the solar transmittances of the cover plate shall be minimum 82 percent at near normal incidence.
 - 2. Collector box:** collector box shall be made of aluminum sections. The type grade, size, and finish of the material used shall be as per section-2 of IS: 12933 (pt-2)/2003: the minimum thickness of aluminum shall be as under:
 - 1. Channel section for sides** 1.6 mm
 - 2. Sheet for bottom** 0.7 mm
 - 3. Support for glass retaining** 1.2 mm
 - 4. Sheet for entire body** 1.0 mm
- The insulation of collector box shall be minimum 0.96 m² 0C/W for back insulation and minimum 0.48 m square degree c/w for side insulation conform to sec. 4 of IS 12933 (pt – 2) / 2003. (b) Gaskets and grommets: gaskets and grommets shall conform to Sec. 5 of IS 12933 (pt-2)/ 2003.

3.Absorber Shall Consist of riser, Header and Sheet for absorber. The Diameter of header shall be 25.4 + /-0.5mm and thickness 0.71mm. The Diameter of riser shall be 12.7 + /-0.5 mm and thickness 0.56mm and made of copper only. The distance between the risers from center to center shall be 120mm. type grade, size , workmanship and finish of the material used shall be as per section- 3 of IS : 12933 (pt -2) /2003 the sheet for absorber shall be of copper sheet 34 gauge/copper tube (at least 10 nos.)

4.Riser and header assembly designed for working pressure up 245 k pa (2.5 kg/ cm square) shall be tested for leakage at a minimum hydraulic pressure of 490 k pa (5 kg/ cm square). Sheet for absorber shall be made of copper only. Type Grade, size, workmanship and finis of the material used shall be per Section -3 of IS: 12933 (pt -2) /2003.

5.HDPE/LDPE cold water tank and hot water tank shall be dully elected on MS angle /channel duly painted with dual coats of enamel paint. The overall structure of solar collector plate module shall be design to with stand wind velocity of 100 kms / hr (minimum) or more as per site.

6.Hot water tank : The tank capacity shall be minimum 1.25 time the rated capacity of system. Inner tank material shall be stainless steel SS 316, as per IS 1730 GRADE SS304-2B. Hot water shall be insulated with high density injected PUF insulation: 50 mm, of 50 mm thickness between inner and outer tank ensures maximum heat rotenone ever season.

7. Suitable nos. ISI Marked electrical heaters along control panel, MCCB, with all protections, and all safety provisions so as to achive 600C temperature rise in an hour. The range of thermostat shall be upto 800C.

14.2.1 100 LPD

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4925	Flat Plate collector (FPC) Solar Water Heating System comprising of solar flat plate collector of 100 LPD	Each	1	LPD 14509	14509
	Less Discount @2%				290.17
	TOTAL				14218.48
	Cartage @2%				284.37
	TOTAL (A)				14502.85
	LABOUR (B)				
	ITC i/c Structure & Foundation etc. @4%				580.11
	TOTAL (A+B)				15082.96
	Water Charges @1%				150.83
	TOTAL				15233.79
	Overhead & Profit @15%				2285.07
	TOTAL				17518.86
	Labours cess@1%				175.19
	TOTAL				17694.05
	Add 18% of GST				3184.93
	TOTAL				20878.98
	Rate Per SQM				20878.98
	Say RS.				20879.00

14.2.2 200 LPD

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4926	Flat Plate collector (FPC) Solar Water Heating System comprising of solar flat plate collector of 200 LPD	Each	1	LPD 29018	29018
	Less Discount @2%				580.36
	TOTAL				28437.59
	Cartage @2%				568.75
	TOTAL (A)				29006.34
	LABOUR (B)				
	ITC i/c Structure & Foundation etc. @4%				1160.25
	TOTAL (A+B)				30166.60
	Water Charges @1%				301.67
	TOTAL				30468.26
	Overhead & Profit @15%				4570.24
	TOTAL				35038.50
	Labours cess@1%				350.39
	TOTAL				35388.89
	Add 18% of GST				6370.00
	TOTAL				41758.89
	Rate Per SQM				41758.89
	Say RS.				41759.00

14.2.3 250 LPD

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4927	Flat Plate collector (FPC) Solar Water Heating System comprising of solar flat plate collector of 250 LPD	Each	1	LPD 33800	33800
	Less Discount @2%				676.00
	TOTAL				33124.00
	Cartage @2%				662.48
	TOTAL (A)				33786.48
	LABOUR (B)				
	ITC i/c Structure & Foundation etc. @4%				1351.46
	TOTAL (A+B)				35137.94
	Water Charges @1%				351.38
	TOTAL				35489.32
	Overhead & Profit @15%				5323.40
	TOTAL				40812.72
	Labours cess@1%				408.13
	TOTAL				41220.84
	Add 18% of GST				7419.75
	TOTAL				48640.60
	Rate Per SQM				48640.60
	Say RS.				48641.00

14.2.4 300 LPD

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4928	Flat Plate collector (FPC) Solar Water Heating System comprising of solar flat plate collector of 100 LPD	Each	1	LPD 43527	43527
	Less Discount @2%				870.53
	TOTAL				42656.07
	Cartage @2%				853.12
	TOTAL (A)				43509.19
	LABOUR (B)				
	ITC i/c Structure & Foundation etc. @4%				1740.37
	TOTAL (A+B)				45249.56
	Water Charges @1%				452.50
	TOTAL				45702.05
	Overhead & Profit @15%				6855.315
	TOTAL				2557.36
	Labours cess@1%				525.57
	TOTAL				53082.93
	Add 18% of GST				9554.93
	TOTAL				62637.86
	Rate Per SQM				62637.86
	Say RS.				62638.00

14.2.5 500 LPD

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4929	Flat Plate collector (FPC) Solar Water Heating System comprising of solar flat plate collector of 500 LPD	Each	1	LPD 72545	72545
	Less Discount @2%				1450.89
	TOTAL				71093.66
	Cartage @2%				1421.87
	TOTAL (A)				72515.53
	LABOUR (B)				
	ITC i/c Structure & Foundation etc. @4%				2900.62
	TOTAL (A+B)				75416.15
	Water Charges @1%				754.16
	TOTAL				76170.32
	Overhead & Profit @15%				11425.55
	TOTAL				87595.86
	Labours cess@1%				875.96
	TOTAL				88471.82
	Add 18% of GST				15924.93
	TOTAL				104396.75
	Rate Per SQM				104396.75
	Say RS.				104397.00

CHAPTER-15 EV CHARGER

15.1 Supply, Installation, Testing and commissioning of EV charging station As per specifications and in Compliance to relevant IS codes etc.

15.1.1 Light EV AC Charger (Mode-3)

Power : 7 kW, Input power supply: 1phase 230 +10% Volt, output supply: 230 Volt AC, Frequency:50 Hz +/-3%, Operational temprature range : -25 to 55 degree C (outdoor), -5 to 55 degree C(Indoor)., RH upto 95%, Charging Device as per IS-17017-22-1 EV-EVSE Communication: as per relevent IS Codes, Bluetooth Low Energy, one Charge Point Plug/ Socket as per IS-60309 and IS-17017-2, Vehicle Inlet/ Connector As per EV manufacturer, suitable for 2 Wheelers and 4 wheelers. Indoor use: at least IP41; Outdoor use: at least IP44. Mechanical Strength :protection of the external enclosure against mechanical impact shall be IK08 according to IEC 62262.O/L,S/C protection. Insulation Resistance > 1 M Ω . Cable Length: 7.5 m. RCD having a rated residual operating current not exceeding 30 mA; Seprate RCD for multiple outputs. Telecommunication port of the EV supply equipment according to IS 13252 (Part 1) : 2010. OCPP (Open charge point protocol) 1.6J upgradble to ocpp 2.0. Device Should follow 17017 series of IS codes in general and the installation of the system shall comply with relevent IS Codes.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4930	Light EV AC Charger	Each	1	16243.50	16243.50
	TOTAL				16243.50
	Cartage@ 1% of A				162.44
	TOTAL (A)				16405.94
	LABOUR (B)				
	ITC @4% of A (Total B)				656.24
	TOTAL (A +B)				17062.17
	Overhead & Profit @15%				2559.33
	TOTAL				19621.50
	Labours cess@1%				196.21
	TOTAL				19817.71
	Add 18% of GST				3567.19
	TOTAL				23385.00

15.1.2 Light EV DC Charger (Mode 4)

Power Level 1: Up to 7 kW, Input power supply: 1phase 230 +10% Volt/3phase 415 Volt, Frequency: 50 Hz +/-5%, output supply: 12/24 Volt DC. Operational temprature range : -25 to 55 degree C (outdoor), -5 to 55 degree C (Indoor), RH upto 95%, Charging Device as per IS-17017-25, EV-EVSE Communication: IS-17017-25, one Charge Point Plug/ Socket as per IS-60309 and IS-17017-2, Vehicle Inlet/ Connector As per EV manufacturer, suitable for 2 Wheelers and 4 wheelers. Indoor use: at least IP41; Outdoor use: at least IP44.Mechanical Strength :protection of the external enclosure against mechanical impact shall be IK08 according to IEC 62262.O/L,S/C protection. Insulation Resistance > 1 M Ω . Cable Length: 7.5 m. RCD having a rated residual operating current not exceeding 30 mA; Seprate RCD for multiple outputs. Telecommunication port of the EV supply equipment

according to IS 13252 (Part 1) : 2010. OCPP (Open charge point protocol) 1.6J upgradable to ocpp 2.0. Device Should follow 17017 series of IS codes in general and the installation of the system shall comply with relevant IS Codes.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4931	Light EV DC Charger	Each	1	243750.00	243750.00
	TOTAL				243750.00
	Cartage@ 1% of A				2437.50
	TOTAL (A)				246187.50
	LABOUR (B)				
	ITC @4% of A (Total B)				9847.50
	TOTAL (A +B)				256035.00
	Overhead & Profit @15%				38405.25
	TOTAL				294440.25
	Labours cess@1%				2944.40
	TOTAL				297384.65
	Add 18% of GST				53529.24
	TOTAL				350914.00

15.1.3 Parkbay AC Charger (Mode -3)
Power Level 2: Normal Power ~11kW/ 22 kW, 3 phase 415VAC(-40% to +20%), Frequency:50 Hz +/-5%, output supply: 240 Volt AC, Operational temprature range : -25 to 55 degree C (outdoor), -5 to 55 degree C(Indoor), RH upto 95%, Charging Device as per IS-17017-1 EV-EVSE ISO-15118 for Smart Charging, Infrastructure Socket as per IS-17017-2-2, Vehicle Connector as per IS-17017-2-2 Vehicle Inlet/ Connector As per EV manufacturer, suitable for 4 wheelers. Indoor use: at least IP41; Outdoor use: at least IP44.Mechanical Strength :protection of the external enclosure against mechanical impact shall be IK08 according to IEC 62262. O/L,S/C protection. Insulation Resistance > 1 M Ω. Cable Length: 7.5 . RCD having a rated residual operating current not exceeding 30 mA; Seprate RCD for multiple outputs. Telecommunication port of the EV supply equipment according to IS 13252 (Part 1) : 2010. OCPP (Open charge point protocol) 1.6J upgradable to ocpp 2.0. Device Should follow 17017 series of IS codes in general and the installation of the system shall comply with relevant IS Codes.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4932	Parkbay AC Charger	Each	1	58500.00	58500.00
	TOTAL				58500.00
	Cartage@ 1% of A				585.00
	TOTAL (A)				59085.00
	LABOUR (B)				
	ITC @4% of A (Total B)				2363.40
	TOTAL (A +B)				61448.40
	Overhead & Profit @15%				9217.26
	TOTAL				70665.66
	Labours cess@1%				706.66

TOTAL	71372.32
Add 18% of GST	12847.02
TOTAL	84219.00

15.1.4 Parkbay DC Charger (Mode-3)

Power Level 2: Normal Power ~24KW and above, 3 phase 415VAC(-40% to +20%), Frequency:50 Hz +/-5%, output supply: DC 12/24 Volt, Operational temprature range : -25 to 55 degree C (outdoor), -5 to 55 degree C(Indoor), RH upto 95%, Charging Device as per Device/protocol: IS-17017-23, EV-EVSE Communication as per IS-17017-24 ,ISO-15118, Infrastructure Socket as per IS-17017-2-2/3, Vehicle Connector as per IS-17017-2-3 Vehicle Inlet/ Connector As per EV manufacturer, suitable for 4 wheelers. Indoor use: at least IP41; Outdoor use: at least IP44. Mechanical Strength :protection of the external enclosure against mechanical impact shall be IK08 according to IEC 62262. O/L,S/C protection. Insulation Resistance > 1 M Ω . Cable Length: 7.5 m. RCD having a rated residual operating current not exceeding 30 mA; Seprate RCD for multiple outputs. Telecommunication port of the EV supply equipment according to IS 13252 (Part 1) : 2010. OCPP (Open charge point protocol) 1.6J upgradable to ocpp 2.0. Device Should follow 17017 series of IS codes in general and the installation of the system shall comply with relevent IS Codes.

ICD No.	Description	Unit	Qty	Rate	Amount (₹)
	(A) MATERIAL				
4933	Parkbay DC Charger	Each	1	617500.00	617500.00
	TOTAL				617500.00
	Cartage@ 1% of A				6175.00
	TOTAL (A)				623675.00
	LABOUR (B)				
	ITC @4% of A (Total B)				24947.00
	TOTAL (A +B)				648622.00
	Overhead & Profit @15%				97293.30
	TOTAL				745915.30
	Labours cess@1%				7459.15
	TOTAL				753374.45
	Add 18% of GST				135607.40
	TOTAL				888982.00

APPENDIX-I
BASIC RATE OF LABOUR & HIRE CHARGES

Code No.	Description	Unit	Rate (₹)
1001	Wireman	day	954
1002	Cable jointer	day	954
1003	Lineman	day	954
1004	Fitter, Grade 1	day	954
1005	Fitter, Grade 2	day	868
1006	Painter	day	868
1007	Khallasi	day	783
1008	Carpenter, Grade 1	day	954
1009	Blacksmith, Grade 2	day	868
1010	Mason, Grade 2	day	868
1011	Stone Chiseler	day	868
1012	Beldar / Coolie	day	783
1013	Bhisti	day	783
1014	Excavator	day	783
1015	Stone Breaker	day	868
1016	Mate	day	783
1017	Engineer	day	1500
1018	Highly Skilled	day	876
1019	Electrician	day	954
1020	Electronic Technician	day	954
1021	Technician	day	954
1022	Software Engineer	day	2100
1081	Hire charges for 5 ton truck	day	4000
1082	Hire charges for compressor and spray gun	day	350
1083	Drilling of 46 Nos 12 mm dia holes on G.I. pipe	L.S.	300
1084	Drilling holes	Each	6
1085	Solder jointing	Each	12
1086	Welding charges	mm	0.5
1087	Welder	day	954

- Note:-**
- 1) Labour rates are exclusive of contractor's profit and overheads and are inclusive of days for weekly day of rest.
 - 2) Hire charges:- These basic charges include cost of services of operating staff and supply of lubricating oil and diesel also etc.

APPENDIX-II BASIC RATE OF MATERIAL

Code No.	Description	Unit	Rate (₹)
LED DOWN LIGHTS			
	LED Down lighter (SMD Type) (System lumen efficacy ≥ 105 < 120 lm/Watt)		
	Supplying of LED Recessed/ surface Down lighter (Round/ square/ Rectangular) SMD type of following body material with PMMA and prismatic diffuser and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F. \geq 0.95, IP20, CRI >80 , UGR (Unified Glare Rating) < 19, Flicker free (flicker should be below 5%), life time (LED, Driver & electrical circuitry), of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends , CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be confirming to relevant BIS standards and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing Complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 105 and <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C)		
	Powder coated die cast /Extruded aluminum Body including trim with Aluminum Reflector		
4201	5 - 7 watt	Nos	₹ 186
4202	8 - 10 watt	Nos	₹ 239
4203	12 -15 watt	Nos	₹ 299
4204	18 watt	Nos	₹ 434
4205	22 watt	Nos	₹ 467
4206	30 watt	Nos	₹ 775
	LED Down lighter (SMD Type) (System lumen efficacy ≥ 120 <135 lm/Watt)		
	Supplying of LED Recessed/surface Down lighter (Round / square/ Rectangular) SMD type of following body material with PMMA and prismatic diffuser and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F. \geq 0.95, IP20, CRI >80 , UGR (Unified Glare Rating) < 19,		

Code No.	Description	Unit	Rate (₹)
	<p>Flicker free (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), life time of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. "complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥120 <135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).</p> <p>Powder coated die cast /Extruded aluminium Body including trim with Aluminium Reflector</p>		
4207	5 - 7 watt	Nos	₹ 204
4208	8 - 10 watt	Nos	₹ 263
4209	12 -15 watt	Nos	₹ 329
4210	18 watt	Nos	₹ 494
4211	22 watt	Nos	₹ 512
4212	30 watt	Nos	₹ 925

LED Down lighter (SMD Type) (System lumen efficacy >135 lm/Watt)

Supplying of LED Recessed/surface Down lighter (Round /square/Rectangular) SMD type of following body material with PMMA and prismatic diffuser and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range - 15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80, UGR (Unified Glare Rating) < 19, Flicker free, (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), life time of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc.

Code No.	Description	Unit	Rate (₹)
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as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

Powder coated die cast /Extruded aluminium Body including trim with Aluminium Reflector

4213	5 - 7 watt	Nos	₹ 223
4214	8 - 10 watt	Nos	₹ 287
4215	12 -15 watt	Nos	₹ 359
4216	18 watt	Nos	₹ 538
4217	22 watt	Nos	₹ 556
4218	30 watt	Nos	₹ 953

LED Down lighter (COB Type) (System lumen efficacy ≥ 105 < 120 lm/Watt)

Supplying of LED Recessed/ surface Down lighter (Round/ square/ Rectangular) COB Type of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80 , UGR (Unified Glare Rating) < 19, Flicker free (flicker should be below 5%), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends , CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be confirming to relevant BIS standards and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing Complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 and <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C)

Powder coated die cast /Extruded aluminium Body including trim with Aluminium Reflector

4219	5 - 7 watt	Nos	₹ 410
4220	8 - 10 watt	Nos	₹ 447
4221	12 -15 watt	Nos	₹ 566

Code No.	Description	Unit	Rate (₹)
4222	18 watt	Nos	₹ 666
4223	22 watt	Nos	₹ 774
4224	30 watt	Nos	₹ 1,008

LED Down lighter (COB Type) (System lumen efficacy ≥ 120 lm/Watt)

Supplying of LED Recessed/surface Down lighter (Round / square/ Rectangular) COB Type of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency $>85\%$, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD $< 10\%$, P. F. ≥ 0.95 , IP20, CRI >80 , UGR (Unified Glare Rating) < 19 , Flicker free (flicker should be below 5 %), life time (LED, Driver & electrical circuitary), life time of minimum 50000 Burning Hours with, 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) < 3 , Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. "complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 120 < 135 lm/Watt output. LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

Powder coated die cast /Extruded aluminium Body including trim with Aluminium Reflector

4225	5 - 7 watt	Nos	₹ 482
4226	8 - 10 watt	Nos	₹ 495
4227	12 -15 watt	Nos	₹ 670
4228	18 watt	Nos	₹ 875
4229	22 watt	Nos	₹ 901
4230	30 watt	Nos	₹ 1,295

LED Panel light 2x2 ft.

LED Panel light 2x2 ft. (System lumen efficacy ≥ 105 < 120 lm/Watt)

Supplying of Panel light 2x2 ft., of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency $>85\%$, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD $< 10\%$, P. F. ≥ 0.95 , IP20, CRI >80 , UGR (Unified Glare Rating) < 19 , Flicker free, (flicker should be

Code No.	Description	Unit	Rate (₹)
	below 5 %), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with, 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).		
	Powder coated die cast /Extruded aluminium Body (Thickness > 1.20 mm)		
4231	15 watt	Nos	₹ 903
4232	18 watt	Nos	₹ 1,301
4233	22 watt	Nos	₹ 1,525
4234	36 watt	Nos	₹ 1,625
4235	40 watt	Nos	₹ 1,750
4236	45 watt	Nos	₹ 2,100
	CRCA Sheet Body (Thickness > 0.50 mm)		
4237	15 watt	Nos	₹ 816
4238	18 watt	Nos	₹ 1,200
4239	22 watt	Nos	₹ 1,220
4240	36 watt	Nos	₹ 1,300
4241	40 watt	Nos	₹ 1,400
4242	45 watt	Nos	₹ 1,638

Panel Down light 2x2 ft.

