

EXTERNAL ELECTRIFICATION

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
1	LT CABLE LAYING				
	Laying and fixing of one number PVC insulated and PVC sheathed/ XLPE power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required. (Supply of Cable alone will be paid for separately)				
1.01	3.5cx400sq.mm Al Cable (clamped with 40x3mm MS flat clamp)				
	Labour	m	300		
	Laying and fixing of one number PVC insulated and PVC sheathed/ XLPE power cable of 1.1 KV grade of following size in existing RCC/hume/metal pipe/HDPE as required.				
1.02	3.5cx400sq.mm Al Cable (clamped with 40x3mm MS flat clamp)				
	Labour	m	10		
	Laying and fixing of one number PVC insulated and PVC sheathed/ XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
1.03	3.5cx400sq.mm Al Cable (clamped with 40x3mm MS flat clamp)				
	Labour	m	312		
1.04	3.5cx300sq.mm Al Cable (clamped with 40x3mm MS flat clamp)				
	Labour	m	145		
1.05	3.5cx240sq.mm Al Cable (clamped with 40x3mm MS flat clamp)				
	Labour	m	370		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
1.06	3.5cx185sq.mm Al Cable (clamped with 25/40x3mm MS flat clamp)				
	Labour	m	75		
1.07	3.5cx150sq.mm Al Cable (clamped with 25/40x3mm MS flat clamp)				
	Labour	m	100		
1.08	3.5cx120sq.mm Al Cable (clamped with 25/40x3mm MS flat clamp)				
	Labour	m	75		
1.09	3.5cx70sq.mm Cable (clamped with 25x3mm MS flat clamp)				
	Labour	m	105		
1.10	1cx50sq.mm Cu Cable (clamped with 25x3mm MS flat clamp)				
	Labour	m	240		
1.11	3.5cx50sq.mm Al Cable (clamped with 25x3mm MS flat clamp)				
	Labour	m	160		
1.12	3.5cx35sq.mm Al Cable (clamped with 1mm thick saddle)				
	Labour	m	610		
1.13	4x16sq.mm Al Cable (clamped with 1mm thick saddle)				
	Labour	m	395		
1.14	4x10sq.mm Al Cable (clamped with 1mm thick saddle)				
	Labour	m	45		
1.15	4x6sq.mm Al Cable (clamped with 1mm thick saddle)				
	Labour	m	165		
1.16	4x4sq.mm Al Cable (clamped with 1mm thick saddle)				
	Labour	m	1230		
1.17	2x4sq.mm Al Cable (clamped with 1mm thick saddle)				
	Labour	m	60		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
1.18	12x2.5 sq.mm Cu control Cable (clamped with 1mm thick saddle)				
	Labour	m	30		
1.19	4x2.5 sq.mm Cu control Cable (clamped with 1mm thick saddle)				
	Labour	m	40		
1.20	2x2.5 sq.mm Cu control Cable (clamped with 1mm thick saddle)				
	Labour	m	100		
1.21	2x1.5 sq.mm Cu control Cable (clamped with 1mm thick saddle)				
	Labour	m	100		
1.22	3x1.5 sq.mm Cu Cable (clamped with 1mm thick saddle)				
	Labour	m	800		
2	END TERMINATION				
	Supply and making end termination with brass compression gland, earth clip and aluminum lugs/ Cu lugs for following size of PVC insulated and PVC sheathed/ XLPE aluminum conductor cable of 1.1kV Grade as required.				
2.01	3.5Cx400sq.mm Al Cable	E	34		
2.02	3.5Cx300sq.mm Al Cable	E	10		
2.03	3.5Cx240sq.mm Al Cable	E	26		
2.04	3.5Cx185sq.mm Al Cable	E	10		
2.05	3.5Cx150sq.mm Al Cable	E	4		
2.06	3.5Cx120sq.mm Al Cable	E	4		
2.07	3.5Cx70sq.mm Cable	E	10		
2.08	3.5Cx50sq.mm Al Cable	E	10		
2.09	3.5Cx35sq.mm Al Cable	E	54		
2.10	4Cx16sq.mm Al Cable	E	48		
2.11	4Cx10sq.mm Al Cable	E	52		
	Supply of superior quality copper tubular cable socket and making core termination of cables of the following sizes including crimping etc. as required.				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
2.12	1cx50sq.mm Flexible Cu Cable	E	60		
3	H.T CABLE LAYING				
	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 kV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.(Supply of Cable alone will be paid for separately)				
	3Cx300 sq.mm.				
	labour	m	200		
4	H.T CABLE TERMINATION				
	Supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required.				
5.00	3C x300 sq.mm.				
	Supply and Labour	E	6		
	Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required.				
5.01	3C x300 sq.mm.				
	Supply and Labour	E	1		
6	CABLE TRAY				
	Supplying and installing following size of perforated pre-painted M.S. cable trays with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.				
6.01	900 mm width X 75 mm depth X 2.0 mm thickness	m	65		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
6.02	600 mm width X 50 mm depth X 2.0 mm thickness	m	25		
6.03	450 mm width X 50 mm depth X 2.0 mm thickness	m	150		
6.04	300 mm width X 50 mm depth X 1.6 mm thickness	m	100		
6.05	200 mm width X 50 mm depth X 1.6 mm thickness	m	120		
6.06	100 mm width X 50 mm depth X 1.6 mm thickness	m	150		
	Supplying and installing following size of perforated pre-painted M.S. cable trays bends with perforation not more than 17.5%, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.				
6.07	900 mm width X 75 mm depth X 2.0 mm thickness	E	2		
6.08	600 mm width X 50 mm depth X 2.0 mm thickness	E	2		
6.09	450 mm width X 50 mm depth X 2.0 mm thickness	E	10		
6.10	300 mm width X 50 mm depth X 1.6 mm thickness	E	10		
6.11	200 mm width X 50 mm depth X 1.6 mm thickness	E	20		
6.12	100 mm width X 50 mm depth X 1.6 mm thickness	E	30		
	Supplying and installing following size of perforated pre-painted M.S. cable trays cross members with perforation not more than 17.5%, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.				
6.13	600 mm width X 50 mm depth X 2.0 mm thickness	E	2		
6.14	450 mm width X 50 mm depth X 1.6 mm thickness	E	3		
6.15	200 mm width X 50 mm depth X 1.6 mm thickness	E	6		
6.16	100 mm width X 50 mm depth X 1.6 mm thickness	E	8		
7	EARTHING				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Supply and providing plate earthing as per IS 3043 with 1200x1200x12 mm GI/CI earth plate , 50 mm GI watering pipe fixed to the earth plate with 25 x 3mm GI clamps, GI funnel with weld mesh, filling required quantity of charcoal including construction of inspection chamber with a bed concrete of 1:4:8 PCC using 40 mm broken stone (10 cm thick), brick work in cement mortar 1:6, plastering the surface of brick masonry and the exposed surface of PCC bed with cement mortar 1:4, 12 mm thick, (the finished inside dimension shall be 450 x 450 x 450 mm) but excluding test joint, earth continuity conductor to the plate, and covering at the top. (in ordinary soil)				
7.1	Supply and Labour	E	15		
7.2	Supply and drawing bare earthing conductors of following sizes along with wiring cable and giving connection as required				
	Copper wire No.14 SWG				
	Supply & labour	m	400		
7.3	Supply and drawing bare earthing conductors of following sizes along with wiring cable and giving connection as required				
	Copper wire No.10 SWG				
	Supply & labour	m	400		
7.4	Supply and drawing bare earthing conductors of following sizes along with wiring cable and giving connection as required				
	Copper wire No.8 SWG				
	Supply & labour	m	250		
7.5	Supply and laying strips of following sizes along with wiring cable and giving connection as required				
	25x3mm Cu strips tinned at the point of contact				
	Supply & labour	m	450		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
7.6	Supply and laying strips of following sizes along with wiring cable and giving connection as required				
	25x6mm Cu strips tinned at the point of contact				
	Supply & labour	m	25		
7.7	Supply and laying strips of following sizes along with wiring cable and giving connection as required				
	50x6mm Cu strips tinned at the point of contact				
	Supply & labour	m	250		
8	RING MAIN UNIT				
	Supply and assist in erection, testing and commissioning of dust and vermin proof, floor mounted, free standing cubicle type, communicable type 11kV Metal Enclosed Outdoor Extensible at one end, Compact Ring Main Unit {RMU} made out of welded pressure tank of IP67 class of protection fully compartmentalized complete with hinged and earthed front doors interlocked with the earth switch. The switchgear should have the minimum degree of protection (in accordance with IEC 60529) - IP 67 for the tank with high voltage components - IP 54 for the front covers of the mechanism - IP54 for the cable connection covers				
	The unit consisting of 11kV, 630A, 20kA, Motor operated, Compact, Outdoor, with O/C&EF self powered Relays Extensible at one end, Non drawout type, CCV + (2nos. Load Break Switch (OD) incomer and 1no. fixed type motor operated Vacuum Circuit Breaker (VL) outgoing) or GCB(SF6) compact gas insulated Ring Main Unit, All live parts enclosed (SF6)in a robotically welded pressure steel tank of IP 67 class of protection.The rate is inclusive of pre-commisioning test required to be done at site for RMU including all accessories and tackles required towards it.				