LED Panel light 2x2 ft. (System lumen efficacy ≥120 <135 lm/Watt)

Supplying of Panel light 2x2 ft., of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80, UGR (Unified Glare Rating) < 19, Flicker free, (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends,CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin),

Code No.	Description	Unit	Rate (₹)
	<p>SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 120 <135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).</p>		
	Powder coated die cast / Extruded aluminium Body (Thickness > 1.20 mm)		
4243	15 watt	Nos	₹ 993
4244	18 watt	Nos	₹ 1,431
4245	22 watt	Nos	₹ 1,760
4246	36 watt	Nos	₹ 1,953
4247	40 watt	Nos	₹ 2,475
4248	45 watt	Nos	₹ 2,640
	CRCA Sheet Body (Thickness > 0.50 mm)		
4249	15 watt	Nos	₹ 932
4250	18 watt	Nos	₹ 1,200
4251	22 watt	Nos	₹ 1,280
4252	36 watt	Nos	₹ 1,420
4253	40 watt	Nos	₹ 1,638
4254	45 watt	Nos	₹ 1,679

Panel Down light 2x2 ft.

LED Panel light 2x2 ft., (System lumen efficacy >135 lm/Watt)

Supplying of Panel light 2x2 ft., of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD < 10% , P. F. ≥ 0.95 , IP20, CRI >80, UGR (Unified Glare Rating) < 19, Flicker free, (flicker should be below 5 %), life time (LED, Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends ,CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated

Code No.	Description	Unit	Rate (₹)
	copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output. LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).		
	Powder coated die cast /Extruded aluminium Body (Thickness > 1.20 mm)		
4255	15 watt	Nos	₹ 1,083
4256	18 watt	Nos	₹ 1,561
4257	22 watt	Nos	₹ 2,400
4258	36 watt	Nos	₹ 2,700
4259	40 watt	Nos	₹ 2,880
4260	45 watt	Nos	₹ 3,300
	CRCA Sheet Body (Thickness > 0.50 mm)		
4261	15 watt	Nos	₹ 1,049
4262	18 watt	Nos	₹ 1,800
4263	22 watt	Nos	₹ 1,831
4264	36 watt	Nos	₹ 1,869
4265	40 watt	Nos	₹ 1,884
4266	45 watt	Nos	₹ 1,925

LED Batten light

LED Batten light (System lumen efficacy ≥105 <120 lm/Watt)

Supplying of LED surface mounted Batten light of following body material and construction as per IS : 10322 with driver (Replaceable) as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD < 10%, P. F. ≥0.95, IP20, CRI >80, Flicker free, (flicker should be below 5 %), life time (LED, Driver & electrical circuitary), of minimum 50000 Burning Hours with, 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 <120 lm/Watt output. LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement.

Code No.	Description	Unit	Rate (₹)
	(Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).		
	Powder coated die cast /Extruded aluminium Body (Thickness > 1.20 mm)		
4267	18- 22 watt	Nos	₹ 305
4268	24 -26 watt	Nos	₹ 313
4269	36 watt	Nos	₹ 322
4270	40 watt	Nos	₹ 334
	CRCA Sheet Body (Thickness > 0.50 mm)		
4271	18- 22 watt	Nos	₹ 267
4272	24 -26 watt	Nos	₹ 275
4273	36 watt	Nos	₹ 282
4274	40 watt	Nos	₹ 292
	LED Batten light (System lumen efficacy ≥120 <135 lm/Watt)		
	Supplying of LED surface mounted Batten light of following body material and construction as per IS : 10322 with driver (Replaceable) as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80 , Flicker free (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends,CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥120 <135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).		
	Powder coated die cast /Extruded aluminium Body (Thickness > 1.20 mm)		
4275	18- 22 watt	Nos	₹ 343
4276	24 -26 watt	Nos	₹ 351
4277	36 watt	Nos	₹ 362
4278	40 watt	Nos	₹ 376

Code No.	Description	Unit	Rate (₹)
CRCA Sheet Body (Thickness > 0.50 mm)			
4279	18- 22 watt	Nos	₹ 305
4280	24 -26 watt	Nos	₹ 313
4281	36 watt	Nos	₹ 322
4282	40 watt	Nos	₹ 334
LED Batten light (System lumen efficacy >135 lm/Watt)			
<p>Supplying of LED surface mounted Batten light of following body material and construction as per IS : 10322 with driver (Replaceable) as per the requirement with Driver efficiency >85% ,Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80 , Flicker free (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. complete in all respect i/c connections with 1.5 sq mm FRSL, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).</p>			
Powder coated die cast /Extruded aluminium Body (Thickness > 1.20 mm)			
4283	18- 22 watt	Nos	₹ 381
4284	24 -26 watt	Nos	₹ 389
4285	36 watt	Nos	₹ 403
4286	40 watt	Nos	₹ 417
CRCA Sheet Body (Thickness > 0.50 mm)			
4287	18- 22 watt	Nos	₹ 343
4288	24 -26 watt	Nos	₹ 351
4289	36 watt	Nos	₹ 362
4290	40 watt	Nos	₹ 376

Code No.	Description	Unit	Rate (₹)
Street light LED fixture			
	LED Street light fixture, powder coated pressure die cast aluminium body (System lumen efficacy $\geq 105 < 120$ lm/Watt)		
	<p>Supplying of Street light LED fixture powder coated pressure die cast aluminium body with driver as per the requirement with Driver efficiency >85%, Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%, THD < 10% as per IEC 61000-3-2, P.F. ≥ 0.95, IP-66, IK-10, CRI >80, under voltage and over voltage protection, EMI-EMC As per CISPR -15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time (LED, Driver & electrical circuitary) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K / 6000°K/6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy $\geq 105 < 120$ lm/Watt output. LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).</p>		
4291	10 watt	Nos	₹ 375
4292	14 watt	Nos	₹ 475
4293	15 watt	Nos	₹ 485
4294	18 watt	Nos	₹ 516
4295	20 watt	Nos	₹ 523
4296	24 watt	Nos	₹ 525
4297	25 watt	Nos	₹ 536
4298	30 watt	Nos	₹ 550
4299	36 watt	Nos	₹ 700
4300	40 watt	Nos	₹ 750
4301	45 watt	Nos	₹ 800
4302	50 watt	Nos	₹ 1,100
4303	72 watt	Nos	₹ 1,200
4304	90 watt	Nos	₹ 1,375
4305	100 watt	Nos	₹ 1,650
4306	120 watt	Nos	₹ 1,700
4307	150 watt	Nos	₹ 2,250
4308	180 watt	Nos	₹ 3,100
4309	200 watt	Nos	₹ 3,200

Code No.	Description	Unit	Rate (₹)
	LED Street light fixture, powder coated pressure die cast aluminium body (System lumen efficacy $\geq 120 < 135$ lm/Watt)		
	Supplying of Street light LED fixture powder coated pressure die cast aluminium body with driver as per the requirement with Driver efficiency $>85\%$, Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range - 15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency $>85\%$, THD $< 10\%$ as per IEC 61000-3-2, P.F. ≥ 0.95 , IP-66, IK-10, CRI >80 , under voltage and over voltage protection, EMI-EMC As per CISPR 15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time (LED, Driver & electrical circuitry) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <5 , Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy $\geq 120 < 135$ lm/Watt output. LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).		
4310	10 watt	Nos	₹ 413
4311	14 watt	Nos	₹ 523
4312	15 watt	Nos	₹ 543
4313	18 watt	Nos	₹ 660
4314	20 watt	Nos	₹ 750
4315	24 watt	Nos	₹ 880
4316	25 watt	Nos	₹ 915
4317	30 watt	Nos	₹ 935
4318	36 watt	Nos	₹ 990
4319	40 watt	Nos	₹ 1,000
4320	45 watt	Nos	₹ 1,073
4321	50 watt	Nos	₹ 1,210
4322	72 watt	Nos	₹ 1,350
4323	90 watt	Nos	₹ 1,500
4324	100 watt	Nos	₹ 1,750
4325	120 watt	Nos	₹ 1,950
4326	150 watt	Nos	₹ 2,300
4327	180 watt	Nos	₹ 3,300
4328	200 watt	Nos	₹ 3,450

Code No.	Description	Unit	Rate (₹)
	LED Street light fixture, powder coated pressure die cast aluminium body (System lumen efficacy >135 lm/Watt)		
	Supplying of Street light LED fixture, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement with Driver efficiency >85%, Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%, THD < 10% as per IEC 61000-3-2, P. F. ≥ 0.95, IP-66, IK-10, CRI >80, under voltage and over voltage protection, EMI-EMC as per CISPR-15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time (LED, Driver & electrical circuitary) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output. LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).		
4329	10 watt	Nos	₹ 474
4330	14 watt	Nos	₹ 575
4331	15 watt	Nos	₹ 598
4332	18 watt	Nos	₹ 675
4333	20 watt	Nos	₹ 700
4334	24 watt	Nos	₹ 925
4335	25 watt	Nos	₹ 962
4336	30 watt	Nos	₹ 1,025
4337	36 watt	Nos	₹ 1,075
4338	40 watt	Nos	₹ 1,175
4339	45 watt	Nos	₹ 1,233
4340	50 watt	Nos	₹ 1,392
4341	72 watt	Nos	₹ 1,675
4342	90 watt	Nos	₹ 1,850
4343	100 watt	Nos	₹ 2,250
4344	120 watt	Nos	₹ 2,750
4345	150 watt	Nos	₹ 3,490
4346	180 watt	Nos	₹ 3,750
4347	200 watt	Nos	₹ 4,250

Code No.	Description	Unit	Rate (₹)
Flood Light			
	LED Flood Light, powder coated pressure die cast aluminium (System lumen efficacy 105 <120 lm/Watt)		
	<p>Supplying of Flood Light, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement with Driver efficiency >85%, Input voltage: Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%, THD < 10% as per IEC 61000-3-2, P. F. ≥ 0.95, IP-66, IK-10, CRI >80, under voltage and over voltage protection, EMI-EMC as per CISPR -15, lenses for beam angle 30 deg-120deg as per the application and the project requirement deg., suitable tilt able fitting, life time (LED, Driver & electrical circuitry) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy 105 <120 lm/Watt output. LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).</p>		
4348	50 watt	Nos	₹ 850
4349	70 watt	Nos	₹ 1,340
4350	100 watt	Nos	₹ 1,450
4351	150 watt	Nos	₹ 2,100
4352	200 watt	Nos	₹ 3,100
4353	250 watt	Nos	₹ 3,750

LED Flood Light, powder coated pressure die cast aluminium (System lumen efficacy ≥120 and <135 lm/Watt)

Supplying of Flood Light, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement with Driver efficiency >85%, Input voltage: Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%, THD < 10% as per IEC 61000-3-2, P. F. ≥ 0.95, IP-66, IK-10, CRI >80, under voltage and over voltage protection, EMI-EMC as per CISPR-15, lenses for beam angle 30 deg-120deg as per the application and the project requirement deg., suitable tilt able fitting, life time (LED, Driver & electrical circuitry) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report,

Code No.	Description	Unit	Rate (₹)
	<p>CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , SDCM(Standard Deviation Color Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥120 and <135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).</p>		
4354	50 watt	Nos	₹ 1,265
4355	70 watt	Nos	₹ 1,474
4356	100 watt	Nos	₹ 1,595
4357	150 watt	Nos	₹ 2,310
4358	200 watt	Nos	₹ 3,200
4359	250 watt	Nos	₹ 4,125
	<p>LED Flood Light, powder coated pressure die cast aluminium (System lumen efficacy>135 lm/Watt)</p> <p>Supplying of Flood Light, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement with Driver efficiency >85%, Input voltage: Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2 , P. F.≥0.95, IP-66,IK-10, CRI >80 , under voltage and over voltage protection,EMI-EMC as per CISPR-15, lenses for beam angle 30 deg-120deg as per the application and the project requirementdeg., suitable tilt able fitting, life time (LED,Driver & electrical circuitary) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , SDCM(Standard Deviation Color Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).</p>		
4360	50 watt	Nos	₹ 1,322
4361	70 watt	Nos	₹ 1,541
4362	100 watt	Nos	₹ 1,668

Code No.	Description	Unit	Rate (₹)
4363	150 watt	Nos	₹ 2,415
4364	200 watt	Nos	₹ 3,789
4365	250 watt	Nos	₹ 4,313

Smart Street light LED fixture

LED Smart Street light fixture, powder coated pressure die cast aluminium (System. System lumen efficacy ≥ 105 and < 120 lm/Watt)

Supplying of Smart Street light LED fixture, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement (< 700ma), Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2 , P. F. ≥ 0.95 , IP-66,IK-08, CRI >80 , under voltage and over voltage protection,EMI- EMC as per CISPR-15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 105 and < 120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

Smart inbuilt controller shall have following features.

1. Control and monitor LED luminaries with bi directional control (Status, Fault, Alarm, dimming level, wattage, energy)
2. to measure voltage, current, power, power factor, apparent energy, active energy, operating hours.
3. Inbuilt ambient light sensor, motion sensor based on Passive Infra Red (PIR).
4. Wi-Fi LoRA/Zigbee/Powerline with ethernet network based IOT feature as per site requirement or engineer in charge.
5. Should be controlled through auto/ manual
6. Programmable level of not less than 48 different light intensity settings,
7. Inbuilt repeater & relay signals function to other controllers

Code No.	Description	Unit	Rate (₹)
4366	45 watt	Nos	₹ 3,483
4367	50 watt	Nos	₹ 3,642
4368	72 watt	Nos	₹ 4,021
4369	90 watt	Nos	₹ 4,211
4370	100 watt	Nos	₹ 5,033
4371	120 watt	Nos	₹ 5,286
4372	150 watt	Nos	₹ 6,665
4373	180 watt	Nos	₹ 6,791
4374	200 watt	Nos	₹ 8,006

LED Smart Street light fixture, powder coated pressure die cast aluminium (System. System lumen efficacy ≥ 120 and < 135 lm/Watt)

Supplying of Smart Street light LED fixture, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement (< 700ma), Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2 , P. F. ≥ 0.95 , IP-66,IK-08, CRI >80 , under voltage and over voltage protection,EMI- EMC as per CISPR-15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 120 and < 135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

Smart inbuilt controller shall have following features.

1. Control and monitor LED luminaries with bi directional control (Status, Fault, Alarm, dimming level, wattage, energy)
2. to measure voltage, current, power, power factor, apparent energy, active energy, operating hours.
3. Inbuilt ambient light sensor, motion sensor based on Passive Infra Red (PIR).
4. Wi-Fi LoRA/Zigbee/Powerline with ethernet network based IOT feature as per site requirement or engineer in charge.

Code No.	Description	Unit	Rate (₹)
5.	Should be controlled through auto/ manual		
6.	Programmable level of not less than 48 different light intensity settings,		
7.	Inbuilt repeater & relay signals function to other controllers		
4375	45 watt	Nos	₹ 3,832
4376	50 watt	Nos	₹ 4,006
4377	72 watt	Nos	₹ 4,423
4378	90 watt	Nos	₹ 4,632
4379	100 watt	Nos	₹ 5,536
4380	120 watt	Nos	₹ 5,815
4381	150 watt	Nos	₹ 7,331
4382	180 watt	Nos	₹ 7,470
4383	200 watt	Nos	₹ 8,806

LED Smart Street light fixture, powder coated pressure die cast aluminium (System. System lumen efficacy >135 lm/Watt)

Supplying of Smart Street light LED fixture, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement (< 700ma), Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2 , P. F.≥0.95, IP-66,IK-08, CRI >80 , under voltage and over voltage protection,EMI- EMC as per CISPR-15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).

Smart inbuilt controller shall have following features.

1. Control and monitor LED luminaries with bi directional control (Status, Fault, Alarm, dimming level, wattage, energy)
2. to measure voltage, current, power, power factor, apparent energy, active energy, operating hours.

Code No.	Description	Unit	Rate (₹)
	3. Inbuilt ambient light sensor, motion sensor based on Passive Infra Red (PIR).		
	4. Wi-Fi LoRA/Zigbee/Powerline with ethernet network based IOT feature as per site requirement or engineer in charge.		
	5. Should be controlled through auto/ manual		
	6. Programmable level of not less than 48 different light intensity settings,		
	7. Inbuilt repeater & relay signals function to other controllers		
4384	45 watt	Nos	₹ 4,006
4385	50 watt	Nos	₹ 4,188
4386	72 watt	Nos	₹ 4,624
4387	90 watt	Nos	₹ 4,842
4388	100 watt	Nos	₹ 5,788
4389	120 watt	Nos	₹ 6,079
4390	150 watt	Nos	₹ 7,665
4391	180 watt	Nos	₹ 7,810
4392	200 watt	Nos	₹ 9,207

Solar outdoor light

4393	Supplying of the integrated type solar PV lighting system on the existing pole structure, comprising of 20 watt, 6V Mono Passivated Emitter and Rear Contact (PERC) Solar Panel (minimum efficiency 21%),, Pulse with modulation (PWM)/Maximum Power point tracking (MPPT) Charge Controller in the box with a sleek appearance and a sturdy structure, is weather-proof, and is simple to install, With Lithium- Iron Phosphate Battery (LiFePO4) 3.2Volt (Cell) 24 AH battery, charging time 6-8 hours, Battery backup time 12 hours (minimum), LED fixture 20 watt, Input voltage: 12V DC , Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%, THD < 10% as per IEC 61000-3-2 , P. F.≥0.95, IP-66,IK-08, CRI >80 , under voltage and over voltage protection, Electro Magnetic Interference (EMI) Electro Magnetic Compatibility (EMC) As per CISPR 15 , lenses for beam angle as per Illuminating Engineering Society of North America (IESNA) type I/II/III as per the width of the road and the project requirement, Correlated Colour Temperature (CCT) 5700°K /6000°K (As per American National Standard Institute (ANSI Bin)), life time (LED,Driver & electrical circuitry) of 50K hours lamp burning hours till the 70 % of initial Lumen maintained as per LM80 extrapolation IES TM-21-11 report, automatic switch on/off, Alluminium or Acrylonitrile Butadiene Styrene (ABS body), can be installed on a pole or wall. System lumen efficacy >120 lm/Watt output All as per pre approved by Engineer in-charge complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required.		
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Code No.	Description	Unit	Rate (₹)
	(Part 1), for fixtures up to 60 watt. LED light Complete with mounting structure for the battery and accessories and wind storm withstand capacity as per the zone. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C)	Nos	₹ 13,250
	20 Watt (System lumen efficacy >120 lm/Watt)		
4394	Supplying of the integrated type solar PV lighting system on the existing pole structure, comprising of 30 watt, 6V Mono Passivated Emitter and Rear Contact (PERC) Solar Panel (minimum efficiency 21%), Pulse with modulation (PWM)/Maximum Power point tracking (MPPT) charge Controller in the box with a sleek appearance and a sturdy structure, is weather-proof, and is simple to install, With Lithium- Iron Phosphate Battery (LiFePO4) 3.2Volt (Cell) 30 AH battery, charging time 8-10 hours, Battery backup time 12 hours (minimum), LED fixture watt 30 watt, Input voltage: 12V DC , Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%, THD < 10% as per IEC 61000-3-2 , P. F. ≥ 0.95, IP-66, IK-08, CRI >80 , under voltage and over voltage protection, Electro Magnetic Interference (EMI) Electro Magnetic Compatibility (EMC) As per CISPER 15A, lenses for beam angle as per Illuminating Engineering Society of North America (IESNA) type I/II/III as per the width of the road and the project requirement, Correlated Colour Temperature (CCT) 5700°K /6000°K (As per American National Standard Institute (ANSI Bin)) , life time (LED, Driver & electrical circuitry) of 50K hours lamp burning hours till the 70 % of initial Lumen maintained as per LM80 extrapolation IES TM-21-11 report, automatic switch on/off, Aluminium or Acrylonitrile Butadiene Styrene (ABS body), can be installed on a pole or wall. System lumen efficacy >120 lm/Watt output All as per pre approved by Engineer in-charge complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required.		
	(Part 1), for fixtures up to 60 watt. LED light Complete with mounting structure for the battery and accessories and wind storm withstand capacity as per the zone. (Thermal management: heat sink of aluminium housing such that LED junction temperature do'nt rise above 90°C)	Nos	₹ 16,500
	30 Watt (System lumen efficacy >120 lm/Watt)		
4395	Supplying of the integrated type solar PV lighting system on the existing pole structure, comprising of 35 watt, 6V Mono Passivated Emitter and Rear Contact (PERC) Solar Panel (minimum efficiency 21%), Pulse with modulation (PWM)/Maximum Power point tracking (MPPT) Charge Controller in the box with a sleek appearance and a sturdy structure, is weather-proof, and is simple to install. Operating temperature range: -35 to 60 deg C With Lithium-Iron Phosphate Battery (LiFePO4) 3.2Volt (Cell) 35 AH battery, charging time 8-10 hours, Battery backup time 12 hours (minimum), LED fixture watt 35 watt, Input voltage: 12V DC , Operating		

Code No.	Description	Unit	Rate (₹)
	temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2 , P. F.≥0.95, IP-66,IK-08, CRI >80 , under voltage and over voltage protection, Electro Magnetic Interference (EMI) Electro Magnetic Compatibility (EMC) As per CISPR 15 , lenses for beam angle as per Illuminating Engineering Society of North America (IESNA) type I/II/III as per the width of the road and the project requirement, Correlated Colour Temperature (CCT) 5700°K /6000°K (As per American National Standard Institute (ANSI Bin)), life time (LED,Driver & electrical circuitary) of 50K hours lamp burning hours till the 70 % of initial Lumen maintained as per LM80 extrapolation IES TM-21-11 report, automatic swich on/off, Alluminium or Acrylonitrile Butadiene Styrene (ABS body), can be installed on a pole or wall. System lumen efficacy >120 lm/Watt output All as per pre approved by Engineer in-charge complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required.		
	(Part 1), for fixtures up to 60 watt. LED light Complete with mounting structure for the battery and accessories and wind storm withstand capacity as per the zone. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise aboven 90°C)	Nos	₹ 21,000
	35 Watt (System lumen efficacy >120 lm/Watt)		