	Supply	E	1		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Labour	E	1		
9	HT PANEL BOARD				
	Supply, installation, testing and commissioning of dust and vermin proof floor mounted free standing cubicle type, 11kV, extensible panel board made out of 14 SWG thick CRCA sheet fully compartmentalised complete with hinged and earthed front doors interlocked with the earth switch, comprising of one number of 630A VCB as incomer and two numbers of 630A VCB as outgoings as per the specification details below				
	Incoming:				
	1no:-11kV 630A, 3phase 50Hz, 350MVA, breaking capacity vacuum circuit breaker dust and vermin proof totally enclosed in sheet steel housing, fully inter locked, horizontal draw out and horizontal isolation, indoor truck type with trip free spring closing mechanism with mechanical ON/OFF indicators, earthing terminals automatic safety shutters, complete with auxiliary contacts, resin cast CTs of suitable ratio and accuracy class for protection & metering.				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	<p>Pullout type resin cast P.T with inbuilt fuses of ratio 11kV/110V must be provided. Bus bar compartment shall have suitable capacity non-hygroscopic and high dielectric strength SMC/FRP busbar supports with electrolytic aluminium busbars covered with suitable sleeves. Metering compartment with 144x144mm flush type ammeter and voltmeter with suitable selector switch, combined IDMT overload relays-2 nos, and instantaneous earth fault protective relays-1 no, shunt/series trip coil under voltage release, indication lamps, cable entry boxes including all interconnections, providing fire/heat resistant coatings for busbar & CB truck enclosures and painting with approved synthetic enamel paint complete panel as per IS-2516 & IS 3427 with latest amendments complete as required with manually charged spring closing system. (Provide space for mounting TOD meters in the incoming)</p>				
	<p>Out goings</p>				
	<p>2 nos:-11kV 630A, 3phase 50Hz, 350MVA, breaking capacity vacuum circuit breaker with manually charged spring closing system, dust and vermin proof totally enclosed in sheet steel housing,fully inter locked, horizontal draw out and horizontal isolation, indoor truck type with trip free spring closing mechanism with mechanical ON/OFF indicators, earthing terminals automatic safety shutters, complete with auxiliary contacts, resin cast CTs of suitable ratio and accuracy class for protection & metering.</p>				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Pullout type resin cast P.T. with inbuilt fuses of ratio 11kV/110V must be provided. Bus bar compartment shall have suitable capacity non-hygroscopic and high dielectric strength SMC/FRP busbar supports with electrolytic aluminium busbars covered with suitable sleeves. Metering compartment with 144x144mm flush type ammeter and voltmeter with suitable selector switch, combined IDMT overload relays-2 nos and				
	instantaneous earth fault protective relays-1 no, shunt/series trip coil under voltage release, indication lamps, cable entry boxes (cable entry shall be from the top) including all interconnections, providing fire/heat resistant coatings for busbar & CB truck enclosures and painting with approved synthetic enamel paint complete panel as per IS-2516 & IS 3427 with latest amendments complete as required. (Provide space for mounting TOD meters in the out goings)				
	Supply	Each	1		
	Installation	Each	1		
10	TOD METER				
	Supply, Installation of 3phase 3 wire 110V (L-L), 5A CT of class: 0.5 TOD meter of approved make, with Test certificate obtained from EB TMR division for TOD meter				
	Supply	E	2		
	Labour	E	2		
11	1000kVA 11kV/415V Cast Resin (Dry type) transformer				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Supply, installation, testing & commissioning of 1000kVA 11kV/433V indoor cast resin dry type transformer (copper wound) with OLTC having a continuous rating for 11kV / 433V 3 phase 50 Hz. Vector group Dyn 11 with tapping +5% to -15% in steps of 1.25% by tap links, AVR & RTCC, include separate winding temperature indicator for each phase and core in the Transformer. Transformer should have cable end box on HV side suitable for 3Cx300 sq.mm XLPE cable and suitable end box on LV side for connecting 4Rx3.5Cx400 sqmm XLPE cable with all accessories, complete as required as per KSEI, KSEB, BSI, IE rules specifications. The transformer shall confirm to IS 2067/77, 11171/1985 etc complete.				