BLDC FAN

Code No.	Description	Unit	Rate (₹)
Brush Less Direct Current (BLDC) Motor			
	Supply of ceiling fan with Brush Less Direct Current (BLDC) Motor, class of insulation: B, 3 nos. metal(Aluminum alloy) blades, 30 cm long down rod, 2 nos. canopies, shackle kit, safety rope, copper winding, steel/Al body Power Factor not less than 0.9, Service Value (CM/M/W) minimum as below, 350 RPM (tolerance as per IS : 374-2019), THD (Total Harmonic Distortion) less than 10%, remote (preferably mobile app based) for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise=75 degree C (max.), insulation resistance more than 2 mega ohm, suitable for 230 V, 50 Hz, single phase AC Ceiling Fan compliant to IS 374:2019 fan Supply, earthing etc. complete as req.		
4396	900mm, BEE 5 star rating, service value ≥ 5.1 CM/Min/Watt, air delivery 130 CM/Min (Minimum)	each	1470
4397	1050mm, BEE 5 star rating, service value ≥ 5.1 CM/Min/Watt, air delivery 150 CM/Min (Minimum)	each	1491
4398	1200mm, BEE 5 star rating, service value ≥ 6.0 CM/Min/Watt, air delivery 210 CM/Min (Minimum)	each	1533
4399	1400mm, BEE 5 star rating, service value ≥ 6.0 CM/Min/Watt, air delivery 245 CM/Min (Minimum)	each	1575
Brush Less Direct Current (BLDC) Motor			
	Supply of ceiling fan with Brush Less Direct Current (BLDC) Motor, class of insulation: B, 3 nos. metal(Aluminum alloy) blades, 30 cm long down rod, 2 nos. canopies, shackle kit, safety rope, copper winding, steel/Al body Power Factor not less than 0.9, Service Value (CM/M/W) minimum as below, 350 RPM (tolerance as per IS : 374-2019), THD (Total Harmonic Distortion) less than 10%, suitable for operation with regulator for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise=75 degree C (max.), insulation resistance more than 2 mega ohm, suitable for 230 V, 50 Hz, single phase AC Ceiling Fan compliant to IS 374:2019 fan Supply, earthing etc. complete as req.		
4400	900mm, service value ≥ 5.1 CM/Min/Watt, air delivery 130 CM/Min (Minimum)	each	1365
4401	1050mm, service value ≥ 5.1 CM/Min/Watt, air delivery 150 CM/Min (Minimum)	each	1385
4402	1200mm, service value ≥ 6.0 CM/Min/Watt, air delivery 210 CM/Min (Minimum)	each	1424
4403	1400mm, service value ≥ 6.0 CM/Min/Watt, air delivery 245 CM/Min (Minimum)	each	1470

TRANSFORMER

Code No.	Description	Unit	Rate (₹)
	33/0.433 KV, 3 Phase, 50 Hz outdoor/ indoor mounting(Mineral oil filled)		
	<p>Supply of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 33/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.</p> <p>Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size</p>		

Code No.	Description	Unit	Rate (₹)
	thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4404	500 KVA	Nos	₹ 9,22,793
4405	630KVA	Nos	₹ 11,62,719
4406	1000KVA	Nos	₹ 13,95,000
4407	1250 KVA	Nos	₹ 17,43,750
4408	1600KVA	Nos	₹ 22,32,000
4409	2000KVA	Nos	₹ 27,90,000
4410	2500KVA	Nos	₹ 34,87,500

Supply of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 33/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories

Code No.	Description	Unit	Rate (₹)
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and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators

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	with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4411	500 KVA	Nos	₹ 11,07,351
4412	630KVA	Nos	₹ 13,95,262
4413	1000KVA	Nos	₹ 16,74,000
4414	1250 KVA	Nos	₹ 20,92,500
4415	1600KVA	Nos	₹ 26,78,400
4416	2000KVA	Nos	₹ 33,48,000
4417	2500KVA	Nos	₹ 41,85,000

Supply of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 33/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-

Code No.	Description	Unit	Rate (₹)
	Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.		
	Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4418	500 KVA	Nos	₹ 12,91,910
4419	630KVA	Nos	₹ 16,27,806
4420	1000KVA	Nos	₹ 19,53,000
4421	1250 KVA	Nos	₹ 24,41,250
4422	1600KVA	Nos	₹ 31,24,800
4423	2000KVA	Nos	₹ 39,06,000
4424	2500KVA	Nos	₹ 48,82,500

11/0.433 KV, 3 Phase, 50 Hz outdoor/ indoor mounting (Mineral oil filled)

Supply of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO)

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Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip

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	(where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4425	1000KVA	Nos	₹ 12,15,000
4426	1250 KVA	Nos	₹ 15,18,750
4427	1600KVA	Nos	₹ 19,44,000
4428	2000KVA	Nos	₹ 24,30,000

Supply of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive

Code No.	Description	Unit	Rate (₹)
	<p>atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.</p> <p>Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature;</p> <p>c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.</p>		
4429	1000KVA	Nos	₹ 14,58,000
4430	1250 KVA	Nos	₹ 18,22,500
4431	1600KVA	Nos	₹ 23,32,800
4432	2000KVA	Nos	₹ 29,16,000
	Supply of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil		

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Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature;

c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200

Code No.	Description	Unit	Rate (₹)
	kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4433	1000KVA	Nos	₹ 17,01,000
4434	1250 KVA	Nos	₹ 21,26,250
4435	1600KVA	Nos	₹ 27,21,600
4436	2000KVA	Nos	₹ 34,02,000
	Supply of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces		

Code No.	Description	Unit	Rate (₹)
	<p>one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.</p> <p>Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.</p>		
4437	200KVA	Nos	₹ 2,34,000
4438	250KVA	Nos	₹ 2,92,500
4439	315KVA	Nos	₹ 3,68,550
4440	400KVA	Nos	₹ 4,68,000
4441	500KVA	Nos	₹ 5,85,000
4442	630KVA	Nos	₹ 7,37,100

Code No.	Description	Unit	Rate (₹)
	<p>Supply of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.</p> <p>Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers;</p> <p>g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size</p>		

Code No.	Description	Unit	Rate (₹)
	thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4443	200KVA	Nos	₹ 2,62,080
4444	250KVA	Nos	₹ 3,27,600
4445	315KVA	Nos	₹ 4,12,776
4446	400KVA	Nos	₹ 5,24,160
4447	500KVA	Nos	₹ 6,55,200
4448	630KVA	Nos	₹ 8,25,552

Supply of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux

Code No.	Description	Unit	Rate (₹)
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density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

Code No.	Description	Unit	Rate (₹)
4449	200KVA	Nos	₹ 3,27,600
4450	250KVA	Nos	₹ 4,09,500
4451	315KVA	Nos	₹ 5,15,970
4452	400KVA	Nos	₹ 6,55,200
4453	500KVA	Nos	₹ 8,19,000
4454	630KVA	Nos	₹ 10,31,940

Supply of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two

Code No.	Description	Unit	Rate (₹)
	earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4455	63KVA	Nos	₹ 73,710
4456	100KVA	Nos	₹ 1,17,000
4457	160KVA	Nos	₹ 1,87,200

Supply of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180

Code No.	Description	Unit	Rate (₹)
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and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA

Code No.	Description	Unit	Rate (₹)
	and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4458	63KVA	Nos	₹ 82,555
4459	100KVA	Nos	₹ 1,31,040
4460	160KVA	Nos	₹ 2,09,664

Supply of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site . The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 dg.C for oil and 40 dg. C up to 200 KVA and 40 dg.C for oil and 45 dg. C for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two

Code No.	Description	Unit	Rate (₹)
	earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature;		
	c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4461	63KVA	Nos	₹ 1,03,194
4462	100KVA	Nos	₹ 1,63,800
4463	160KVA	Nos	₹ 2,62,080

33/0.433 KV, 3 Phase, 50 Hz outdoor/ indoor mounting (Synthetic Organic Ester Oil Filled)

Supply of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 33/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for

Code No.	Description	Unit	Rate (₹)
	<p>safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site . The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.</p> <p>Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for</p>		

Code No.	Description	Unit	Rate (₹)
	transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4464	500 KVA	Nos	₹ 9,74,059
4465	630KVA	Nos	₹ 12,27,314
4466	1000KVA	Nos	₹ 14,72,500
4467	1250 KVA	Nos	₹ 18,40,625
4468	1600KVA	Nos	₹ 23,56,000
4469	2000KVA	Nos	₹ 29,45,000
4470	2500KVA	Nos	₹ 36,81,250
	Supply of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 33/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative		

Code No.	Description	Unit	Rate (₹)
	Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.		
	Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers)		
	d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4471	500 KVA	Nos	₹ 11,68,871
4472	630KVA	Nos	₹ 14,72,777
4473	1000KVA	Nos	₹ 17,67,000
4474	1250 KVA	Nos	₹ 22,08,750
4475	1600KVA	Nos	₹ 28,27,200
4476	2000KVA	Nos	₹ 35,34,000
4477	2500KVA	Nos	₹ 44,17,500
	Supply of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) ,		

Code No.	Description	Unit	Rate (₹)
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33/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator);

Code No.	Description	Unit	Rate (₹)
	l) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4478	500 KVA	Nos	₹ 13,63,682
4479	630KVA	Nos	₹ 17,18,240
4480	1000KVA	Nos	₹ 20,61,500
4481	1250 KVA	Nos	₹ 25,76,875
4482	1600KVA	Nos	₹ 32,98,400
4483	2000KVA	Nos	₹ 41,23,000
4484	2500KVA	Nos	₹ 51,53,750

11/0.433 KV, 3 Phase, 50 Hz Outdoor/ Indoor mounting (Synthetic Organic Ester Oil Filled)

Supply of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all

Code No.	Description	Unit	Rate (₹)
	<p>accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.</p> <p>Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator,</p>		

Code No.	Description	Unit	Rate (₹)
	minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4485	1000KVA	Nos	₹ 12,82,500
4486	1250 KVA	Nos	₹ 16,03,125
4487	1600KVA	Nos	₹ 20,52,000
4488	2000KVA	Nos	₹ 25,65,000

Supply of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible,

Code No.	Description	Unit	Rate (₹)
	as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.		
	Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4489	1000KVA	Nos	₹ 15,39,000
4490	1250 KVA	Nos	₹ 19,23,750
4491	1600KVA	Nos	₹ 24,62,400
4492	2000KVA	Nos	₹ 30,78,000

Supply of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus

Code No.	Description	Unit	Rate (₹)
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trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200

Code No.	Description	Unit	Rate (₹)
	kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4493	1000KVA	Nos	₹ 17,95,500
4494	1250 KVA	Nos	₹ 22,44,375
4495	1600KVA	Nos	₹ 28,72,800
4496	2000KVA	Nos	₹ 35,91,000
	Supply of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative		

Code No.	Description	Unit	Rate (₹)
	Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.		
	Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature;		
	c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers		
4497	200KVA	Nos	₹ 2,47,000
4498	250KVA	Nos	₹ 3,08,750
4499	315KVA	Nos	₹ 3,89,025
4500	400KVA	Nos	₹ 4,94,000
4501	500KVA	Nos	₹ 6,17,500
4502	630KVA	Nos	₹ 7,78,050
	Supply of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-		

Code No.	Description	Unit	Rate (₹)
	<p>Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.</p>		

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type

Code No.	Description	Unit	Rate (₹)
	transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth);		
	o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4503	200KVA	Nos	₹ 2,76,640
4504	250KVA	Nos	₹ 3,45,800
4505	315KVA	Nos	₹ 4,35,708
4506	400KVA	Nos	₹ 5,53,280
4507	500KVA	Nos	₹ 6,91,600
4508	630KVA	Nos	₹ 8,71,416

Supply of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications

Code No.	Description	Unit	Rate (₹)
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complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level

Code No.	Description	Unit	Rate (₹)
	indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4509	200KVA	Nos	₹ 3,45,800
4510	250KVA	Nos	₹ 4,32,250
4511	315KVA	Nos	₹ 5,44,635
4512	400KVA	Nos	₹ 6,91,600
4513	500KVA	Nos	₹ 8,64,500
4514	630KVA	Nos	₹ 10,89,270

Supply of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report

Code No.	Description	Unit	Rate (₹)
	OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.		
	Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve ($\frac{3}{4}$ " nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having ($1\frac{1}{4}$ " nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4515	63KVA	Nos	₹ 77,805
4516	100KVA	Nos	₹ 1,23,500
4517	160KVA	Nos	₹ 1,97,600

Supply of following capacity (continuous loading) BEE 4 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on

Code No.	Description	Unit	Rate (₹)
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HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers)

d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth);

Code No.	Description	Unit	Rate (₹)
	o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.		
4518	63KVA	Nos	₹ 87,142
4519	100KVA	Nos	₹ 1,38,320
4520	160KVA	Nos	₹ 2,21,312

Supply of following capacity (continuous loading) BEE 5 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, KNAN [K(K-Class insulating liquid) Natural Air Natural] copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better), Dielectric material shall be type -A, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS 1180 (Part-3) including first filling of filtered dehydrated Synthetic organic Ester oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be conforming to IS : 2026 (Part 1 to Part 5), IS : 1180 (Part-3) and duly ISI Marked and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with +12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 40 dg.C for oil and 45 dg. C for winding up to 200 KVA and 45 dg.C for oil and 50 dg. C for winding for above 200 KVA. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special

Code No.	Description	Unit	Rate (₹)
	<p>application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminum/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.</p> <p>Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth);</p> <p>o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.</p>		
4521	63KVA	Nos	₹ 1,08,927
4522	100KVA	Nos	₹ 1,72,900
4523	160KVA	Nos	₹ 2,76,640

Code No.	Description	Unit	Rate (₹)
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DRY TYPE
33/0.433 KV, 3 Phase, 50 Hz Indoor mounting

Supply of following capacity (continuous loading) 33/0.433 KV Delta/Star, step down, 3 Phase, 50 Hz, Dyn 11 vector group, Cast Resin / VPI (vacuum pressure impregnated) Dry Type, copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better) AN (air natural) cooled transformer suitable for indoor applications with On Load Tap Changer (OLTC) on HV side having AVS relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote/ manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, insulation class F (minimum), suitable for environment conditions class E4, suitable for fire behaviour class F1, climate class-C1, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade with necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers, bus trunking arrangement on LV side complete with all accessories and safety provisions as per relevant IS Code, The transformer shall be provided with standard fittings/accessories as per relevant IS and mentioned below, protection alarm/trip protection, 3 nos. of Polymeric Zinc Oxide surge Arrestors on HV Side. Winding Temperature scanner (Digital) with alarm/Trip contacts with RTD Sensors per LV winding and space for mounting differential protection CT's in LV chamber with neutral brought out separately including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/HT Panel for safety tripping, complete as confirming to IS-2026 Part-11, i/c supplying and grouting of suitable M.S. Channel with all accessories, complete in all respects as required at site as per CPWD specifications. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max,

c) Seismic Zone as per location of site, d) Altitude as per location/site. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. All testing shall as per relevant IS Code. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Rating and terminal marking plates; c) Thermometer pocket with cap; d) Lifting lugs for the complete transformer as well as for core and winding assembly; e) Bi-directional flat rollers (for transformers above 200 kVA); f) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); g) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. for transformers up to 200 kVA; h) Bird guard; i) Jacking pads (for transformer above 1 600 kVA); j) Name Rating & Diagram Plate. k) Monogram Plate.i) Additional neutral separately brought out on bushing for earthing.

Code No.	Description	Unit	Rate (₹)
Note : The permissible total losses value shall not exceed by 15% the losses as mentioned below.			
Level 3			
4524	1000 KVA (losses at 50% loading < 3000watt, losses at 100% loading < 9000watt)	Nos	₹ 16,65,000
4525	1250 KVA (losses at 50% loading < 3600watt, losses at 100% loading < 10750watt)	Nos	₹ 20,81,250
4526	1600 KVA (losses at 50% loading < 4500watt, losses at 100% loading < 13500watt)	Nos	₹ 26,64,000
4527	2000 KVA (losses at 50% loading < 5400watt, losses at 100% loading < 17000watt)	Nos	₹ 33,30,000
4528	2500 KVA (losses at 50% loading < 6500watt, losses at 100% loading < 20000watt)	Nos	₹ 41,62,500
Level 4			
4529	1000 KVA (losses at 50% loading < 2790watt, losses at 100% loading < 7700watt)	Nos	₹ 19,14,750
4530	1250 KVA (losses at 50% loading < 3300watt, losses at 100% loading < 9200watt)	Nos	₹ 23,93,438
4531	1600 KVA (losses at 50% loading < 4200watt, losses at 100% loading < 11800watt)	Nos	₹ 30,63,600
4532	2000 KVA (losses at 50% loading < 5050watt, losses at 100% loading < 15000watt)	Nos	₹ 38,29,500
4533	2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading < 18500watt)	Nos	₹ 47,86,875
Level 5			
4534	1000 KVA (losses at 50% loading < 2620watt, losses at 100% loading < 7000watt)	Nos	₹ 21,64,500
4535	1250 KVA (losses at 50% loading < 3220watt, losses at 100% loading < 8400watt)	Nos	₹ 27,05,625
4536	1600 KVA (losses at 50% loading < 3970watt, losses at 100% loading < 11300watt)	Nos	₹ 34,63,200
4537	2000 KVA (losses at 50% loading < 4790watt, losses at 100% loading < 14100watt)	Nos	₹ 43,29,000
4538	2500 KVA (losses at 50% loading < 5900watt, losses at 100% loading < 17500watt)	Nos	₹ 54,11,250

33/0.433 KV, 3 Phase, 50 Hz Outdoor mounting

Supply of following capacity (continuous loading) 33/0.433 KV Delta/Star, step down, 3 Phase, 50 Hz, Dyn 11 vector group, Cast Resin / VPI (vacuum pressure impregnated) Dry Type, copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled

Code No.	Description	Unit	Rate (₹)
	<p>Grain Oriented (CRGO) Core grade MOH or better) AN (air natural) cooled transformer suitable for Outdoor applications with enclosure, On Load Tap Changer (OLTC) on HV side having AVS relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote/ manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, insulation class F (minimum), suitable for environment conditions class E4, suitable for fire behaviour class F1, climate class-C1, having cable end boxes on HV side suitable for 3x400 sqmm XLPE cable of 33 KV grade with necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers, bus trunking arrangement on LV side complete with all accessories and safety provisions as per relevant IS Code ,The transformer shall be provided with standard fittings/accessories as per relevant IS and mentioned below, protection alarm/trip protection, 3 nos. of Polymeric Zinc Oxide surge Arrestors on HV Side. Winding Temperature scanner (Digital) with alarm/Trip contacts with RTD Sensors per LV winding and space for mounting differential protection CT's in LV chamber with neutral brought out separately including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/HT Panel for safety tripping, complete as confirming to IS-2026 Part-11, i/c supplying and grouting of suitable M.S. Channel with all accessories ,complete in all respects as required at site as per CPWD specifications . Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. All testing shall as per relevant IS Code. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The enclosure shall also have Welded Door handle , Danger plate on HV and LV side doors, caution plate for tap links for HT doors, Door limit switch on both HV and LV side doors to be wired up to WTI box terminal for tripping the transformer in case door is opened with the enclosure transformer energized, Phase marking plates on HV and LV doors.</p> <p>Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Rating and terminal marking plates; c) Thermometer pocket with cap; d) Lifting lugs for the complete transformer as well as for core and winding assembly; e) Bi-directional flat rollers (for transformers above 200 kVA); f) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); g) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. for transformers up to 200 kVA; h) Bird guard; i) Jacking pads (for transformer above 1 600 kVA); j) Name Rating & Diagram Plate. k) Monogram Plate.</p> <p>i) Additional neutral seperately brought out on bushing for earthing.</p> <p>Note : The permissible total losses value shall not exceed by 15% the losses as mentioned below.</p>		

Code No.	Description	Unit	Rate (₹)
Level 3			
4539	1000 KVA (losses at 50% loading < 3000watt, losses at 100% loading <9000watt)	Nos	₹ 17,57,500
4540	1250 KVA (losses at 50% loading < 3600watt, losses at 100% loading < 10750watt)	Nos	₹ 21,96,875
4541	1600 KVA (losses at 50% loading < 4500watt, losses at 100% loading < 13500watt)	Nos	₹ 28,12,000
4542	2000 KVA (losses at 50% loading < 5400watt, losses at 100% loading <17000watt)	Nos	₹ 35,15,000
4543	2500 KVA (losses at 50% loading < 6500watt, losses at 100% loading <20000watt)	Nos	₹ 43,93,750
Level 4			
4544	1000 KVA (losses at 50% loading < 2790watt, losses at 100% loading < 7700watt)	Nos	₹ 20,21,125
4545	1250 KVA (losses at 50% loading < 3300watt, losses at 100% loading <9200watt)	Nos	₹ 25,26,406
4546	1600 KVA (losses at 50% loading < 4200watt, losses at 100% loading < 11800watt)	Nos	₹ 32,33,800
4547	2000 KVA (losses at 50% loading < 5050watt, losses at 100% loading < 15000watt)	Nos	₹ 40,42,250
4548	2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading <18500watt)	Nos	₹ 50,52,813
Level 5			
4549	1000 KVA (losses at 50% loading < 2620watt, losses at 100% loading <7000watt)	Nos	₹ 22,84,750
4550	1250 KVA (losses at 50% loading < 3220watt, losses at 100% loading < 8400watt)	Nos	₹ 28,55,938
4551	1600 KVA (losses at 50% loading < 3970watt, losses at 100% loading < 11300watt)	Nos	₹ 36,55,600
4552	2000 KVA (losses at 50% loading < 4790watt, losses at 100% loading <14100watt)	Nos	₹ 45,69,500
4553	2500 KVA (losses at 50% loading < 5900watt, losses at 100% loading <17500watt)	Nos	₹ 57,11,875

11/0.433 KV, 3 Phase, 50 Hz Indoor mounting

Supply of following capacity (continuous loading) 11/0.433 KV Delta/Star, step down, 3 Phase, 50 Hz, Dyn 11 vector group, Cast Resin / VPI (vacuum pressure impregnated) Dry Type, copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better) AN (air natural) cooled transformer suitable for indoor applications with On Load Tap Changer (OLTC) on HV side having AVS relay and Remote Tap Changer Control

Code No.	Description	Unit	Rate (₹)
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(RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote/ manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, insulation class F (minimum), suitable for environment conditions class E4, suitable for fire behaviour class F1, climate class-C1, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade with necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers, bus trunking arrangement on LV side complete with all accessories and safety provisions as per relevant IS Code ,The transformer shall be provided with standard fittings/accessories as per relevant IS and mentioned below, protection alarm/trip protection, 3 nos. of Polymeric Zinc Oxide surge Arrestors on HV Side. Winding Temperature scanner (Digital) with alarm/Trip contacts with RTD Sensors per LV winding and space for mounting differential protection CT's in LV chamber with neutral brought out separately including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/HT Panel for safety tripping, complete as confirming to IS-2026 Part-11, i/c supplying and grouting of suitable M.S. Channel with all accessories ,complete in all respects as required at site as per CPWD specifications . Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. All testing shall as per relevant IS Code. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard.

Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Rating and terminal marking plates; c) Thermometer pocket with cap; d) Lifting lugs for the complete transformer as well as for core and winding assembly; e) Bi-directional flat rollers (for transformers above 200 kVA); f) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); g) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. for transformers up to 200 kVA; h) Bird guard; i) Jacking pads (for transformer above 1 600 kVA); j) Name Rating & Diagram Plate. k) Monogram Plate.
i) Additional neutral seperately brought out on bushing for earthing.

Level 3

4554	63 KVA (losses at 50% loading < 380watt, losses at 100% loading < 1250watt)	Nos	₹ 96,390
4555	100 KVA (losses at 50% loading < 520watt, losses at 100% loading < 1800watt)	Nos	₹ 1,53,000
4556	160 KVA (losses at 50% loading < 770watt, losses at 100% loading < 2200watt)	Nos	₹ 2,44,800
4557	200 KVA (losses at 50% loading < 890watt, losses at 100% loading < 2700watt)	Nos	₹ 3,06,000
4558	250 KVA (losses at 50% loading < 1050watt, losses at 100% loading < 3150watt)	Nos	₹ 3,82,500

Code No.	Description	Unit	Rate (₹)
4559	315 KVA (losses at 50% loading < 1100watt, losses at 100% loading < 3275watt)	Nos	₹ 4,81,950
4560	400 KVA (losses at 50% loading < 1300watt, losses at 100% loading < 3875watt)	Nos	₹ 6,12,000
4561	500 KVA (losses at 50% loading < 1600watt, losses at 100% loading < 4750watt)	Nos	₹ 7,65,000
4562	630 KVA (losses at 50% loading < 2000watt, losses at 100% loading < 5855watt)	Nos	₹ 9,63,900
4563	1000 KVA (losses at 50% loading < 3000watt, losses at 100% loading < 9000watt)	Nos	₹ 15,30,000
4564	1250 KVA (losses at 50% loading < 3600watt, losses at 100% loading < 10750watt)	Nos	₹ 19,12,500
4565	1600 KVA (losses at 50% loading < 4500watt, losses at 100% loading < 13500watt)	Nos	₹ 24,48,000
4566	2000 KVA (losses at 50% loading < 5400watt, losses at 100% loading < 17000watt)	Nos	₹ 30,60,000
4567	2500 KVA (losses at 50% loading < 6500watt, losses at 100% loading < 20000watt)	Nos	₹ 38,25,000
	Level 4		
4568	63 KVA (losses at 50% loading < 340watt, losses at 100% loading < 1140watt)	Nos	₹ 1,10,849
4569	100 KVA (losses at 50% loading < 475watt, losses at 100% loading < 1650watt)	Nos	₹ 1,75,950
4570	160 KVA (losses at 50% loading < 670watt, losses at 100% loading < 1950watt)	Nos	₹ 2,81,520
4571	200 KVA (losses at 50% loading < 780watt, losses at 100% loading < 2300watt)	Nos	₹ 3,51,900
4572	250 KVA (losses at 50% loading < 980watt, losses at 100% loading < 2930watt)	Nos	₹ 4,39,875
4573	315 KVA (losses at 50% loading < 1025watt, losses at 100% loading < 3100watt)	Nos	₹ 5,54,243
4574	400 KVA (losses at 50% loading < 1225watt, losses at 100% loading < 3450watt)	Nos	₹ 7,03,800
4575	500 KVA (losses at 50% loading < 1510watt, losses at 100% loading < 4300watt)	Nos	₹ 8,79,750
4576	630 KVA (losses at 50% loading < 1860watt, losses at 100% loading < 5300watt)	Nos	₹ 11,08,485
4577	1000 KVA (losses at 50% loading < 2790watt, losses at 100% loading < 7700watt)	Nos	₹ 17,59,500
4578	1250 KVA (losses at 50% loading < 3300watt, losses at 100% loading < 9200watt)	Nos	₹ 21,99,375
4579	1600 KVA (losses at 50% loading < 4200watt, losses at 100% loading < 11800watt)	Nos	₹ 28,15,200

Code No.	Description	Unit	Rate (₹)
4580	2000 KVA (losses at 50% loading < 5050watt, losses at 100% loading < 15000watt)	Nos	₹ 35,19,000
4581	2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading < 18500watt)	Nos	₹ 43,98,750
	Level 4		
4582	63 KVA (losses at 50% loading < 300watt, losses at 100% loading < 1050watt)	Nos	₹ 1,25,307
4583	100 KVA (losses at 50% loading < 435watt, losses at 100% loading < 1500watt)	Nos	₹ 1,98,900
4584	160 KVA (losses at 50% loading < 570watt, losses at 100% loading < 1700watt)	Nos	₹ 3,18,240
4585	200 KVA(losses at 50% loading < 670watt, losses at 100% loading < 2100watt)	Nos	₹ 3,97,800
4586	250 KVA(losses at 50% loading < 920watt, losses at 100% loading < 2700watt)	Nos	₹ 4,97,250
4587	315 KVA (losses at 50% loading < 955watt, losses at 100% loading < 2750watt)	Nos	₹ 6,26,535
4588	400 KVA (losses at 50% loading < 1150watt, losses at 100% loading < 3330watt)	Nos	₹ 7,95,600
4589	500 KVA (losses at 50% loading < 1430watt, losses at 100% loading < 4100watt)	Nos	₹ 9,94,500
4590	630 KVA (losses at 50% loading < 1745watt, losses at 100% loading < 4850watt)	Nos	₹ 12,53,070
4591	1000 KVA (losses at 50% loading < 2620watt, losses at 100% loading < 7000watt)	Nos	₹ 19,89,000
4592	1250 KVA (losses at 50% loading < 3220watt, losses at 100% loading < 8400watt)	Nos	₹ 24,86,250
4593	1600 KVA (losses at 50% loading < 3970watt, losses at 100% loading < 11300watt)	Nos	₹ 31,82,400
4594	2000 KVA (losses at 50% loading < 4790watt, losses at 100% loading < 14100watt)	Nos	₹ 39,78,000
4595	2500 KVA (losses at 50% loading < 5900watt, losses at 100% loading < 17500watt)	Nos	₹ 49,72,500

11/0.433 KV, 3 Phase, 50 Hz Outdoor mounting

Supply of following capacity (continuous loading) 11/0.433 KV Delta/Star, step down, 3 Phase, 50 Hz, Dyn 11 vector group, Cast Resin / VPI (vacuum pressure impregnated) Dry Type, copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better) AN (air natural) cooled transformer suitable for Outdoor applications with enclosure, On Load Tap Changer (OLTC) on HV side having AVS relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote/ manual operation of OLTC HV side

Code No.	Description	Unit	Rate (₹)
	<p>in range of +5% to -15% in steps of 2.5%, insulation class F (minimum), suitable for environment conditions Class E-O-3, suitable for fire behaviour class F1, climate class-C1, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade with necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers, bus trunking arrangement on LV side complete with all accessories and safety provisions as per relevant IS Code, The transformer shall be provided with standard fittings/accessories as per relevant IS and mentioned below, protection alarm/trip protection, 3 nos. of Polymeric Zinc Oxide surge Arrestors on HV Side. Winding Temperature scanner (Digital) with alarm/Trip contacts with RTD Sensors per LV winding and space for mounting differential protection CT's in LV chamber with neutral brought out separately including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/HT Panel for safety tripping, complete as confirming to IS-2026 Part-11, i/c supplying and grouting of suitable M.S. Channel with all accessories, complete in all respects as required at site as per CPWD specifications. Design ambient condition : a) air temperature 50 deg C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. All testing shall as per relevant IS Code. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. The enclosure shall also have Welded Door handle, Danger plate on HV and LV side doors, caution plate for tap links for HT doors, Door limit switch on both HV and LV side doors to be wired up to WTI box terminal for tripping the transformer in case door is opened with the enclosure transformer energized, Phase marking plates on HV and LV doors.</p> <p>Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Rating and terminal marking plates; c) Thermometer pocket with cap; d) Lifting lugs for the complete transformer as well as for core and winding assembly; e) Bi-directional flat rollers (for transformers above 200 kVA); f) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); g) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. for transformers up to 200 kVA; h) Bird guard; i) Jacking pads (for transformer above 1 600 kVA); j) Name Rating & Diagram Plate. k) Monogram Plate.</p> <p>i) Additional neutral seperately brought out on bushing for earthing.</p> <p>Level 3</p>		
4596	63 KVA (losses at 50% loading < 380watt, losses at 100% loading < 1250watt)	Nos	₹ 1,01,745
4597	100 KVA (losses at 50% loading < 520watt, losses at 100% loading < 1800watt)	Nos	₹ 1,61,500
4598	160 KVA (losses at 50% loading < 770watt, losses at 100% loading < 2200watt)	Nos	₹ 2,58,400
4599	200 KVA (losses at 50% loading < 890watt, losses at 100% loading < 2700watt)	Nos	₹ 3,23,000

Code No.	Description	Unit	Rate (₹)
4600	250 KVA (losses at 50% loading < 1050watt, losses at 100% loading < 3150watt)	Nos	₹ 4,03,750
4601	315 KVA (losses at 50% loading < 1100watt, losses at 100% loading < 3275watt)	Nos	₹ 5,08,725
4602	400 KVA (losses at 50% loading < 1300watt, losses at 100% loading < 3875watt)	Nos	₹ 6,46,000
4603	500 KVA (losses at 50% loading < 1600watt, losses at 100% loading < 4750watt)	Nos	₹ 8,07,500
4604	630 KVA (losses at 50% loading < 2000watt, losses at 100% loading < 5855watt)	Nos	₹ 10,17,450
4605	1000 KVA (losses at 50% loading < 3000watt, losses at 100% loading < 9000watt)	Nos	₹ 16,15,000
4606	1250 KVA (losses at 50% loading < 3600watt, losses at 100% loading < 10750watt)	Nos	₹ 20,18,750
4607	1600 KVA (losses at 50% loading < 4500watt, losses at 100% loading < 13500watt)	Nos	₹ 25,84,000
4608	2000 KVA (losses at 50% loading < 5400watt, losses at 100% loading < 17000watt)	Nos	₹ 32,30,000
4609	2500 KVA (losses at 50% loading < 6500watt, losses at 100% loading < 20000watt)	Nos	₹ 40,37,500
	Level 4		
4610	63 KVA (losses at 50% loading < 340watt, losses at 100% loading < 1140watt)	Nos	₹ 1,17,007
4611	100 KVA (losses at 50% loading < 475watt, losses at 100% loading < 1650watt)	Nos	₹ 1,85,725
4612	160 KVA (losses at 50% loading < 670watt, losses at 100% loading < 1950watt)	Nos	₹ 2,97,160
4613	200 KVA (losses at 50% loading < 780watt, losses at 100% loading < 2300watt)	Nos	₹ 3,71,450
4614	250 KVA (losses at 50% loading < 980watt, losses at 100% loading < 2930watt)	Nos	₹ 4,64,313
4615	315 KVA (losses at 50% loading < 1025watt, losses at 100% loading < 3100watt)	Nos	₹ 5,85,034
4616	400 KVA (losses at 50% loading < 1225watt, losses at 100% loading < 3450watt)	Nos	₹ 7,42,900
4617	500 KVA (losses at 50% loading < 1510watt, losses at 100% loading < 4300watt)	Nos	₹ 9,28,625
4618	630 KVA (losses at 50% loading < 1860watt, losses at 100% loading < 5300watt)	Nos	₹ 11,70,068
4619	1000 KVA (losses at 50% loading < 2790watt, losses at 100% loading < 7700watt)	Nos	₹ 18,57,250
4620	1250 KVA (losses at 50% loading < 3300watt, losses at 100% loading < 9200watt)	Nos	₹ 23,21,563

Code No.	Description	Unit	Rate (₹)
4621	1600 KVA (losses at 50% loading < 4200watt, losses at 100% loading < 11800watt)	Nos	₹ 29,71,600
4622	2000 KVA (losses at 50% loading < 5050watt, losses at 100% loading < 15000watt)	Nos	₹ 37,14,500
4623	2500 KVA (losses at 50% loading < 6150watt, losses at 100% loading < 18500watt)	Nos	₹ 46,43,125
	Level 5		
4624	63 KVA (losses at 50% loading < 300watt, losses at 100% loading < 1050watt)	Nos	₹ 1,32,269
4625	100 KVA (losses at 50% loading < 435watt, losses at 100% loading < 1500watt)	Nos	₹ 2,09,950
4626	160 KVA (losses at 50% loading < 570watt, losses at 100% loading < 1700watt)	Nos	₹ 3,35,920
4627	200 KVA (losses at 50% loading < 670watt, losses at 100% loading < 2100watt)	Nos	₹ 4,19,900
4628	250 KVA (losses at 50% loading < 920watt, losses at 100% loading < 2700watt)	Nos	₹ 5,24,875
4629	315 KVA (losses at 50% loading < 955watt, losses at 100% loading < 2750watt)	Nos	₹ 6,61,343
4630	400 KVA (losses at 50% loading < 1150watt, losses at 100% loading < 3330watt)	Nos	₹ 8,39,800
4631	500 KVA (losses at 50% loading < 1430watt, losses at 100% loading < 4100watt)	Nos	₹ 10,49,750
4632	630 KVA (losses at 50% loading < 1745watt, losses at 100% loading < 4850watt)	Nos	₹ 13,22,685
4633	1000 KVA (losses at 50% loading < 2620watt, losses at 100% loading < 7000watt)	Nos	₹ 20,99,500
4634	1250 KVA (losses at 50% loading < 3220watt, losses at 100% loading < 8400watt)	Nos	₹ 26,24,375
4635	1600 KVA (losses at 50% loading < 3970watt, losses at 100% loading < 11300watt)	Nos	₹ 33,59,200
4636	2000 KVA (losses at 50% loading < 4790watt, losses at 100% loading < 14100watt)	Nos	₹ 41,99,000
4637	2500 KVA (losses at 50% loading < 5900watt, losses at 100% loading < 17500watt)	Nos	₹ 52,48,750

AUTOMATIC POWER FACTOR CORRECTION (APFC) PANEL

Code No.	Description	Unit	Rate (₹)
	<p>Automatic Power Factor Correction (APFC) System</p> <p>Supply, Installation, testing and commissioning of Automatic Power Factor Correction (APFC) panel, indoor type floor mounted free standing totally enclosed, extendable, IP 42, of following capacity for 3 phase, 415 V + 10 %, 50 Hz AC System for Ambient temperature -5°C to +40°C, fabricated in compartmentalised designed made of CRCA sheet steel of 2.0mm thick for framework & covers, 3 mm thick for gland plate i/c cleaning & finishing complete with 9 tank process for powder coated of approved shade (RAL 7032-Siemens gray or as approved by Engineer-in-Charge), having front section (switch gear and control accessories) and rear section capacitor and reactor, front and rear access, having suitable current carrying capacity, extensible TPN Aluminium alloy bus bar of high conductivity, DMC/SMC bus bar supports, bottom base channel of MS Section, fabrication shall be done in transportable section, entire panel shall have common copper earth bar of minimum size of 25mm x 5mm with 2 nos. earth studs, the earth terminals provided on the body of capacitor bank shall also be bonded to the main capacitor panel earth bus with 2 nos. 8 SWG or 6 SWG GI earth wires/ equivalent size of copper conductor cable, forced ventilation for maintaining temperature rise not more than 5°C from ambient, interconnections, connections with 14% detuned reactor and heavy duty 525 V ISI marked Impregnated MPP(Metalized Polypropylene) Capacitor (IS 13340 Part -1 & 2) APFC Panel shall be in compliance with IS :16636 & CPWD Specifications etc. as per below details</p> <p>(A) Incomers Suitable capacity MCCB Microprocessor base with O/C, S/C, E/L release of TPN 50KA breaking capacity (Ics=Icu), ON, OFF, Trip, R, Y, B - LED Indicating Lamp set alongwith required Instruments and accessories with extended rotary handel and door interlocking arrangment. Current rating of the Incomer in ampere shall be APFC Panel rating in KVAR x 1.4 x 1.5 or Nearest higher standards rating.</p> <p>(B) Instruments & Indications I) 3-Phase current sensing APFC microprocessor relay/controller , advance 8/12 stages (8 stages for capacity below 100 KVAR and 12 stages 100 KVAR & above) with Communication Ethernet/RS485/SNMP port open protocol for BMS integration as per approved by Engineering in charge and having display of Phase wise V, A, PF, Cos-Phi, Kw, KVA, KVAR, THD-V , THD-I, harmonics up to 31 level. 3 nos of dual core CT's accuracy class 1, 15VA at incomer of PCC Panel for APFC relay.</p> <p>ii) Auto Manual Selector switch, auxiliary contactors with timer for delay in manual mode.</p> <p>iii) Digital Multi function meter with LED Display for V, A, PF, KW, KVA, KVAR, THD-V & I, Frequency.</p>		

Code No.	Description	Unit	Rate (₹)
	iv) Suitable rating control transformer shall be provided for control and indication circuit.		
	v) All components like control transformer, meter, relay and indicating lamp shall be protected by using suitable rating individual MCB's.		
	vi) Wiring of the control circuit shall be done by using 2.5 sq mm, FRLS 1100 V grade, PVC insulated multi stranded copper control wire.		
	(C) Bus Bars		
	1.3 Amp per Sq.mm, TPN, Electrolytic grade Aluminium bus bar of capacity 1.25 times of incomer rating as per CPWD specification.		
	(D) Outgoings (APFC Section)		
	Selection of the capacitors combinations shall be for continuous rating and each capacitor bank shall have suitable capacity Heavy Duty ISI Marked Capacitor, capacitor duty contactor, the capacitor shall be mounted on channel with base of perforated M S Powder coated sheet, connections inter connections etc. and other features as per CPWD Specifications and relevant IS Code having following:		
	(I) Capacitor bank ratings & stages shall be as per the technical specifications sheet of NIT.		
	(ii) Capacitor will be MPP self healing type with discharge resistor, pressure release mechanism.		
	(iii) Since Capacitor Voltage is 525 Volts, thus higher KVAR has to be considered to get rated output at 415 Volts.		
	(iv) 14% Detuned Reactor of class H insulation & 150% linearity in series with Capacitor.		
	(Note: Technical specifications sheet for selection of the capacitors combinations shall be provided by the NIT Approving Authority with due consideration of number of capacitors i.e. 1 KVAR, 2 KVAR, 3 KVAR, 5 KVAR, 10 KVAR.....for smooth correction).		
4638	50 KVAR	Set	152750.00
4639	75 KVAR	Set	188500.00
4640	100 KVAR	Set	206700.00
4641	125 KVAR	Set	222300.00
4642	150 KVAR	Set	260325.00
4643	175 KVAR	Set	279500.00
4644	200 KVAR	Set	297700.00

HYBRID Power Factor Correction System

Supply, Installation, testing and commissioning of HYBRID APFC Panel, 3 phase 4 wire, 415 V, 50 Hz AC System for Ambient temperature -5°C to +40°C of following capacity with passive solution of 60% capacity and active solution of 40% capacity, 3Phase 4 wire Hybrid Power Factor Correction Solution (with arrangement for neutral current balance) to achieve >0.99 lag and TDDI/THDV values within IEEE recommended limits. APFC should be designed as per IS 16636 Or IEC 61921. The active section and passive section shall work in sync to give optimized output. The degree of protection

Code No.	Description	Unit	Rate (₹)
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of passive section should be IP 42, and of active section should be minimum IP 21. The switching device for APFC passive section should be through capacitor duty contactor and for the active compensation system shall be IGBT based with 3 level topology having 12 IGBT in inverter circuit. The active compensation system should filter harmonics from 2nd to 50th individual harmonic order and shall be selectable for the entire range. The active compensation system should have feature to improve PF correction and harmonic filtration having response time <25Micro second. The hybrid panel shall be indoor type floor mounted free standing totally enclosed, extensible, fabricated in compartmentalised designed made of CRCA sheet steel of 2.0mm thick for framework & covers, 3 mm thick for gland plate i/c cleaning & finishing complete with 9 tank process for powder coated of approved shade (RAL 7032-Siemens gray or as approved by Engineer-in-Charge), having front section (switch gear and control accessories) and rear section (capacitor and reactor), front and rear access, having suitable current carrying capacity, extensible TPN Aluminium alloy bus bar of high conductivity, DMC/SMC bus bar supports, bottom base channel of MS Section, fabrication shall be done in transportable section, entire panel shall have common copper earth bar of minimum size of 25mm x 5mm with 2 nos. earth studs, the earth terminals provided on the body of capacitor bank shall also be bonded to the main capacitor panel earth bus with 2 nos. 8 SWG or 6 SWG GI earth wires/ equivalent size of copper conductor cable, forced ventilation for maintaining temperature rise not more than 5°C from ambient, interconnections, connections with 14% detuned reactor and heavy duty 525 V ISI marked Impregnated MPP (Metalized Polypropylene) Capacitor (IS 13340 Part -1 & 2) APFC Panel shall be in compliance with IS :16636 & CPWD Specifications etc. as per below details.

(A) Incomers

Suitable capacity MCCB/ACB (Upto 300 KVAR, MCCB and above 300 KVAR, ACB) Microprocessor base with O/C, S/C, E/L release of TPN 50KA breaking capacity ($I_{cs}=I_{cu}$), ON, OFF, Trip, R, Y, B - LED Indicating Lamp set alongwith required Instruments and accessories with extended rotary handel and door interlocking arrangment. Current rating of the Incomer in ampere shall be APFC Panel rating in KVAR x 1.4 x 1.5 or Nearest higher standards rating.

(B) Instruments & Indications

a) For Passive Section :

i) 3-Phase current sensing APFC microprocessor relay/controller, advance 12/16 stages (12 stages for over all capacity of panel (active + passive) below 500 KVAR and 16 stages 500 KVAR & above) and having display of Phase wise V, A, PF, Cos-Phi, KW, KVA, KVAR, THD-V, THD-I, harmonics up to 31 level.

ii) Auto Manual Selector switch, auxiliary contactors with timer for delay in manual mode.

Code No.	Description	Unit	Rate (₹)
	iii) Digital Multi function meter with LED Display for V, A, PF, KW, KVA, KVAR, THD-V & I, Frequency.		
	iv) Suitable rating control transformer shall be provided for control and indication circuit.		
	v) All components like control transformer, meter, relay and indicating lamp shall be protected by using suitable rating individual MCB's.		
	vi) Wiring of the control circuit shall be done by using 2.5 sq mm, FRLS 1100 V grade, PVC insulated multi stranded copper control wire.		
	vii) Communication Ethernet/RS485/SNMP port open protocol for BMS integration as per approved by Engineering in charge.		
	b) For Active Section : Dedicated HMI (Human Machine Interface) (Minimum 7 inch display) for controlling and communication and having display of Phase wise V, A, PF, Cos-Phi, KW, KVA, KVAR, THD-V , THD-I, harmonics up to 50th level.Communication Ethernet/RS485/SNMP port open protocol for BMS integration as per approved by Engineering in charge.		
4645	250 KVAR	Set	948350.00
4646	300 KVAR	Set	1128400.00
4647	350 KVAR	Set	1262950.00
4648	400 KVAR	Set	1516450.00
4649	450 KVAR	Set	1632800.00
4650	500 KVAR	Set	1849250.00
4651	550 KVAR	Set	1981850.00
4652	600 KVAR	Set	2175550.00
4653	650 KVAR	Set	2302300.00
4654	700 KVAR	Set	2477150.00
4655	750 KVAR	Set	2692950.00
4656	800 KVAR	Set	2825550.00
4657	850 KVAR	Set	2927600.00
4658	900 KVAR	Set	3113500.00
4659	950 KVAR	Set	3293550.00
4660	1000 KVAR	Set	3467750.00

UPS

Code No.	Description	Unit	Rate (₹)
Online UPS - Input supply: Single Phase, Output Supply : Single Phase			
	<p>Supplying of following capacity at full load (Unity Power Factor) ON LINE Uninterrupted Power Supply (UPS) system suitable for Single Phase input, Single Phase output AC Supply. The UPS shall include a Rectifier, inverter, battery bank suitable for 30 minutes back up (Battery VAH capacity shall not be less than 1600 VAH per KVA of UPS rating per Hour backup time) on full load (Battery shall be VRLA, SMF in ABS Container) and Static Bypass switch alongwith provision for manual bypass, suitable isolation transformer for additional protection against neutral faults etc. The UPS systems shall be Microprocessor based Digital Control, using Insulated Gate Bipolar Transistor (IGBT)'s both for the rectifier & inverter with PWM (Pulse Width Modulation) Technology. The quality of design, manufacturing and inspection process should confirm to the relevant Inter-national standards such as IEC/EN/VDE. The operating efficiency of the UPS systems shall be >95% at 100% non-linear loads. Current total harmonic distortion (ITHD)/ total demand distortion (TDD) on the input grid shall be < 5% at 100 %load. (The required LC filters shall be included in UPS cost), extreme power factor kit to be include to limit the input pf to 0.99 and output power factor shall be unity (i.e. kw rating of the UPS shall be kva rating x 1) however UPS shall be suitable to take load at 0.7 lagging to 0.7 leading power factor loads. UPS shall be suitable for incoming supply AC single phase 160-270V 50 Hz and delivering output AC supply true sine wave single phase 220/230/240 Volt, 50 Hz +/- 0.2Hz, Overload capacity of 120% for 10 mins and 150% for 1 minute. Operating temperature 0 to 40 deg C, Relative humidity 0-95% non condensing, noise level less than 60db at 1 meter distance, Protection for Under voltage, over voltage, abnormal output voltage, battery over charging, output over current, short circuit, battery deep discharge , 10 KV surge. Display for watt/VA, Amp and Voltage power parameters etc. UPS shall comply with low voltage electromagnetic compatibility (EMC) achieved as per EN 6204, EN6204 Part I and Part 2, it shall be a Voltage and Frequency Independent (VFI) type UPS (as per standard IEC 62040-1, 2 & 3) . The UPS should be with IGBT Based Inverter Technology, Communication RS232/RS485/SNMP port open protocol for BMS integration as per approved by Engineering in charge. Required battery racks, DC breaker of suitable rating and interconnecting copper conductor cable of suitable size and connectors and all required accessories are inclusive in the cost. The UPS should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc</p>		
4661	2KVA	Each	₹ 21,604
4662	3KVA	Each	₹ 23,511
4663	6KVA	Each	₹ 45,439
4664	10 KVA	Each	₹ 75,947

Code No.	Description	Unit	Rate (₹)
	<p>Online UPS- Input supply: Three Phase, Output supply: Three Phase</p> <p>Supplying of following capacity at full load (Unity Power Factor) at operating temperature 0 to 40 deg C, Relative humidity 0 to 95%, Online double conversion true sine wave Uninterrupted hot swappable (allow for the replacement or addition of battery modules without shutting down the entire system) modular Power Supply (UPS) system with N+1 modules (N denotes total number of moduels requird for rated capacity). The UPS shall include a Rectifier, inverter, battery bank suitable for 30 minutes back up (Battery VAH capacity shall not be less than 1600 VAH per KVA of UPS rating per Hour backup time) on full load (Battery shall be VRLA, SMF in ABS Container) and Static Bypass switch alongwith provision for manual bypass, suitable isolation transformer for additional protection against neutral faults etc. UPS shall have inbuilt phase sequence correction. The UPS systems offered are to be of the latest technology with Digital Control Microprocessor based for reliable operation using Insulated Gate Bipolar Transistor (IGBT)'s both for the rectifier & inverter (3 Level) with PWM (Pulse Width Modulation). The quality of design, manufacturing and inspection process should confirm to the relevant Inter-national standards such as IEC/EN/VDE. The operating efficiency of the UPS systems shall be >96% while operating on battery mode and delivering quality power to the 100% non-linear loads. Current total harmonic effect (ITHD) on the input grid shall be < 5% at 50 %load. (The required LC (inductor (L) and a capacitor (C)) filters shall be included in UPS cost), extreme power factor kit to be included to limit the input power factor (PF) to 0.99 and output power factor shall be unity (i.e. kw rating of the UPS shall be kva rating x 1), however UPS shall be suitable to take load at 0.7 lagging to 0.7 leading power factor loads. UPS shall be suitable for incoming supply AC : 3Phase 400V +/-20%, 50 Hz +/-5 Hz, AC Output voltage: 3Phase 415 Volt, 50 Hz +/- 0.2Hz, Overload capacity of 120% for 10 mins, Sine wave output. Non condensing, noise level less than 60db at 1 meter distance, protections: Input Under voltage over voltage, abnormal out voltage, battery over charging, output over current, short circuit protection, battery deep discharge protection, 10KV surge. UPS must comply with low voltage electromagnetic compatibility (EMC) achieved as per EN 6204, EN6204 Part I and Part 2, it shall be a Voltage and Frequency Independent (VFI)-type UPS. . Communication RS232/RS485/SNMP port open protocol for BMS integration, all hardware & software for IoT Communication as per approved by Engineering in charge. Required battery racks and interconnecting copper conductor cables of suitable size and connectors and all required accoseries are inclusive of the cost). This system must provide a means for logging and alarming of all monitored points plus email notification. Forced air-cooling with integral inbuilt fans with redundancy (if one fan fail UPS should be able to handle at least 80% of the load, Noise Level 65 DB at 1 meter distance. The system shall be in compliance IEC 62040- 1,2 & 3, IS: 16242 and CPWD Specification. Display Panel (minimum) (In-build 5 inch or more LC Display / LED) to display : a) Input: Voltage, current, Frequency. b) Bypass: Voltage, Frequency.</p>		

Code No.	Description	Unit	Rate (₹)
	c) Output: Voltage, frequency, Current. d) Battery: Voltage, Capacity. e) Load: KVA, KW, Percentage. f) Temperature: STS, Inverter, PFC. g) Event Logging & Statistical Data (On LCD/LED): UPS should capture and display up to 3000 events like: Over temperature / DC Bus Fail / Fan Fail / Fuse Fail / Overload / Short-circuit / Device Fail / Inverter Fail / Rectifier Fail / Bypass Fail, etc. h) Statistical Data: No. of power failures / Transfers to Bypass / Total Running time, etc. i) Mains Mode of Operation / Battery Mode of Operation / Bypass feeding the load / UPS Fault / Battery charging and discharging, overload, battery voltage and battery capacity. j) Audible Alarms : Mains Failure, Battery Low Alarm, UPS Overload, Fault, Shutdown, Input Over, Under Voltage, Output Over, Under Voltage, Battery Over, Under Voltage, Over Load and short circuit, Over Temperature. The UPS should have QR code which should contain drawing, test report OEM manual, Geo-Tag of manufacturing location etc		
4665	10KVA	Each	₹ 1,04,000
4666	20KVA	Each	₹ 1,55,200
4667	30KVA	Each	₹ 2,28,000
4668	40KVA	Each	₹ 2,52,000
4669	60KVA	Each	₹ 3,88,000
4670	80KVA	Each	₹ 4,52,000
4671	100KVA	Each	₹ 4,76,000
4672	120KVA	Each	₹ 5,24,000
4673	160KVA	Each	₹ 7,44,000
4674	200KVA	Each	₹ 8,28,000
4675	300KVA	Each	₹ 15,20,000
4676	400KVA	Each	₹ 19,20,000
4677	500KVA	Each	₹ 22,40,000
	Battery type AMF VRLA , ABS container, maintenance free		
4678	Battery 12V/65 AH	Each	₹ 4,080
4679	Battery 12V/120 AH	Each	₹ 7,565
4680	Battery 12V/150AH	Each	₹ 9,775

DIESEL GENERATOR SET

Code No.	Description	Unit	Rate (₹)
	Supply of 'Silent Type Diesel Generating set as per CPCB IV + or better norms along with having Prime Power Rating of KVA as below, 415 volts at 1500 RPM, 0.8 lagging power factor at 415 V suitable for 50 Hz, 3 phase system & for 0.85 Load Factor, including testing at factory and site with fuel, load for test and other necessary arrangements Complete as per CPWD specifications, should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. and consisting of the followings:		
	<p>(A) Diesel Engine: Turbocharged Diesel engine 4 stroke water cooled, multi cylinder, dynamically balanced fly wheel, electric start of suitable BHP at 1500 RPM suitable for above output of alternator at 40 Degree C, 50% RH & at 1000 Meter MSL, capable of taking 10% over loading for one hour after 12 hours of continuous operation. The engine will be with Electronic governor, Dry type Air filter with service indicator, first filling of engine fuel (after commissioning) lubricating Oil, Coolant and other consumables complete with all the required accessories, the Electronic governor shall be as per ISO 8528. The engine shall comply to the latest CPCB norms (CPCB IV + or better) and Conforming to BS 5514, BS 649, IS 10000, IS 10002, IS 13018 and as per CPWD specifications.</p> <p>(B) Engine mounted Instrument Panel fitted with and having digital display for following:</p> <ul style="list-style-type: none"> (i) Start-stop switch with key (ii) Water temperature indication (iii) Lubrication oil pressure indication (iv) Lubrication oil temperature indication (v) Battery charging indication and Voltage indication (vi) RPM indication (vii) Over speed indication (viii) Low lubrication Oil trip indication (ix) Engine Running Hours indication (x) Fuel Level <p>(C) Alternator: Synchronous alternator rated of appropriate KVA, 415 volts at 1500 RPM, 3 phase 50 Hz, AC supply with 0.8 lagging power factor at 40 Degree C, 50% RH & at 1000 Meter MSL. The alternator shall be having Screen Protected Drip Proof (SPDP) enclosure IP23, brushless, continuous duty, dynamically balanced rotor, capable of taking 10% over loading for one hour after 12 hours of continuous operation, self cooled, self-excited and self-regulated through AVR conforming to IS13364(Part 2)/IS: 4722/BS 2613 suitable for tropical conditions and with class- H insulation.</p> <p>(D) Base Frame & Foundation: Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendations of manufacturer.</p>		

Code No.	Description	Unit	Rate (₹)
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(E) FUEL TANK:

Daily service fuel tank of suitable liters capacity as per CPWD Specifications, fabricated out of 3 mm thick M.S. sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications & accessories as required as per specifications.

(F) Exhaust System:

Dry exhaust manifold with hospital type exhaust silencer and catalytic convertor.

(G) Starting System:

12V/24V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with suitable numbers of batteries (180 AH capacity lead acid SMF type) as required as per specifications. The battery shall be housed inside the acoustic enclosure of DG Set.

(H) Acoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air in to the atmosphere and the temperature rise inside the enclosure, noise level outside enclosure. The acoustic enclosure should be suitable for cable connection/connection through bus-trunking. Such arrangements on acoustic enclosure should be water proof & dust-proof conforming to IP-65 protection. The enclosure shall be as per CPCB IV + or better norms etc. and as per CPWD specifications.

(I) AMF Panel:

Free standing floor mounted IP 42 automatic mains failure control panel including auto by-pass, suitable for KVA as below for silent type DG set complete with relays, timers, set of CTs for metering & protection and energy analyser to indicate currents, phase and line voltages, frequency, power factor, KWH, Kilo Volt Ampere Reative Hour (KVARH), KVA (Phase & Total), KW & provision for overload, short circuit, restricted earth fault, under frequency, power (aluminum) and control (copper) cabling of suitable size upto 15 meter between AMF panel, LT Panel and DG Set including connection interconnection etc. as required, all complete and inter locking and communication/ Ethernet /RS485/SNMP port open protocol for BMS integration including suitable software, the panel shall be of DG Set OEM make etc. as per approved by Engineering in charge and including the following:

1. Suitable numbers and appropriate capacity 4 pole motorised electrically operated draw out with cradle type 3 position ACB/ MCCB with electronic release for O/C & E/F and shunt trip.
2. Auto/Manual/Test/Off selector switch
3. Protection for under and over voltage phase reversal (2 nos Over voltage relay, 2 Nos. reverse power relay and 2 Nos. under voltage relay).

Code No.	Description	Unit	Rate (₹)
4.	3 Sets of current transformers 15 P 10 accuracy for protection and 15 VA class-I for metering		
5.	Energy analyser unit to indicate current, Voltage(L-N & L_L), kW, kVA (Phase & Total), Frequency, KWH, PF.		
6.	LED Indicating lamps for load on mains and load on set.		
7.	Fuse/ MCB for instruments.		
8.	Battery charger, complete with transformer/ rectifier, D.C. voltmeter and ammeter, selector switch for trickle, off and boost and current adjustment.		
9.	Main supply failure monitor.		
10.	Supply failure timer.		
11.	Restoration timer		
12.	Control unit with three impulse automatic engine start/stop and failure to start lockout.		
13.	Impulse counter with locking and reset facility.		
14.	ON/OFF/Control circuit switch with indicator		
15.	Audio/Video annunciation for (i) High water temperature (ii) Low lubricating oil pressure (iii) Engine over speed (iv) Engine fails to start (v) Full load/maximum load warning		
16.	Protection for over/under Frequency, Loss of AC sensing, Over Current, Unbalancing load with suitable number of relays and accessories		
17.	Maintenance notification based on Engine Run Hour & due date.		
18.	Load Management through PLC to achieve auto opening and closing of incomer breakers, bus coupler switching of essential panel , interlocking providing signal to AMF Panel for load status and AMF shall give command to DG Set to auto start / auto stop depending upon load status and requirement etc. and necessary hardware and software required to perform the operation shall be provided by the contractor including all control wiring.		
4681	25KVA	Set	₹ 2,66,000
4682	35KVA	Set	₹ 2,94,500
4683	40KVA	Set	₹ 3,51,500
4684	50KVA	Set	₹ 3,72,875
4685	62.5KVA	Set	₹ 3,94,250
4686	82.5KVA	Set	₹ 4,89,250
4687	100KVA	Set	₹ 5,70,000
4688	125KVA	Set	₹ 5,84,250
4689	160KVA	Set	₹ 8,24,600
4690	200KVA	Set	₹ 10,21,250
4691	250KVA	Set	₹ 12,35,000
4692	320KVA	Set	₹ 16,15,000
4693	380KVA	Set	₹ 18,76,250
4694	400KVA	Set	₹ 19,47,500
4695	500KVA	Set	₹ 22,80,000
4696	625KVA	Set	₹ 33,25,000
4697	750KVA	Set	₹ 42,27,500

VRV/VRF

Code No.	Description	Unit	Rate (₹)
OUTDOOR UNIT			
	<p>Supply of Modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling/heating having 100% hermetically sealed inverter type twin Rotary/Scroll Compressor(s), minimum two compressors (with individual separate PCB) for above 14HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R-410-A Refrigerant or equivalent, vibration Isolators with suitable foundation etc. complete as required. To have better efficiency condensor fan shall be capable to operate at different speed with respect to load. The unit shall deliver the rated capacity and in confirmation as per IS 18728:2024 and CPWD Specifications and work even at 50°C ambient temperature without tripping. The system shall be able to deliver 100% of the rated capacity upto 39 Degree Celcius. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply and BMS compatible. The unit shall be filled with first charge of the refrigerant and ready for use as required. The condenser should be coated with a hydrophilic film to prevent water accumulation on the surface of the heat exchanger, enhance water dispersion, and reduce the risk of degradation, thereby improving overall performance and durability. The Indian Seasonal Energy Efficiency Ratio (ISEER) of the unit shall be as per Energy Conservation and Sustainable Building Code (ECSBC) 2024 as below and complete as per CPWD specification, connections, inter connections etc. as required. (For capacity <40 kW ISEER 5.4, Capacity > 40 and <70 ISEER 5.5, Capacity > 70 ISEER 5.6 for ECSBC Building)</p>		
	For Cooling or Heating or both		
4698	6 HP to 8 HP	Per HP	14,550
4699	10 HP to 12 HP	Per HP	13,950
4700	14 HP to 22 HP	Per HP	13,275
	<p>Supply of Modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling/heating having 100% hermetically sealed inverter type twin Rotary/Scroll Compressor(s), minimum two compressors (with individual separate PCB) for above 14HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R-410-A Refrigerant or equivalent, vibration Isolators with suitable foundation etc. complete as required. To have better efficiency condensor fan shall be capable to operate at different speed with respect to load. The unit shall deliver the rated capacity and in confirmation as per IS 18728:2024 and CPWD Specifications and work even at 50°C ambient temperature without tripping. The system shall be able to deliver 100% of the rated capacity upto 39 Degree Celcius. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply and BMS compatible. The unit shall be filled with first charge of the refrigerant and ready for use as required. The condenser should be coated with a hydrophilic film to prevent water accumulation on the surface of the heat exchanger, enhance water dispersion, and reduce the risk of degradation, thereby improving overall</p>		