	Supply	E	1		
	Labour	E	1		
12	MAIN PANEL				
	Fabrication, supply, erection, testing and commissioning of cubicle type, dust and vermin proof, floor mounted, front operated MV panel board made out of 16 SWG thick CRCA sheet fully compartmentalised complete with hinged and earthed front doors with name plate, danger notice board, heavy duty rubber gaskets, removable gland plates made out of 3mm thick sheet steel. All opening parts of the panel shall be sealable. (the panel shall have CPRI approval certificate)				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	<p>EB Incomer 1(1000kVA Transformer): 1600A, 65kA EDO type Microprocessor based 4P ACB with 3 O/C&1E/F release and stand by low set E/F relay using neutral CT - 1No.</p> <p>DG Incomer 1(750kVA DG):1250A, 65kA EDO type Microprocessor based TP ACB with 3O/C&1E/F release and stand by low set E/F relay using neutral CT - 1No.</p> <p>EB Incomer 2 (750kVA Transformer):1250A, 65kA EDO type Microprocessor based 4P ACB - 1No.</p> <p>DG Incomer 2 (625kVA DG): 1000A, 65kA EDO type microprocessor based TP ACB - 1No.</p> <p>Buscoupler : 2000A, 55kA EDO type microprocessor based 4P ACB - 1No</p>				
	2000A 415V, best conductivity Al TPN bus bar with SMC supports, heat shrinkable sleeves etc complete as required.				
	Necessary interlocking arrangement				
	Single phase Digital Ammeters with range 0-1600A - 3nos.				
	Single phase Digital Ammeters with range 0-1250A - 6nos.				
	Single phase Digital Ammeters with range 0-1000A - 3nos.				
	CTs- ratio 1600/5A 15VA CL-1 - 4 nos.				
	CTs- ratio 1250/5A 15VA CL-1 - 8 nos.				
	CTs- ratio 1000/5A 15VA CL-1 - 4 nos.				
	PCT- ratio 270/5A 15VA 5P10 - 1 no.				
	PCT- ratio 210/5A 15VA 5P10 - 1 no.				
	PCT- ratio 200/5A 15VA 5P10 - 1 no.				
	PCT- ratio 180/5A 15VA 5P10 - 1 no.				
	Three phase Digital Voltmeter range 0-500 V - 4 nos.				
	RYB phase indicating LED lamps with control fuses and switches - 4 set.				
	DLM with communicatio port- 4 nos.				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Outgoing				
	1000A, 433V, 50Hz, 50kA, 4P ACB EDO type with microprocessor based releases - 1 no				
	630A, 433V, 50Hz, 50kA, 4P MCCB with microprocessor based releases - 12 nos				
	630A, TPN Isolator - 1 no				
	4Pole, 440 V Magnetic Contactor for Neutral - 2 nos				
	Supply	E	1		
	Labour	E	1		
13	MAIN PANEL - HOSTEL				
	Fabrication, supply, erection, testing and commissioning of cubicle type, dust and vermin proof, floor mounted, front operated MV panel board made out of 16 SWG thick CRCA sheet fully compartmentalised complete with hinged and earthed front doors with name plate, danger notice board, heavy duty rubber gaskets, removable gland plates made out of 3mm thick sheet steel. All opening parts of the panel shall be sealable. (The panel shall have CPRI approval certificate)				
	Incomers - 1) 400A, TPN Isolator - 1No.				
	400A 415V, 50kA best conductivity Al TPN bus bar with SMC supports, heat shrinkable sleeves etc complete as required.				
	Single phase Digital Ammeters with range 0-400A - 3nos.				