Code No.	Description	Unit	Rate (₹)
	performance and durability. The Indian Seasonal Energy Efficiency Ratio (ISEER) of the unit shall be as per Energy Conservation and Sustainable Building Code (ECSBC) 2024 as below and complete as per CPWD specification, connections, inter connections etc. as required. (For capacity <40 kW ISEER 6.4, Capacity > 40 and <70 ISEER 6.5, Capacity > 70 ISEER 6.6 for ECSBC+ Building)		
	For Cooling or Heating or both		
4701	6 HP to 8 HP	Per HP	15,520
4702	10 HP to 12 HP	Per HP	14,880
4703	14 HP to 22 HP	Per HP	14,160
	Supply of Modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling/heating having 100% hermetically sealed inverter type twin Rotary/Scroll Compressor(s), minimum two compressors (with individual separate PCB) for above 14HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R-410-A Refrigerant or equivalent, vibration Isolators with suitable foundation etc. complete as required. To have better efficiency condenser fan shall be capable to operate at different speed with respect to load. The unit shall deliver the rated capacity and in confirmation as per IS 18728:2024 and CPWD Specifications and work even at 50°C ambient temperature without tripping. The system shall be able to deliver 100% of the rated capacity upto 39 Degree Celcius. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply and BMS compatible. The unit shall be filled with first charge of the refrigerant and ready for use as required. The condenser should be coated with a hydrophilic film to prevent water accumulation on the surface of the heat exchanger, enhance water dispersion, and reduce the risk of degradation, thereby improving overall performance and durability. The Indian Seasonal Energy Efficiency Ratio (ISEER) of the unit shall be as per Energy Conservation and Sustainable Building Code (ECSBC) 2024 as below and complete as per CPWD specification, connections, inter connections etc. as required. (For capacity <40 kW ISEER 7.4, Capacity > 40 and <70 ISEER 7.5, Capacity > 70 ISEER 7.6 for Super ECSBC Building)		
	For Cooling or Heating or both		
4704	6 HP to 8 HP	Per HP	16,490
4705	10 HP to 12 HP	Per HP	15,810
4706	14 HP to 22 HP	Per HP	15,045

INDOOR UNIT

Supply of following minimum capacity 4 way Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V \pm 10%, 50Hz AC supply,

Code No.	Description	Unit	Rate (₹)
	complete, as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement in auto mode. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)		
4707	0.8 TR	Each	15,493
4708	1.0 TR	Each	19,366
4709	1.2 TR	Each	26,813
4710	1.6 TR	Each	27,413
4711	2.0 TR	Each	27,600
4712	2.4 TR	Each	28,350
4713	2.6 TR	Each	28,350
4714	3.6 TR	Each	30,750
4715	4.1 TR	Each	31,800
4716	4.6TR	Each	36,675
	Supply of following minimum capacity 4-way compact VRV/VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V \pm 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)		
4717	0.6 TR	Each	15,705
4718	0.8 TR	Each	17,450
4719	1.0 TR	Each	27,375
4720	1.2 TR	Each	27,750
4721	1.6 TR	Each	27,750
	Supply of following minimum capacity Single way wall/corner VRV/VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V \pm 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)		

Code No.	Description	Unit	Rate (₹)
4722	0.6 TR	Each	21,000
4723	0.8 TR	Each	21,450
4724	1.0 TR	Each	22,500
4725	1.2 TR	Each	29,400
4726	1.6 TR	Each	29,400
4727	2.0 TR	Each	30,300

Supply of following minimum capacity Double way VRV/VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V \pm 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)

4728	0.6 TR	Each	30,600
4729	1.0 TR	Each	32,550
4730	2.0 TR	Each	39,750
4731	3.3 TR	Each	42,053
4732	4.2 TR	Each	44,576

Supply of following minimum capacity High wall type Indoor unit equipped with and comfort washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, outer cabinet, cord less remote control, drain pan, necessary accessories etc., suitable for operation on 230 V \pm 10%, 50 Hz, single phase AC supply, complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)

4733	0.6 TR	Each	11,663
4734	0.8 TR	Each	12,000
4735	1.0 TR	Each	12,375
4736	1.2 TR	Each	15,000
4737	1.6 TR	Each	15,300
4738	2.0 TR	Each	15,750

Supply of following minimum capacity and external static pressure VRF/VRV ceiling mounted low static ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration

Code No.	Description	Unit	Rate (₹)
	Isolators, drain pan, drain pump, other necessary supports etc., suitable for operation on single phase AC supply 230 V \pm 10%, 50 Hz complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)		
	Low static ductable units (minimum 19 to 29 pascal external static pressure)		
4739	0.5 TR	Each	21,000
4740	0.6 TR	Each	21,450
4741	0.8 TR	Each	21,675
4742	1.03 TR	Each	21,975
4743	1.3 TR	Each	23,925
4744	1.6 TR	Each	24,300
4745	2.0 TR	Each	25,050
	Supply of following minimum capacity and external static pressure VRF/VRV ceiling mounted mid static ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration Isolators, drain pan, drain pump, other necessary supports etc., suitable for operation on single phase AC supply 230 V \pm 10%, 50 Hz complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)		
	Mid static ductable units (minimum 30 to 48 pascal external static pressure)		
4746	1.2 TR	Each	23,850
4747	1.6 TR	Each	24,300
4748	2.0 TR	Each	25,050
4749	2.4 TR	Each	26,175
4750	3.2 TR	Each	27,900
	Supply of following minimum capacity and external static pressure VRF/VRV ceiling mounted mid high static ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration Isolators, drain pan, drain pump, other necessary supports etc., suitable for operation on single phase AC supply 230 V \pm 10%, 50 Hz complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)		

Code No.	Description	Unit	Rate (₹)
	High Static Ductable units (minimum 49 to 77 pascal external static pressure)		
4751	0.8 TR	Each	21,887
4752	1.03 TR	Each	22,735
4753	1.2 TR	Each	23,974
4754	1.6 TR	Each	24,300
4755	2.0 TR	Each	25,050
4756	2.4 TR	Each	26,175
4757	3.2 TR	Each	27,900
4758	4.0 TR	Each	31,950
4759	4.6 TR	Each	44,850
	Supply of following minimum capacity and external static pressure VRF/VRV ceiling mounted high ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration Isolators, drain pan, drain pump, other necessary supports etc., suitable for operation on single phase AC supply 230 V \pm 10%, 50 Hz complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make will be same as of Outdoor)		
	High Static Ductable units (minimum 78 pascal external static pressure)		
4760	5.5 TR	Each	51,675
4761	6.6 TR	Each	54,225
4762	8.0 TR	Each	59,175
	Supply of Y/T/Multi Joints. Joints shall be of same Original Equipment Manufacturer (OEM) make as of ODUs and IDUs		
4763	Indoor Units	Each	3,150
4764	Outdoor Multi Joint	Each	5,625
	COOPER REFRIGERANT PIPING		
	Supply including vacuumization and Nitrogen testing of following nominal sizes of soft/hard drawn copper refrigerant piping for VRV/VRF system, complete with fittings, with suitable adjustable ring type hanger supports, jointing/brazing including accessories, insulated with XPLE Class-O tubular insulation/with Class-O closed cell elastometric nitrile rubber tubular sleeves sections of 19 mm thick insulation as given below for Suction and Liquid lines, all accessories as per specifications etc. as required :		
4765	6.4 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	Mtr	178
4766	9.5 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	Mtr	240

Code No.	Description	Unit	Rate (₹)
4767	12.7 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	Mtr	338
4768	15.86 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	Mtr	427
4769	19 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	Mtr	513
4770	22.2 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	Mtr	628
4771	25.4 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	Mtr	742
4772	28.58 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	Mtr	804
4773	31.8 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	Mtr	849
4774	34.9 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	Mtr	893
4775	38.1 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	Mtr	918
4776	41.27 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19mm thick insulation	Mtr	950

UNITARY SYSTEMS

Code No.	Description	Unit	Rate (₹)
WINDOW AC UNITS			
<p>Supply of Window type Air conditioners complete with copper power cable upto 3 Mtr, wireless Remote, suitable for working between 180- 260V with low & high voltage cutoff and 50 hz ,1 phase AC supply capable of performing, cooling, dehumidification, air circulation, R-32/R-410A /R-407B Green Refrigerant with Scroll / rotary compressor with min 5 year Original Equipment Manufacturer (OEM) warranty both compressor and Printed Circuit Board (PCB), antifreeze thermostat on the coil as a safety feature, complete with fixing including T&P & labour etc as required complete in all respect as specified of following capacity.Sound level of up to 50dB inside the room is acceptable. The unit shall be in confirmation with IS 1391 Part-I 2023 and CPWD Specification. The system shall be able to deliver 100% of the rated capacity upto 42 Degree Celcius. The system shall be able to operate up to 50 0C (out door ambient temperature).</p>			
Non Inverter Type			
4777	1.0 TR with fixed speed 5 Star BEE rating.	Each	21549
4778	1.5 TR with fixed speed 5 Star BEE rating.	Each	23966
Inverter Type			
4779	1.0 TR with Inverter 5 Star BEE rating.	Each	22572
4780	1.5 TR with Inverter 5 Star BEE rating.	Each	23899
HI WALL SPLIT SYSTEMS			
<p>Supply of Air Cooled Hi Wall split type Air conditioners complete with Indoor unit(IDU), Out door unit (ODU), surface / concealed copper Refrigerant piping with insulation (closed cell elastomeric nitrile rubber tubular pipe section) upto 3 Mtr (IDU to ODU), copper power cable upto 3.5 Mtr (IDU to ODU) i/c drain pipe R-32/R-410/ R-407 Green Refrigerant, wireless Remote control, suitable for working between 180-260V with low & high voltage cutoff and 50 hz ,1 phase AC supply capable of performing cooling, dehumidification, air circulation of following capacity with Scroll / rotary compressor. The system shall be able to deliver 100% of the rated capacity upto 42 Degree Celcius. Min 5 year Original Equipment Manufacturer (OEM) warranty both compressor and Printed Circuit Board (PCB). Must comply : Electrical cable IS 694 or IS 9968 temperature sensing control IS /International Electrotechnical Commission (IEC) 60730, hermetic compressor IS 10617, heat exchanger IS 11329, capacitor IS 2993 and motor IS 12615. Complete as per CPWD specification and IS : 1391 Part II 2023. The system shall be able to operate up to 50 0C (out door ambient temperature).</p>			
Inverter Type - Cooling only			
4781	0.75 TR with 5 Star BEE Rating.	Each	26230
4782	1.0 TR with 5 Star BEE Rating.	Each	27226

Code No.	Description	Unit	Rate (₹)
4783	1.5 TR with 5 Star BEE Rating.	Each	29212
4784	2.0 TR with 5 Star BEE Rating.	Each	38509
Inverter Type - Hot & Cold			
4785	1.0 TR with 3 Star BEE Rating.	Each	24298
4786	1.5 TR with 3 Star BEE Rating.	Each	29146
DUCTABLE TYPE SPLIT UNITS			
<p>Supply of air cooled ducted split type air conditioning machine with each having a capacity and details as mentioned below suitable for operation on R 32/R-410A /R-407 Green refrigerant comprising of Scroll type compressor hermetically sealed complete with automatic capacity, safety switches, lubrication system with min 5 year (OEM) warranty for both compressor and Printed Circuit Board (PCB) , Suitable capacity squirrel cage induction motor having class 'B' insulation suitable for operation on 415 + 10% volts, 50 Hz, A.C. supply for Blower motor, Necessary drive arrangement for blower motor, Matching Air cooled condenser with necessary fittings for refrigerant piping connections, necessary structural support for mounting condensers, Microprocessor based control panel complete with accessories, machine Isolation / disconnect switch, valves and accessories to inter connect compressor and condenser including pressure testing, vacuum. Necessary starters suitable for Indoor & outdoor unit complete with O/L ,U/V, phase reversal protection, single phase preventors i/c copper conductor control and power cable and drain pipe of suitable size and length etc complete as required. The total cooling capacity/heating capacity of tested unit shall have a capacity as per relevant IS code. The lab testing reports as per IS: 8148 shall be submitted from National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited as per ISO/International Electrotechnical Commission (IEC) 17025 standards / Central Power Research Institute (CPRI)/Electrical Research and Development Association (ERDA)with Original Equipment Manufacturer (OEM) etc. complete as per CPWD specification as required.</p>			
Inverter			
4787	1.5 TR (BEE 4 Star Rated)	Each	34320
4788	2.2 TR (BEE 4 Star Rated)	Each	38935
4789	3.0 TR (BEE 4 Star Rated)	Each	52975
4790	3.5 TR (3.2 EER)	Each	76473
4791	4.0 TR (3.2 EER)	Each	86580
Inverter			
4792	1.0 TR (BEE 4 Star Rated)	Each	25090
4793	1.5 TR (BEE 4 Star Rated)	Each	26260
4794	2.0 TR (BEE 4 Star Rated)	Each	34216
4795	2.5 TR (BEE 4 Star Rated)	Each	44590
4796	3.0 TR (BEE 4 Star Rated)	Each	48230

Code No.	Description	Unit	Rate (₹)
4797	3.5 TR (3.2 EER)	Each	53105
4798	4.0 TR (3.2 EER)	Each	58955
4799	4.5 TR (3.2 EER)	Each	68566
4800	5.5 TR (3.2 EER)	Each	74685
4801	8.5 TR (3.2 EER)	Each	98995
4802	11.0 TR (3.2 EER)	Each	127335
4803	16.7 TR (3.2 EER)	Each	196950

CASSETTE TYPE SPLIT UNITS

Supply of Air Cooled Cassette type Air conditioners complete with Indoor unit(IDU), Out door unit (ODU), R-32/R410A/R-407 Green Refrigerant, wireless Remote, inbuilt drain pump, suitable for 400/230V, 50 Hz , 1 /3 phase AC supply, including surface / concealed copper Refrigerant piping with insulation (closed cell elastomeric nitrile rubber tubular pipe section) upto 5.5 Mtr (IDU to ODU), copper power and control cable upto 5.5 Mtr (IDU to ODU) including drain pipe, the system shall be capable of performing cooling, dehumidification, Air circulation, filtration & ventilation of following capacity with Scroll/rotary compressor with min 5 year Original Equipment Manufacturer (OEM) warranty both compressor and Printed Circuit Board (PCB) as specified. The system shall be able to deliver 100% of the rated capacity as per relevant IS Code. The lab testing reports as per IS: 1391 shall be submitted from National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited as per International Electrotechnical Commission (IEC) 17025 standards / Central Power Research Institute (CPRI)/Electrical Research and Development Association (ERDA) with Original Equipment Manufacturer (OEM) etc. complete as per CPWD specification and as per IS: 1391 as required.

Inverter Type- Cooling only

4804	1.5 TR with 5 Star BEE Rating	Each	46605
4805	2.0 TR with 5 Star BEE Rating	Each	51610
4806	2.5 TR with 5 Star BEE Rating	Each	71110
4807	3.0 TR with 5 Star BEE Rating	Each	74458
4808	3.5 TR with 5 Star BEE Rating	Each	84045
4809	4.0 TR with 5 Star BEE Rating	Each	85605

Heating & Cooling

4810	1.5 TR with 3 Star BEE Rating	Each	36205
4811	2.0 TR with 3 Star BEE Rating	Each	40365
4812	2.5 TR with 3 Star BEE Rating	Each	48620

TOWER TYPE SPLIT UNITS

Supply of Air Cooled Floor standing Tower type split Air conditioners complete with Indoor unit(IDU), Out door unit (ODU), surface / concealed copper Refrigerant piping with insulation (closed cell elastomeric nitrile rubber tubular pipe section) upto 5 Mtr (IDU to ODU), copper power cable upto 5.5 Mtr (IDU to ODU), i/c drain pipe of suitable length and size. R-32/R-410/R-407C Green Refrigerant, wireless Remote control, suitable for

Code No.	Description	Unit	Rate (₹)
	working between 180-260V with low & high voltage cutoff and 50 hz , 1 phase AC supply capable of performing cooling, dehumidification, air circulation of following capacity with Scroll / rotary with min 5 year Original Equipment Manufacturer (OEM) warranty both compressor and Printed Circuit Board (PCB). as specified. The system shall be able to deliver 100% of the rated capacity as per relevant IS Code. The lab testing reports as per IS: 1391 shall be submitted from National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited as per International Electrotechnical Commission (IEC) 17025 standards / Central Power Research Institute (CPRI)/Electrical Research and Development Association (ERDA) with Original Equipment Manufacturer (OEM) etc. complete as per CPWD specification and as per IS: 1391 as required.		
	Heat Pump (Heating & Cooling)		
4813	3.3 TR BEE 4 Star Rating	Each	78975
4814	3.8 TR BEE 4 Star Rating	Each	83525
4815	4.6 TR BEE 4 Star Rating	Each	88075
	Cooling Only		
4816	2.4 TR BEE 5 Star Rating	Each	56355
4817	3.3 TR BEE 5 Star Rating	Each	62660
4818	3.8 TR BEE 5 Star Rating	Each	66235
4819	4.6 TR BEE 5 Star Rating	Each	70005
	AIR COOLED PACKAGE UNITS		
	Supplying of Air cooled ductable type Packaged air-conditioning units complete with Hermetically sealed Scroll compressors fitted inside the indoor unit & first charge of refrigerant R410A or equilant permitted green refrigerant & oil ,air cooled condenser, fan section with statically/dynamically balanced centrifugal blower driven by a Totally Enclosed Fan Cooled (TEFC) squirrel cage three speed motor, Multi rows cooling coil of copper with aluminium fins etc. The enclosures shall be fabricated of M.S. The Package unit shall be equipped with synthetic fiber filter, insulated drain pan, controls all encased in a unit. The casing shall be factory powder coated. Electrical panel board for Package units shall comprise of control and power panel with including all accessories i/c Voltage scanner, overload, low voltage, high voltage & phase imbalance protection, along with VI Pads complete with all ancillaries including MS painted stand for Outdoor units of suitable size, foundation and allied minor civil works as per instructions of Engineer-in-charge of following ratings including electric control panel & fitting as per CPWD specifications and as per IS: 8148 complete as required.		
	Inverter		
4820	5.0 TR (2.8 EER)	Each	91260
4821	8.0 TR (2.8 EER)	Each	123370
4822	11.0 TR (2.8 EER)	Each	149305
4823	16.5 TR (2.8 EER)	Each	209105
4824	22.0 TR (2.8 EER)	Each	273390

CHILLERS

Code No.	Description	Unit	Rate (₹)
AIR COOLED CHILLERS			
AIR COOLED SCREW CHILLERS			
	<p>Supply of AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified Air-Cooled (suitable for out door installation) Screw Chiller package complete with VFD (Variable Frequency Drive), hermetic/semi hermetic, screw type compressor each with step less capacity control of 25 % to 100 % of the rated capacity, with microprocessor based control panel compatible for BMS operation, motor, starter panel (VFD), machine mounted, air- cooled condensers with Copper tube and Aluminium fins, factory fitted chiller insulation, water flow switch, vibration spring Isolators, victaulic couplings, integral refrigerant piping and wiring with single/ two circuits, automatic and safety controls mounted in central console panel and all mounted on a steel frame (complete as per specifications) i/c suitable foundation/mounting structure made of RCC/MS Structure i/c anticorrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge. Motor shall be suitable for 415±10% 50 cycles. 3 phase AC supply. Refrigerant gas used shall be R-134A. The chiller shall be Building Management System (BMS) compatible The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.</p> <p>Chilled water Leaving Temp. (6.67 deg. C) Chilled water Entering Temp. (12.2 deg. C) Evaporator fouling factor = 0.018 m². °C/kW Condenser air entering temp. : As per Site Dry Bulb Temperature Suitable for Seismic Zone and Altitude as per location/site.</p>		
4825	Upto 74 TR BEE 3 Star rated	Per TR	19500
4826	75 TR - 140 TR BEE 3 Star rated	Per TR	18850
4827	141 TR - 200 TR BEE 3 Star rated	Per TR	17875

Supply of AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified Air-Cooled Screw Chiller package complete with VFD (Variable Frequency Drive), hermetic/semi hermetic, multiple screw type compressor each with step less capacity control of 25 % to 100 % of the rated capacity, with microprocessor based control panel, motor, starter panel (VFD), machine mounted, air- cooled condensers with Copper tube and Aluminium fins, factory fitted chiller insulation, water flow switch , vibration spring Isolators, victaulic couplings, integral refrigerant piping and wiring with multiple circuits, automatic and safety controls mounted in central console panel and all mounted on a steel frame (complete as per specifications) i/c suitable foundation/mounting structure made of RCC/MS Structure i/c anticorrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge. Motor shall be suitable for 415±10% 50 cycles. 3 phase AC supply. Refrigerant gas used shall be R-134a. The chiller shall be Building Management System (BMS) compatible The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.