	CTs- ratio 400/5A 15VA CL-1 - 3 nos.				
	Three phase Digital Voltmeter range 0-500 V - 1 nos.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoing				
	125A, 433V, 50Hz, 25kA, TP MCCB with adjustable settings - 3 nos				
	80A, 433V, 50Hz, 25kA, TP MCCB with with adjustable settings - 1nos				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	63A, 433V, 50Hz, 25kA, TP MCCB with with adjustable settings - 4 nos				
	Supply	E	1		
	Labour	E	1		
14	AC PANEL - 1 & 2 TYPICAL				
	Fabrication, supply, erection, testing and commissioning of cubicle type, dust and vermin proof, floor mounted, front operated MV panel board made out of 16 SWG thick CRCA sheet fully compartmentalised complete with hinged and earthed front doors with name plate, danger notice board, heavy duty rubber gaskets, removable gland plates made out of 3mm thick sheet steel. All opening parts of the panel shall be sealable. (the panel shall have CPRI approval certificate)				
	Incomers - 1) 630A, TPN Isolator - 1No.				
	630A 415V, 50kA best conductivity Al TPN bus bar with SMC supports, heat shrinkable sleeves etc complete as required.				
	Single phase Digital Ammeters with range 0-600A - 3nos.				
	CTs- ratio 600/5A 15VA CL-1 - 3 nos.				
	Three phase Digital Voltmeter range 0-500 V - 1 nos.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoing				
	400A, 433V, 50Hz, 36kA, 4P MCCB with adjustable settings - 3 nos				
	Supply	E	2		
	Labour	E	2		
15	LOAD BANK (UB LEFT SIDE)				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Supply, erection, testing and commissioning of wall mounting type 3 phase 6way Load Bank IP43 of approved make and quality with cable end box, meter module including busbar, neutral link and DIN bar with all accessories etc complete with all connections and inter-connections including mounting the following .				
	Incomer				
	250A FP 36kA thermal magnetic release MCCB -1No.				
	250A 415V 25kA best conductivity Al TPN bus bar with SMC supports, heat shrinkable sleeves etc complete as required.				
	Single phase digital ammeters with range 0-250A - 3 nos.				
	CTs- ratio 250/5A 15VA CL-1 - 3 nos.				
	Three phase Digital Voltmeter range 0-500 V - 1 no.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoings				
	200A,25kA TP MCCB with adjustable setting range - 1 no.				
	100A,25kA TP MCCB with adjustable setting range -1 no.				
	63A,25kA TP MCCB with adjustable setting range - 4 no.				
	Supply	E	1		
	Labour	E	1		
16	LOAD BANK (LB FLOOR PANEL)				
	Supply, erection, testing and commissioning of wall mounting type 3 phase 6way Load Bank IP43 of approved make and quality with cable end box, meter module including busbar, neutral link and DIN bar with all accessories etc complete with all connections and inter-connections including mounting the following.				
	Incomer				
	200A FP 36kA thermal magnetic release MCCB -1No.				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	200A 415V 25kA best conductivity Al TPN bus bar with SMC supports, heat shrinkable sleeves etc complete as required.				
	Single phase digital ammeters with range 0-200A - 3 nos.				
	CTs- ratio 200/5A 15VA CL-1 - 3 nos.				
	Three phase Digital Voltmeter range 0-500 V - 1 no.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoings				
	125A, 25kA TP MCCB with adjustable setting range -1 no.				
	63A, 25kA TP MCCB with adjustable setting range - 4 no.				
	32A, 25kA TP MCCB with adjustable setting range - 1 no.				
	Supply	E	1		
	Labour	E	1		
17	LOAD BANK (UB - FLOOR PANEL RIGHT)				
	Supply, erection, testing and commissioning of wall mounting type 3 phase 6way Load Bank IP43 of approved make and quality with cable end box, meter module including busbar, neutral link and DIN bar with all accessories etc complete with all connections and inter-connections including mounting the following.				
	Incomer				
	200A FP 36kA thermal magnetic release MCCB -1No.				
	200A 415V 25kA best conductivity Al TPN bus bar with SMC supports, heat shrinkable sleeves etc complete as required.				
	Single phase digital ammeters with range 0-200A - 3 nos.				
	CTs- ratio 200/5A 15VA CL-1 - 3 nos.				
	Three phase Digital Voltmeter range 0-500 V - 1 no.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoings				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	160A, 25kA TP MCCB with adjustable setting range -1 no.				
	63A, 25kA TP MCCB with adjustable setting range - 2 no.				
	40A, 25kA TP MCCB with adjustable setting range - 1 no.				
	Supply	E	1		
	Labour	E	1		
18	LOAD BANK (B - FLOOR RIGHT)				
	Supply, erection, testing and commissioning of wall mounting type 3 phase 4way Load Bank IP43 of approved make and quality with cable end box, meter module including busbar, neutral link and DIN bar with all accessories etc complete with all connections and inter-connections including mounting the following.				
	Incomer				
	100A FP 36kA thermal magnetic release MCCB -1No.				
	100A 415V 25kA best conductivity Al TPN bus bar with SMC supports, heat shrinkable sleeves etc complete as required.				
	Single phase digital ammeters with range 0-100A - 3 nos.				
	CTs- ratio 100/5A 15VA CL-1 - 3 nos.				
	Three phase Digital Voltmeter range 0-500 V - 1 no.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoings				
	63A, 25kA TP MCCB with adjustable setting range - 3 no.				
	40A, 25kA TP MCCB with adjustable setting range - 1 no.				
	Supply	E	1		
	Labour	E	1		
19	LOAD BANK (G,1ST & 2ND - FLOOR LEFT) TYPICAL				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Supply, erection, testing and commissioning of wall mounting type 3 phase 6way Load Bank IP43 of approved make and quality with cable end box, meter module including busbar, neutral link and DIN bar with all accessories etc complete with all connections and inter-connections including mounting the following.				
	Incomer				
	160A FP 36kA thermal magnetic release MCCB -1No.				
	160A 415V 25kA best conductivity Al TPN bus bar with SMC supports, heat shrinkable sleeves etc complete as required.				
	Single phase digital ammeters with range 0-150A - 3 nos.				
	CTs- ratio 150/5A 15VA CL-1 - 3 nos.				
	Three phase Digital Voltmeter range 0-500 V - 1 no.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoings				
	63A, 25kA TP MCCB with adjustable setting range - 6 no.				
	Supply	E	3		
	Labour	E	3		
20	LOAD BANK (G,1ST & 2ND - FLOOR RIGHT) TYPICAL				
	Supply, erection, testing and commissioning of wall mounting type 3 phase 4way Load Bank IP43 of approved make and quality with cable end box, meter module including busbar, neutral link and DIN bar with all accessories etc complete with all connections and inter-connections including mounting the following.				
	Incomer				
	200A FP 36kA thermal magnetic release MCCB -1No.				
	200A 415V 25kA best conductivity Al TPN bus bar with SMC supports, heat shrinkable sleeves etc complete as required.				
	Single phase digital ammeters with range 0-200A - 3 nos.				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	CTs- ratio 200/5A 15VA CL-1 - 3 nos.				
	Three phase Digital Voltmeter range 0-500 V - 1 no.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoings				
	160A, 25kA TP MCCB with adjustable setting range - 1 no.				
	63A, 25kA TP MCCB with adjustable setting range - 2 no.				
	40A, 25kA TP MCCB with adjustable setting range - 1 no.				
	Supply	E	3		
	Labour	E	3		
21	LOAD BANK (3RD - FLOOR LEFT)				
	Supply, erection, testing and commissioning of wall mounting type 3 phase 6way Load Bank IP43 of approved make and quality with cable end box, meter module including busbar, neutral link and DIN bar with all accessories etc complete with all connections and inter-connections including mounting the following.				
	Incomer				
	200A FP 36kA thermal magnetic release MCCB -1No.				
	200A 415V 25kA best conductivity Al TPN bus bar with SMC supports, heat shrinkable sleeves etc complete as required.				
	Single phase digital ammeters with range 0-200A - 3 nos.				
	CTs- ratio 200/5A 15VA CL-1 - 3 nos.				
	Three phase Digital Voltmeter range 0-500 V - 1 no.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoings				
	100A,25kA TP MCCB with adjustable setting range - 2 nos.				
	63A,25kA TP MCCB with adjustable setting range - 4 nos.				