Code No.	Description	Unit	Rate (₹)
	Chilled water Leaving Temp. (6.67 deg. C) Chilled water Entering Temp. (12.2 deg. C) Evaporator fouling factor = 0.018 m ² . °C/kW Condenser air entering temp. : As per Site Dry Bulb Temperature Suitable for Seismic Zone and Altitude as per location/site.		
4828	upto 200 TR - BEE 4 Star Rated	Per TR	20150
4829	201 TR to 250 TR BEE 4 Star Rated	Per TR	18525
4830	251 TR - 300 TR BEE 4 Star Rated	Per TR	17550
4831	301 TR - 350 TR BEE 4 Star Rated	Per TR	16900
4832	351 TR - 400 TR BEE 4 Star Rated	Per TR	16250

AIR COOLED SCROLL CHILLERS

Supply of AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified Air-Cooled , Scroll Chiller package complete with VFD (Variable Frequency Drive), hermetic/semi hermetic,multiple scroll type compressors each with step less capacity control of 25 % to 100 % of the rated capacity, with microprocessor based control panel, motor, starter panel (VFD), machine mounted, air- cooled condensers, factory fitted chiller insulation, water flow switch , vibration spring Isolators, victaulic couplings, integral refrigerant piping and wiring with single/ two circuits, automatic and safety controls mounted in central console panel and all mounted on a steel frame (complete as per specifications) i/c suitable foundation/mounting structure made of RCC/MS Structure i/c anticorrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge. Motor shall be suitable for 415±10% 50 cycles. 3 phase AC supply. Refrigerant gas used shall be R-410A. The chiller shall be Building Management System (BMS) compatible.The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.

Chilled water Leaving Temp. (6.67 deg. C)
Chilled water Entering Temp. (12.2 deg. C)
Evaporator fouling factor = 0.018 m². °C/kW
Condenser air entering temp. : As per Site Dry Bulb Temperature
Suitable for Seismic Zone and Altitude as per location/site.

4833	Upto 50 TR BEE 4 Star Rated	Per TR	15925
4834	51 TR - 70 TR BEE 4 Star Rated	Per TR	15600
4835	71 TR - 100 TR BEE 4 Star Rated	Per TR	15275

Supply of AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified Air-Cooled Scroll Chiller package complete with VFD (Variable Frequency Drive), hermetic/semi hermetic, multiple scroll type compressors each with step less capacity control of 25 % to 100 % of the rated capacity, with microprocessor based control panel, motor, starter panel (VFD), machine mounted, air- cooled condensers, factory fitted chiller insulation, water flow switch , vibration spring Isolators, victaulic couplings, integral refrigerant piping and wiring with single/ two circuits, automatic and safety

Code No.	Description	Unit	Rate (₹)
	controls mounted in central console panel and i/c suitable foundation/mounting structure made of RCC/MS Structure i/c anticorrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge. Motor shall be suitable for $415 \pm 10\%$ 50 cycles. 3 phase AC supply. Refrigerant gas used shall be R-410A. The chiller shall be Building Management System (BMS) compatible The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date. Chilled water Leaving Temp. (6.67 deg. C) Chilled water Entering Temp. (12.2 deg. C) Evaporator fouling factor = 0.018 m ² . °C/kW Condenser air entering temp. : As per Site Dry Bulb Temperature Suitable for Seismic Zone and Altitude as per location/site.		
4836	Upto 50 TR BEE 3 Star Rated	Per TR	15275
4837	51 TR - 70 TR BEE 3 Star Rated	Per TR	14300
4838	71 TR - 100 TR BEE 3 Star Rated	Per TR	13975

WATER COOLED CHILLERS

WATER COOLED SCREW CHILLERS

Supply of floor-mounted AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified water cooled screw-type chiller machine complete with VFD (Variable Frequency Drive), single/multi semi-hermetic twin screw type compressor, water-cooled Shell & Tube type condenser, Shell & Tube horizontal flooded type evaporator with carbon steel shell and seamless copper tubes with 19 mm nitrile rubber insulation i/c suitable foundation/mounting structure made of RCC/MS Structure i/c anticorrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge, interconnected copper refrigerant piping and wiring, vibration Isolators, gauge panel, automatic safety controls, flow switch at evaporator and condenser and ozone friendly Chlorofluorocarbons (CFC)-free refrigerant gas R-134A. The refrigerant flow control shall use an electronic expansion valve. The chiller shall be designed for a Water Side working pressure of 150 PSI and hydraulically tested at 1.3 times of design pressure . A number of properly spaced baffles shall be provided for maintaining optimum water velocity and heat transfer and the tubes shall be adequately supported. The chiller shall be Building Management System (BMS) compatible The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.

Chilled water Leaving Temp. (6.67 deg. C)
Chilled water Entering Temp. (12.2 deg. C)
Evaporator fouling factor = 0.018 m². °C/kW
Condenser water Entering Temp. (32.2 deg. C)
Condenser water Leaving Temp. (36.4 deg. C)
Suitable for Seismic Zone and Altitude as per location/site.

4839	Upto 70 TR BEE 3 Star Rated	Per TR	13325
4840	71 TR - 110 TR BEE 3 Star Rated	Per TR	11700
4841	111 TR - 150 TR BEE 3 Star Rated	Per TR	11700

Code No.	Description	Unit	Rate (₹)
4842	151 TR - 210 TR BEE 3 Star Rated	Per TR	11700
4843	211 TR - 260 TR BEE 3 Star Rated	Per TR	11375
4844	261 TR - 300 TR BEE 3 Star Rated	Per TR	11050
4845	301 TR - 450 TR BEE 3 Star Rated	Per TR	10400
4846	451 TR -600 TR BEE 3 Star Rated	Per TR	10075

Supply of floor-mounted AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified VFD (Variable Frequency Drive) Operated water cooled screw-type chiller machine complete with single/multi semi-hermetic twin screw type compressor, with independent circuits, water-cooled Shell & Tube type condenser, Shell & Tube horizontal flooded type evaporator with carbon steel shell and seamless copper tubes with 19 mm nitrile rubber insulation i/c suitable foundation/mounting structure made of RCC/MS Structure i/c anticorrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge, common base frame, interconnected copper refrigerant piping and wiring, vibration Isolators, gauge panel, automatic safety controls, flow switch at evaporator and condenser and ozone friendly Chlorofluorocarbons (CFC)-free refrigerant gas R-134A. The refrigerant flow control shall use an electronic expansion valve. The chiller shall be designed for a Water Side working pressure of 150 psig and hydraulically tested at 1.5 times of design pressure . A number of properly spaced baffles shall be provided for maintaining optimum water velocity and heat transfer and the tubes shall be adequately supported. The chiller shall be Building Management System (BMS) compatible The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.
Chilled water Leaving Temp. (6.67 deg. C)
Chilled water Entering Temp. (12.2 deg. C)
Evaporator fouling factor = 0.018 m². °C/kW
Condenser water Entering Temp. (32.2 deg. C)
Condenser water Leaving Temp. (36.4 deg. C)
Suitable for Seismic Zone and Altitude as per location/site.

4847	Upto 74 TR BEE 4 Star Rated	Per TR	14300
4848	75 TR - 150 TR BEE 4 Star Rated	Per TR	13650
4849	151TR - 300 TR BEE 4 Star Rated	Per TR	12350
4850	301TR - 450 TR BEE 4 Star Rated	Per TR	11700
4851	451 TR - 525 TR BEE 4 Star Rated	Per TR	10400
4852	526 TR - 600 TR BEE 4 Star Rated	Per TR	9750

Supply of floor-mounted Variable Frequency Drive (VFD) water cooled scroll-type chiller machine complete with hermetic scroll type single/ multi compressors with independent circuits, water-cooled carbon steel shell, seamless copper tubes condenser and evaporator with 19 mm nitrile rubber insulation, i/c suitable foundation/mounting structure made of RCC/MS Structure with anti-corrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge, gauge panel, automatic safety controls, flow switch at evaporator and condenser and ozone friendly Chlorofluorocarbons (CFC)-

Code No.	Description	Unit	Rate (₹)
	free refrigerant gas R-410A. The refrigerant flow control shall use an electronic expansion valve. The chiller shall be designed for a Water Side working pressure of 150 psig and hydraulically tested at 1.5 times of design pressure. A number of properly spaced baffles shall be provided for maintaining optimum water velocity and heat transfer and the tubes shall be adequately supported. The chiller shall be Building Management System (BMS) compatible The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date. Chilled water Leaving Temp. (6.67 deg. C) Chilled water Entering Temp. (12.2 deg. C) Evaporator fouling factor = 0.018 m2. °C/kW Condenser water Entering Temp. (32.2 deg. C) Condenser water Leaving Temp. (36.4 deg. C) Suitable for Seismic Zone and Altitude as per location/site.		
4853	Upto 40 TR BEE 3 Star Rated	Per TR	15925
4854	41 TR - 75 TR BEE 3 Star Rated	Per TR	15600
4855	76 TR - 150 TR BEE 3 Star Rated	Per TR	15275

WATER COOLED CENTRIFUGAL CHILLERS

a) Supplying of Centrifugal Water Cooled Chilling Machine Air-Conditioning, Heating, and Refrigeration Institute (AHRI) certified complete with factory fitted (unit mounted/ free standing) (Variable Frequency Drive (VFD)) with active harmonic filter with IP54 protection a) Supplying of Centrifugal Water Cooled Chilling Machine Air-Conditioning, Heating, and Refrigeration Institute (AHRI) certified complete with factory fitted (unit mounted/ free standing) (Variable Frequency Drive (VFD)) with active harmonic filter with IP54 protection having actual capacity as below. The scope of work shall include Lifting, shifting & positioning of the equipment at location shown on the drawing. Chiller given hereunder, comprising of following and complete as per specification/drawings and as directed by Engineer-in-charge. - Chilled water inlet temperature of 12.2°C (54°F) & Chilled water outlet temperature 6.7°C (44°F) with chilled water circulation, Evaportor side fouling factor 0.018 m2.°C /kW - Condenser water inlet temperature Inlet - 32.2°C (90°F) & condenser water outlet temperature of 36.4°C (97.5°F) with water circulation, Condensor side fouling factor 0.044 m2. °C/Kwb) Open/ Semi-Hermetic/ Fully hermetic Centrifugal Compressor complete with automatic capacity control system, safety switches, speed increasing mechanism, forced feed lubrication system etc. as per detailed specifications and compressor extended warranty of 1 year for refrigerent leakage & mechanical seal.c) Suitable capacity TEFC/SPDP Squirrel Cage Induction Motor with enclosure IP 23/ as per Original Equipment Manufacturer (OEM) standard & class 'F' insulation suitable for operation on 415±10% Volt, 3 Phase, 50 HZ, AC Supply. Vendor must provide Junction box along with each set of unit including cable works from junction box to chiller.

Code No.	Description	Unit	Rate (₹)
	<p>d) Unit Mounted/ Free standing IP-54 protection (UL /EN certified) Variable Frequency Drive (VFD) Starter panel with air Cooled/ Refrigerant Cooled or as per Original Equipment Manufacturer (OEM) standard, suitable for compressor motor, complete having over-load protection, under-voltage protection, protection against phase reversal, current sensing independent single phasing protection etc. including multi-function meter and CTs, complete as per detailed specifications. Variable Frequency Drive (VFD)s shall comply with International Electrotechnical Commission (IEC) 61800-3 & have THD less than 5% at all Loads Active / passive filters must be use to achieve desired THD levels and other parameters as per IEEE - 519. Variable Frequency Drive (VFD)s shall be compatible for Modbus/BACnet Protocols. The power factor shall be > 0.95 at all loads. Original Equipment Manufacturer (OEM) shall ensure quality for each set of chiller & Variable Frequency Drive (VFD) before dispatch. Chiller performance parameters shall be as per IS 16590 and BEE star labeling. The chiller shall be Building Management System (BMS) compatible Lubrication Device consisting of automatic electric oil pump, oil cooler, head tank, oil strainer, automatic pressure regulating valve, oil heater, thermal switch etc, as per detailed specifications and as required.</p> <p>f) Matching Shell and Tube Water Cooled Condenser of M.S. Shell and integrally finned Copper Tubes, 2 pass heat exchanger. The Condenser shall have U- stamping / PED Certification. Note- In case of R514a refrigerant, the relaxation on U stamping is applicable only after providing proper justification / proof documentation from Original Equipment Manufacturer (OEM).</p> <p>g) Matching Shell and Tube Flooded type Chiller for centrifugal unit consisting of MS Shell and Copper Tubes, 2 pass Heat Exchanger, duly insulated at factory complete as per specifications and as required. The Evaporator shall have U-stamping.</p> <p>h) Refrigerant Line Accessories comprising of safety valves, angle valve, liquid line indications, liquid level control, liquid line Isolation valve, etc. OR as per Original Equipment Manufacturer (OEM) design standard complete as per specifications.</p> <p>i) DP/ Water Flow Switches at inlet and outlet of the condenser & chiller, water drain & air purge valves wherever required, complete as per specifications.</p> <p>j) Suction Line and Chiller Insulation with minimum 19mm thick elastomeric nitrile rubber insulation complete as required from factory.k) Foundation Frame Work for mounting the above condenser, chiller, compressor and motor with base plate, panel complete with anti-vibration pads (set of spring type), vibration isolators with Isolation efficiency more than 90%. Numbers shall be as per Original Equipment Manufacturer (OEM) standards.), complete as per specifications.l) Initial/ First Charge of Refrigerant Gas and Compressor Oil.m) Chiller shall be factory tested at 25%, 50%, 75% and 100% load at Constant Condenser Water inlet at AHRI test bed.n) Each chiller shall be provided with set of grooved coupling along with the chiller for cooler and condenser inlet / outlet connection.o) Chiller Original Equipment Manufacturer (OEM) shall provide undertaking in the name of end user for</p>		

Code No.	Description	Unit	Rate (₹)
	providing support for maintenance & spare availability for next 15 yrs from the date of Handover.p) Software Selection Sheet to be Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Certified based on latest version. Which can be varified online through AHRI website.q) Sound performance shall be as per relevant AHRI for all loads. This data shall be provided as apart of chiller technical submittal.Suitable for Seismic Zone and Altitude as per location/site.		
4856	300 TR - 450 TR BEE 3 Star Rated	Per TR	17550
4857	451 TR - 600 TR BEE 3 Star Rated	Per TR	17225
4858	601 TR - 1000 TR BEE 3 Star Rated	Per TR	16900
4859	1001 TR - 1600 TR BEE 3 Star Rated	Per TR	16575
4860	1601 TR - 2000 TR BEE 3 Star Rated	Per TR	16575

WATER COOLED MAGNETIC CENTRIFUGAL CHILLERS

Supply of AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified water cooled Magnetic centrifugal type chiller machine complete with hermetic single/ multi compressors with independent circuits, with R-134A or equivalent refrigerant, complete with single Semi/hermetically sealed refrigerant cooled motor of working on 415 + 10% volts, 3 Phase, 50 Hz AC supply. Shell & tube flooded chiller & condenser with descaling & drain valves, victaulic /Flange coupling on condenser & evaporator, microprocessor panel for multiple start ups, i/c suitable foundation/mounting structure made of RCC/MS Structure with anti-corrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge, electrical termination suitable for aluminium conductors along with thermal insulations anti vibration pads, flow switch and required accessories etc, Movable diffuser, Sight Glass at evaporator, Liquid line Isolation valves, Liquid Crystal Display (LCD) Human Machine Interface (HMI) . complete as per specifications and drawings. Complete with first charge of Refrigerant (Preferably at factory charge).

Starter shall be Variable Frequency Drive (VFD) type and shall be Unit Mounted/ Floor Mounted ≥IP42 (UL Listed / CE Marked). Each Compressor shall be equipped with Suitable capacity Permanent Magnet Motor with class 'F' Insulation suitable for operation on 415 +/- 10% volts, 50 HZ, A.C. Supply. Chillers shall be factory AHRI tested at design conditions at 100%, 75%, 50% and 25% load respectively; test certificates shall be produced for all chillers. The chiller shall be Building Management System (BMS) compatible and shall have RS485/RS232 serial communication protocol; the motor shall be suitable for 3- Phase, 415 V ± 10%, 50 Hz AC electric supply. The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.

Chilled water Leaving Temp. (6.67deg. C)
Chilled water Entering Temp. (12.2 deg. C)
Evaporator fouling factor = 0.018 m². °C/kW
Condenser water Entering Temp. (32.2 deg. C)

Code No.	Description	Unit	Rate (₹)
	Condenser water Leaving Temp. (36.4 deg. C) Condenser fouling factor = 0.044 m ² . °C/kW Suitable for Seismic Zone and Altitude as per location/site.		
4861	121 TR - 150 TR BEE 3 Star Rated	Per TR	19175
4862	151 TR - 300 TR BEE 3 Star Rated	Per TR	15600
4863	301 TR - 450 TR BEE 3 Star Rated	Per TR	15275
4864	451 TR - 600 TR BEE 3 Star Rated	Per TR	14040
	Supply of AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified water cooled Magnetic centrifugal type chiller machine complete with hermetic single/ multi compressors with independent circuits, with R-134A or equivalent refrigerant, complete with dual Semi/hermetically sealed refrigerant cooled motor of working on 415 + 10% volts, 3 Phase, 50 Hz AC supply. Shell & tube flooded chiller & condenser with descaling & drain valves, victaulic / Flange coupling on condenser & evaporator, microprocessor panel for multiple start ups, i/c suitable foundation/mounting structure made of RCC/MS Structure with anti-corrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge, electrical termination suitable for aluminium conductors along with thermal insulations anti vibration pads, flow switch and required accessories etc, Movable diffuser, Sight Glass at evaporator, Liquid line Isolation valves, Liquid Crystal Display (LCD) Human Machine Interface (HMI). complete as per specifications and drawings. Complete with first charge of Refrigerant (Preferably at factory charge).		
	Starter shall be Variable Frequency Drive (VFD) type and shall be Unit Mounted/ Floor Mounted ≥ IP42 (UL Listed / CE Marked). Each Compressor shall be equipped with Suitable capacity Permanent Magnet Motor with class 'F' Insulation suitable for operation on 415 +/- 10% volts, 50 HZ, A.C. Supply. Chillers shall be factory AHRI tested at design conditions at 100%, 75%, 50% and 25% load respectively; test certificates shall be produced for all chillers. The chiller shall be Building Management System (BMS) compatible and shall have RS485/RS232 serial communication protocol; the motor shall be suitable for 3- Phase, 415 V ± 10%, 50 Hz AC electric supply. The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.		
	Chilled water Leaving Temp. (6.67 deg. C) Chilled water Entering Temp. (12.2 deg. C) Evaporator fouling factor = 0.018 m ² . °C/kW Condenser water Entering Temp. (32.2 deg. C) Condenser water Leaving Temp. (36.4 deg. C) Condenser fouling factor = 0.044 m ² . °C/kW Suitable for Seismic Zone and Altitude as per location/site.		
4865	150 TR - 205 TR BEE 4 Star Rated	Per TR	20800
4866	210 TR - 300 TR BEE 4 Star Rated	Per TR	18850
4867	301 TR - 355 TR BEE 4 Star Rated	Per TR	16575
4868	356 TR - 450 TR BEE 4 Star Rated	Per TR	15275
4869	451 TR - 600 TR BEE 4 Star Rated	Per TR	15210

COOLING TOWERS

Code No.	Description	Unit	Rate (₹)
COOLING TOWER			
	<p>Supply of Induced Draft counterflow cooling Towers(CTI approved). The Cooling Tower shall be of Fiber Reinforced Plastic (FRP) Construction. The casing, basin/sump, fan deck and fan cylinder shall be of FRP, with direct driven fans, Galvanised hardware complete with sump and drain connection with suitable valve, PVC Honey comb fill, louvers, drift eliminator complete with spray nozzle having self rotating sprinklers, steel ladder, Isolating switch and other accessories to make it fully operational and maintainence National Accreditation Board for Testing and Calibration Laboratories (NABL) & positioning of cooling tower at Terrace of Building. Propeller Type Fan, weather proof IP 55 and Direct driven.The fan motor shall be premium efficiency IE3 class , as per IS 12615 The Cooling tower shall be capable to communicate effectively with Building Management System (BMS). Range of CT: 6 deg C. Designed Duty Conditions :- EWT, LWT , D/WBT Complete as per CPWD specification/drawings and as directed by Engineer-in-charge. (Note - Cooling tower size depends on the ambient temperature conditions , contractor must check the required design temperature).</p>		
4870	300 GPM	Each	222300
4871	450 GPM	Each	296704
4872	600 GPM	Each	414700
4873	750 GPM	Each	556306
4874	900 GPM	Each	646750
4875	1050 GPM	Each	709459
4876	1200 GPM	Each	819000
4877	1350 GPM	Each	865800
4878	1500 GPM	Each	954200
4879	1800 GPM	Each	1175200
4880	2100 GPM	Each	1331230
4881	2400 GPM	Each	1581080
4882	2700 GPM	Each	1655404
4883	3000 GPM	Each	1770644