	Supply	E	1		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Labour	E	1		
22	LOAD BANK (3RD - FLOOR RIGHT)				
	Supply, erection, testing and commissioning of wall mounting type 3 phase 6way Load Bank IP43 of approved make and quality with cable end box, meter module including busbar, neutral link and DIN bar with all accessories etc complete with all connections and inter-connections including mounting the following.				
	Incomer				
	400A FP 36kA thermal magnetic release MCCB -1No.				
	400A 415V 25kA best conductivity Al TPN bus bar with SMC supports, heat shrinkable sleeves etc complete as required.				
	Single phase digital ammeters with range 0-200A - 3 nos.				
	CTs- ratio 400/5A 15VA CL-1 - 3 nos.				
	Three phase Digital Voltmeter range 0-500 V - 1 no.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoings				
	160A,25kA TP MCCB with adjustable setting range - 1 nos.				
	100A,25kA TP MCCB with adjustable setting range - 3 nos.				
	Supply	E	1		
	Labour	E	1		
23	APFC PANEL				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
23.01	Supply erection, testing and commissioning of 14/16 SWG freestanding indoor cubicle type automatic power factor control panel of rating 270 kVAR with 7% harmonic reactor with tuned capacitors using thyristor swtiching. By using Microprocessor based VAR controller which will be able to sense the reactive current requirement and switch on the required VAR providing intelligent switching based on actual value of KVAR and Bank size. 630A 35kA 4P MCCB with high rupturing capacity and in built overload and short circuit releases as per specifications as incomer, housing capacitors with heavy duty polypropylene as a dielectric with vaccum deposited conductors on the polypropylene as electrodes in steps of 9 (50 kVAR x1)+(40kVAR x3) + (30kVAR x2) +(25kVAR x1)+(10kVAR x1) +(5kVAR x1) with all accessories as required.				
	Metering : Digital Ammeter with CT -3Nos , Digital Voltmeter with selector- 1No , Push Button, R Y B Indication with control fuse -1Set, Automanual selector switch- 1No , Forced cooling using fans				
	Supply	Each	1		
	Labour	Each	1		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
23.02	Supply erection, testing and commissioning of 14/16 SWG freestanding indoor cubicle type automatic power factor control panel of rating 190 kVAR with 7% harmonic reactor with tuned capacitors using thyristor switching. By using Microprocessor based VAR controller which will be able to sense the reactive current requirement and switch on the required VAR providing intelligent switching based on actual value of KVAR and Bank size. 400A 35kA 4P MCCB with high rupturing capacity and in built overload and short circuit releases as per specifications as incomer, housing capacitors with heavy duty polypropylene as a dielectric with vaccum deposited conductors on the polypropylene as electrodes in steps of 9 (25 kVAR x6)+(20kVAR x1)+(10kVARx2) with all accessories as required.				
	Metering : Digital Ammeter with CT -3Nos , Digital Voltmeter with selector- 1No , Push Button, R Y B Indication with control fuse -1Set, Automanual selector switch- 1No , Forced cooling using fans				
	Supply	Each	1		
	Labour	Each	1		
24	UPS INCOMER PANEL				
	Fabrication, supply, erection, testing and commissioning of cubicle type, dust and vermin proof, floor mounted, front operated MV panel board made out of 16 SWG thick CRCA sheet fully compartmentalised complete with hinged and earthed front doors with name plate, danger notice board, heavy duty rubber gaskets, removable gland plates made out of 3mm thick sheet steel. All opening parts of the panel shall be sealable. (the panel shall have CPRI approval certificate)				
	Incomer				
	400A TP 36kA thermal magnetic release MCCB -1No.				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	400A 415V 25kA best conductivity Al TPN bus bar with SMC supports, heat shrinkable sleeves etc complete as required.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoings				
	160A,25kA TP MCCB with adjustable setting range - 3 nos.				