AHU & FCU

Code No.	Description	Unit	Rate (₹)
CEILING SUSPENDED AHU			
	<p>Supply of Factory built ceiling suspended chilled water double skin type horizontal/vertical air handling units of following capacity, made of 25mm thick panels consisting of pre plasticized G.I. casing of thickness 0.8mm outside layer and 0.8 mm inside layer with Polyurethane Foam (PUF) insulation factory injected between them by injection moulding machine, complete with blower section with blower suitable for static pressure as required, minimum 2 bend PVC eliminators, cooling coil section with aluminium finned copper tubes (tubes thickness not less than 0.5mm) cooling coil of 4 row deep, filter section with 50mm thick metal viscous/ washable synthetic type air prefilters, belt drive package with Totally Enclosed Fan Cooled (TEFC) drive motor of efficiency class IE3 suitable for 415 ± 10% volts, 50Hz, 3 Phase AC supply suitably designed for Variable Frequency Drive (VFD) applications, drain connections, stainless steel (18G) drain pan with PUF insulation, 150 mm dia. dial type pressure gauges (2 nos.) and industrial type thermometers (2 nos.) and industrial type thermometers (2 nos.) at the inlet and outlet of coil, auto purge valve wherever required, necessary vibration Isolation arrangement, noise level shall not exceed 70 dBA. AHU shall be AHRI/Eurovent certified, fan shall be AMCA certified etc. Complete as per CPWD specification/drawings and as directed by Engineer-in-Charge. (Total static pressure considered is max. 50 mm WC).</p>		
4884	1000 CFM	Each	44915
4885	1600 CFM	Each	52325
4886	2000 CFM	Each	55900
4887	2500 CFM	Each	63700
4888	3000 CFM	Each	70200
4889	4000 CFM	Each	80600
4890	5000 CFM	Each	98800
4891	6000 CFM	Each	111150
4892	8000 CFM	Each	137800
4893	10000 CFM	Each	176800
4894	12000 CFM	Each	212550

FCU (FAN COIL UNIT)

DUCTABLE FAN COIL UNIT

Supply of Ceiling Concealed Fan Coil Unit comprising of 3 rows deep chilled water cooling coil, centrifugal blowers, fractional horse power (FHP) motor, synthetic fibre filters, insulated & extended condensate drain pan along with L-type auxiliary tray, casing, coil piping connections, condensate drain piping connections & wiring. Fan coil units shall be suitable for operation on 220 +/- 6% Volts, 50Hz, single phase power supply of following sizes & capacities. Complete as per CPWD specification and as directed by Engineer-in-charge.

Code No.	Description	Unit	Rate (₹)
4895	3.0 TR nominal capacity with 1200 Cfm air quantity.	Each	16055
4896	2.5 TR nominal capacity with 1000 Cfm air quantity.	Each	14820
4897	2.0 TR nominal capacity with 800 Cfm air quantity.	Each	12740
4898	1.5 TR nominal capacity with 600 Cfm air quantity.	Each	11115
4899	1.0 TR nominal capacity with 400 Cfm air quantity.	Each	9815

CASSETTE FAN COIL UNIT

Supply of Chilled Water Ceiling Suspended Hydronic Cassette type fan coil unit, four(4) way directional flow, low noise, each complete with two(2) rows of deep chilled water cooling coil, multi-blade centrifugal fan, test reports from National Accreditation Board for Testing and Calibration Laboratories (NABL)/AHRI accerddited lab, electronic air cleaning system, required set of ball valves with & without strainers & 2 way Motorized valve, insulated condensate drain pans with drain pump assembly & drain pump failure alarm, pipe connections through copper pipes, Infra-red remote control, Liquid Crystal Display (LCD), four (4) speed motor , fan four(4) direction air flow, auto swing louver, decorative panel etc., condensation drain connections, All units shall be suitable for 220 +/- 10% Volts, 50 Hz, single phase power supply etc. complete as per specification. The wireless Remote temperature control / thermostat shall have memory back up for set point re-store in case of power failure and re-start. Four(4)hanger rods with required anchoring fasteners, hooks, washers etc.complete as per CPWD specification and as directed by Engineer-in-charge.

4900	4.0 TR nominal capacity with 1600 Cfm air quantity.	Each	32520
4901	3.5TR nominal capacity with 1400 Cfm air quantity.	Each	30224
4902	3.0 TR nominal capacity with 1200 Cfm air quantity.	Each	16705
4903	2.5 TR nominal capacity with 1000 Cfm air quantity.	Each	15210
4904	2.0 TR nominal capacity with 800 Cfm air quantity.	Each	11700
4905	1.5 TR nominal capacity with 600 Cfm air quantity.	Each	10010
4906	1.0TR nominal capacity with 400 Cfm air quantity.	Each	9425

HIGH WALL FAN COIL UNIT

Supply of High wall Fan Coil Unit comprising of two 2 rows deep chilled water cooling coil, centrifugal blowers, fractional horsepower (FHP) motor , synthetic fibre filters, insulated & extended condensate drain pan, casing, coil piping connections, condensate drain piping connections & wiring. Fan coil units shall be suitable for operation on 220 +/- 6% Volts, 50Hz, single phase power supply of following sizes & capacities.Complete as per CPWD specification and as directed by Engineer-in-charge.

4907	2.0 TR nominal capacity with 800 Cfm air quantity.	Each	17319
4908	1.5 TR nominal capacity with 600 Cfm air quantity.	Each	15228
4909	1.0 TR nominal capacity with 400 Cfm air quantity.	Each	12426

EVAPORATIVE COOLING

Code No.	Description	Unit	Rate (₹)
EVAPORATIVE COOLING			
	Supply of factory assembled double skin central evaporative cooling plant having specifications as per A, B, C, D, E, F, G		
	A. Air washer section comprising 50 mm thick pre-air filter made out from washable Aluminium wire mesh filter with 90 % down to 10 microns.		
	B. Humidification section comprising of Wet pads 200 mm thick impregnated cellulose paper media (Celdec pads) of imported origin with two (2) bend PVC eliminator, internal casing with blank off's of wet section in SS-304 construction.		
	C. Fan Section comprising of belt driven, Double Inlet Double Width (DIDW) backward curved fan with outlet velocity less than or equal to 10 m/s and minimum efficiency of 70% Air Movement & Control Association International (AMCA) certified centrifugal fan suitable for required cfm at 50 mm WC static pressure.		
	D. Totally Enclosed Fan Cooled (TEFC) motor of IE-3 class as required with pulley, belt.		
	E. The unit shall be fabricated with frame work hollow extruded aluminium profile with 0.80 mm precoated GSS on outside and on inside complete with 25 mm thick Chloroflouro Carbon (CFC) free Polyurthane Frame (PUF) insulation of minimum 40 kg/cum density sandwiched in between inner and outer skins, SS -304 (18 g) Sump tank, 25mm C-PVC piping, make up, drain & quick fill and drain connection, Butterfly/Gate valves for pumps, make up, drain & quick fill and drain connections of sump, 2 no. Pumps of suitable capacity and necessary fittings, stand, anti vibration pads etc.as required.		
	F. Starter panel DOL/Star-Delta suitable for operation of Blower motor & pump made out of 1.6 mm thick sheet steel powder coated enclosure comprising of over load protection relay, short circuit & single phasing protection, ON / OFF push buttons, ammeter, voltmeter, indicating lamps, MCB, contactor etc. (As per Specification of CPWD & direction of Engineer-in-charge) complete in all respect.		
	G. All as per pre approved by Engineer-in-charge.		
4910	5000 CFM	Each	68900
4911	8000 CFM	Each	91650
4912	10000 CFM	Each	120900
4913	12000 CFM	Each	143325
4914	15000 CFM	Each	170950
4915	20000 CFM	Each	239850
4916	25000 CFM	Each	275600
4917	30000 CFM	Each	336050

AIR COOLED HEAT PUMP FOR HOT WATER

Code No.	Description	Unit	Rate (₹)
AIR COOLED HEAT PUMP (FOR HOT WATER)			
	<p>Supply of Heat pumps system for hot water using heat energy source from ambient air to Hot water, of High efficiency and energy saving operation, capable of heating water at 55° to 60° C with silent operation (the sound level should not exceed 65 dB). The Heat Pump shall have LCD display control panel with built in diagnostic and troubleshooting information and an inbuilt cycle for defrosting in case icing occurs on evaporator including all other mounting, fitting and controls, all interconnecting wiring/cabling between heat pump and electric panel etc complete in all respect with but not limited to following specifications. Power Supply V/Ph/Hz : 400~440V/3 PH/50Hz. Suggested Maximum output water temperature in Deg C : 55 ° to 60° C, ambient temperature range in Deg C : -5 °C~45 °C , Type of Fan : Low Noise axial fan , Suggested Noise level: DBA <63 , COP: 3.0 to 4.0. Hot Water Storage Tank consisting of GI/MS/SS cylindrical shape clarifier tank. (inlet temperature of hot water storage tank 60- 65 deg.C) suitable for minimum 4 Kg /Sqm working pressure. Tank shall be provided with water flow meter, inlet / outlet, overflow, drain connection with MH cover, 6 mm thick tank, pressure relief valves, pressure gauge at inlet / outlet with isolation cock, thermometer at inlet / outlet, ball Valve, safety valve, check valve etc. The complete system to be tested to a pressure of 10 Kg/cm2 complete in all respects including temperature indications, thermostat and other required accessories. Tank shall be insulated with 100 mm thick crown 150 grade & 50 mm rock wool pads of approved quality and cladded with 24 SWG aluminium sheet cladding.</p>		
4918	200 LPH	Each	78000
4919	300 LPH	Each	104000
4920	500 LPH	Each	136500

SOLAR WATER HEATING SYSTEM

Code No.	Description	Unit	Rate (₹)
SOLAR WATER HEATING SYSTEM (Evacuated Tube Collector)			
	<p>Supply of following capacity Evacuated Tube Collector (ETC) Solar Water Heating System comprising of all glass ETC tube absorber. The inner layer of absorber shall be of solar selected absorbing coated tube, Vacuum jacket, cover glass tube, getter and getter mirror surface, as per IS 16543. The system shall have temperature gauges, strainer, 2 nos. water meters, Suitable capacity cold and hot water tank, all MS structure for installation including suitable electric control panel complete with control and power wiring, necessary plumbing including piping for cold and hot water line between tank and solar water system, water heater and thermostat including non-return valve, float valve and other valve etc. as required. The various component shall have following specification.</p> <ol style="list-style-type: none"> 1. The Absorber area i.e. the number, dimension and thickness of solar evacuated tube as per IS: 16544 clause 5.4 and IS: 16543 clause 4.2 2. Boro Silicate Glass 3.3 for cover plate as per ISO: 3585 3. The material for three target coating shall be aluminum nitrate, aluminum nitrate stainless steel and copper multi layer selecting coating as per IS: 16543. 4. Manifold shall be of Mild steel section with PP coating and Inner material shall be of SS 304. 5. Recommended operating pressure:10 Bars. 6. The capacity of hot water tank shall be minimum 1.5 times the rated capacity system. Inner Material shall be Stainless Steel SS 316 b) as per IS 1730 grade SS304-2B (22SWG). The hot water tank shall be insulated with high density injected PUF insulation 50 mm thickness between inner and outer tank. Tank stand shall be of mild steel and shall be design to withstand wind velocity of 100km/hours (minimum) or more as per site. 7. Suitable nos. ISI Marked electrical heaters along control panel, MCCB, with all protections, and all safety provisions so as to achieve 60 °C temperature rise in an hour. The range of thermostat shall be upto 80 °C. 		
4921	100 LPD	Each	9750
4922	200 LPD	Each	19500
4923	300 LPD	Each	29250
4924	500 LPD	Each	39000

SOLAR WATER HEATER (FLAT PLATE TYPE COLLECTOR)

Supply of Flat Plate collector (FPC) Solar Water Heating System comprising of solar flat plate collector ISI Marked made of copper sheet/copper tube, absorber toughened glass cover and aluminum extruded channel confirm to IS: 12933 (Part 1,2,3&5). The system shall have temperature gauges,

Code No.	Description	Unit	Rate (₹)
	<p>strainer, water meter 2 nos., cold and hot water tank. The system shall have suitable electric backup complete with control and power wiring etc., as following.</p> <p>1. Cover plate: cover plate shall be toughened glass and thickness of 4.0 mm (min) conforming to section -1 of IS: 12933(pt-2)/2003 the solar transmittances of the cover plate shall be minimum 82 percent at near normal incidence.</p> <p>2. Collector box: collector box shall be made of aluminum sections. The type grade, size, and finish of the material used shall be as per section-2 of IS: 12933 (pt-2)/2003: the minimum thickness of aluminum shall be as under:</p> <p>a. Channel section for sides 1.6 mm</p> <p>b. Sheet for bottom 0.7 mm</p> <p>c. Support for glass retaining 1.2 mm</p> <p>d. Sheet for entire body 1.0 mm</p> <p>The insulation of collector box shall be minimum 0.96 m² °C/W for back insulation and minimum 0.48 m square degree c/w for side insulation conform to sec. 4 of IS 12933 (pt – 2) / 2003. (b) Gaskets and grommets: gaskets and grommets shall conform to Sec. 5 of IS 12933 (pt-2)/ 2003.</p> <p>3. Absorber Shall Consist of riser, Header and Sheet for absorber. The Diameter of header shall be 25.4 + /-0.5mm and thickness 0.71mm. The Diameter of riser shall be 12.7 + /-0.5 mm and thickness 0.56mm and made of copper only. The distance between the risers from center to center shall be 120mm. type grade, size, workmanship and finish of the material used shall be as per section- 3 of IS : 12933 (pt -2)/2003 the sheet for absorber shall be of copper sheet 34 gauge/copper tube (at least 10 nos.)</p> <p>4. Riser and header assembly designed for working pressure up 245 k pa (2.5 kg/ cm square) shall be tested for leakage at a minimum hydraulic pressure of 490 k pa (5 kg/ cm square). Sheet for absorber shall be made of copper only. Type Grade, size, workmanship and finish of the material used shall be per Section -3 of IS: 12933 (pt-2)/2003.</p> <p>5. HDPE/LDPE cold water tank and hot water tank shall be dully erected on MS angle /channel duly painted with dual coats of enamel paint. The overall structure of solar collector plate module shall be design to with stand wind velocity of 100 kms /hr (minimum) or more as per site.</p> <p>6. Hot water tank : The tank capacity shall be minimum 1.25 time the rated capacity of system. Inner tank material shall be stainless steel SS 316, as per IS 1730 GRADE SS304-2B. Hot water shall be insulated with high density injected PUF insulation: 50 mm, of 50 mm thickness between inner and outer tank ensures maximum heat rotenone ever season.</p> <p>7. Suitable nos. ISI Marked electrical heaters along control panel, MCCB, with all protections, and all safety provisions so as to achive 60°C temperature rise in an hour. The range of thermostat shall be upto 80 °C.</p>		
4925	100 LPD	Each	14509
4926	200 LPD	Each	29018
4927	250 LPD	Each	33800
4928	300 LPD	Each	43527
4929	500 LPD	Each	72545

ELECTRICAL VEHICLE CHARGER

Code No.	Description	Unit	Rate (₹)
	Supply of EV charging station As per specifications and in Compliance to relevant IS codes etc.		
4930	Light EV AC Charger (Mode-3) Power : 7 kW, Input power supply: 1phase 230 +10% Volt, output supply: 230 Volt AC, Frequency:50 Hz +/-3%, Operational temprature range : -25 to 55 degree C (outdoor), -5 to 55 degree C(Indoor)., RH upto 95%, Charging Device as per IS-17017-22-1 EV-EVSE Communication: as per relevent IS Codes, Bluetooth Low Energy, one Charge Point Plug/ Socket as per IS-60309 and IS-17017-2, Vehicle Inlet/ Connector As per EV manufacturer, suitable for 2 Wheelers and 4 wheelers.Indoor use: at least IP41; Outdoor use: at least IP44. Mechanical Strength :protection of the external enclosure against mechanical impact shall be IK08 according to IEC 62262.O/L,S/C protection. Insulation Resistance > 1 M Ω. Cable Length: 7.5 m. RCD having a rated residual operating current not exceeding 30 mA; Seprate RCD for multiple outputs. Telecommunication port of the EV supply equipment according to IS 13252 (Part 1) : 2010. OCPP(Open charge point protocol) 1.6J upgradble to ocpp 2.0. Device Should follow 17017 series of IS codes in general and the installation of the system shall comply with relevent IS Codes.	Each	16244
4931	Light EV DC Charger (Mode 4) Power Level 1: Up to 7 kW, Input power supply: 1phase 230 +10% Volt/3phase 415 Volt, Frequency: 50 Hz +/-5%, output supply: 12/24 Volt DC. Operational temprature range : -25 to 55 degree C (outdoor), -5 to 55 degree C (Indoor), RH upto 95%, Charging Device as per IS-17017-25, EV-EVSE Communication:IS-17017-25, one Charge Point Plug/ Socket as per IS-60309 and IS-17017-2, Vehicle Inlet/ Connector As per EV manufacturer, suitable for 2 Wheelers and 4 wheelers. Indoor use: at least IP41; Outdoor use: at least IP44.Mechanical Strength :protection of the external enclosure against mechanical impact shall be IK08 according to IEC 62262.O/L,S/C protection. Insulation Resistance > 1 M Ω. Cable Length: 7.5 m. RCD having a rated residual operating current not exceeding 30 mA; Seprate RCD for multiple outputs.Telecommunication port of the EV supply equipment according to IS 13252 (Part 1) : 2010. OCPP(Open charge point protocol) 1.6J upgradble to ocpp 2.0. Device Should follow 17017 series of IS codes in general and the installation of the system shall comply with relevent IS Codes.	Each	243750
4932	Parkbay AC Charger (Mode -3) Power Level 2: Normal Power ~11kW/ 22 kW, 3 phase 415VAC(-40% to +20%), Frequency:50 Hz +/-5%, output supply: 240 Volt AC, Operational temprature range : -25 to 55 degree C (outdoor), -5 to 55 degree C(Indoor), RH upto 95%, Charging Device as per IS-17017-1 EV-EVSE ISO-15118 for Smart Charging, Infrastructure Socket as per IS-17017-2-2, Vehicle Connector as per IS-17017-2-2 Vehicle Inlet/ Connector As per EV manufacturer, suitable for 4 wheelers. Indoor use: at least IP41; Outdoor use: at least IP44.Mechanical Strength :protection of the external enclosure	Each	58500

Code No.	Description	Unit	Rate (₹)
	against mechanical impact shall be IK08 according to IEC 62262. O/L,S/C protection. Insulation Resistance > 1 MΩ. Cable Length: 7.5 . RCD having a rated residual operating current not exceeding 30 mA; Seprate RCD for multiple outputs. Telecommunication port of the EV supply equipment according to IS 13252 (Part 1) : 2010. OCPP(Open charge point protocol) 1.6J upgradble to ocpp 2.0. Device Should follow 17017 series of IS codes in general and the installation of the system shall comply with relevent IS Codes.		
4933	Parkbay DC Charger (Mode-3) Power Level 2: Normal Power ~24KW and above, 3 phase 415VAC(-40% to +20%), Frequency:50 Hz +/-5%, output supply: DC 12/24 Volt, Operational temprature range : -25 to 55 degree C (outdoor), -5 to 55 degree C(Indoor), RH upto 95%, Charging Device as per Device/protocol: IS-17017-23, EV-EVSE Communication as per IS-17017-24 ,ISO-15118, Infrastructure Socket as per IS-17017-2-2/3, Vehicle Connector as per IS-17017-2-3 Vehicle Inlet/ Connector As per EV manufacturer, suitable for 4 wheelers. Indoor use: at least IP41; Outdoor use: at least IP44. Mechanical Strength :protection of the external enclosure against mechanical impact shall be IK08 according to IEC 62262. O/L,S/C protection. Insulation Resistance > 1 MΩ. Cable Length: 7.5 m. RCD having a rated residual operating current not exceeding 30 mA; Seprate RCD for multiple outputs. Telecommunication port of the EV supply equipment according to IS 13252 (Part 1) : 2010. OCPP(Open charge point protocol) 1.6J upgradble to ocpp 2.0. Device Should follow 17017 series of IS codes in general and the installation of the system shall comply with relevent IS Codes.	Each	617500

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