	Supply	E	1		
	Labour	E	1		
25	UPS OUTGOING PANEL PANEL				
	Fabrication, supply, erection, testing and commissioning of cubicle type, dust and vermin proof, floor mounted, front operated MV panel board made out of 16 SWG thick CRCA sheet fully compartmentalised complete with hinged and earthed front doors with name plate, danger notice board, heavy duty rubber gaskets, removable gland plates made out of 3mm thick sheet steel. All opening parts of the panel shall be sealable. (the panel shall have CPRI approval certificate)				
	Incomers - 400A, 36kA, FP MCCB with adjustable settings - 1 No				
	400A 415V, 50kA best conductivity Al TPN bus bar with SMC supports, heat shrinkable sleeves etc complete as required.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoing				
	400A, 433V, 50Hz, 36kA, TP MCCB with adjustable settings - 3 nos				
	Supply	E	1		
	Labour	E	1		
26	Isolator With Enclosure				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Fabrication, supply, erection, testing and commissioning of cubicle type, dust and vermin proof, wall mounted, front operated MV panel board made out of 16 SWG thick CRCA sheet fully compartmentalised complete with hinged and earthed front doors with name plate, danger notice board, heavy duty rubber gaskets, removable gland plates made out of 3mm thick sheet steel. All opening parts of the panel shall be sealable. (the panel shall have CPRI approval certificate)				
	400A, TPN Isolator with enclosure				
	Supply	E	5		
	Labour	E	5		
27	GENERATOR - 750kVA				
	Supply, installation, testing and commissioning of 3phase, 415V, 0.8pf 50hz. DG set of the rating 750 kVA radiator cooled Diesel generating set of prime duty comprising of diesel engine alternator, fuel tank, starting system, battery, battery charger, electronic governor etc with all accessories required for synchronising the DG with another DG. The Generator set shall have a integral type acoustic enclosure as per latest CPCB II norms. Diesel engine shall be suitable for continuous operation of generator set and satisfies with EURO-II specifications.				
	Generator set inclusive of fly wheel, flexible coupling, air cleaner, corrosion resistor, fan with guard, fuel pump, fuel filter, electrical starting system with starter, 24V battery with regulator, instrument panel, rpm indicator, residential silencer. The DG shall have the following facility like (a) External Start/ Stop using potential free contacts (b) External Engine Speed control using potential free contacts including droop setting (c) External DG terminal Voltage Control (AVR) using potential free contacts. Also having facility of ECU for incorporating the above features.				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	<p>For speed control and voltage control from synchronizing panel if accessories like MOP is required, shall be included in this scope of work.</p> <p>For 750 kVA DG:- Floor mounted dust and vermin proof, indoor type standard control panel consisting of Microprocessor based ACB EDO rating of 1250A, 4pole, 50 kA breaking capacity, thermal over load, voltage controlled O/C relay, over voltage, under voltage, negative sequence relay, voltmeter with selector switch, 3 ammeters of 0-1250A range, frequency meter, kW, pf, electronic energy meter with CTs (all communicable type) and indicating lamps with fuse and switch control etc. as complete with necessary control wiring interconnections etc including first filling of oil and diesel for commissioning of the DG set.</p>				
	(Energy meter& CTs shall be tested and certificate shall be obtained from electrical inspectorate lab) Following sanction may be obtained by the contractor,				
	(i) Sanctions from Municipality/ Corporation				
	(ii) Sanction from Pollution control Board				
	(ii) Sanction from electrical inspectorate				
	<p>Outdoor acoustic enclosure with compartment for control panel for the following DG set. The sound level shall be brought down to 60DB+/-5 with at a distance of 3m (as per CPCB norms the sound level shall be 70dB at a distance of 1m from the silencer at the top of the enclosure). The base frame shall be made of 100x50mm M.channel, body shall be with 16SWG corrugated painted G.I sheet, roof No 18 SWG corrugated, painted G.I sheet, inner shall be with 22SWG Al perforated sheet with 2.5mm perforation. Body thickness shall be minium 150mm.</p>				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Acoustic insulation material shall be mineral wool/ resin bounded fibre glass of grade 64 and 98kg/meter cube, having an N.R.C value of 0.96 and 1.21 (with minimum thickness of 50mm. The 48kg/meter cube shall be with black glass tissue faced 40kg/meter cube. RP tissue shall be used in between metal and insulation. Doors shall be sliding on either side. Exhaust fan of sufficient capacity tube lights etc. shall be provided inside the enclosure. Sufficient fresh air intake and hot air outlet with splitters to be arranged sothat the temperature inside should not increased 5 degree above ambient temperature. (The enclosure shall bare certificate from the generator manufacturer conforming the CPCB II norms and serial numbers of the test certificate.)				
	Exhaust pipe inside the enclosure upto and including silencer shall be enclosed with Al cladding over thermal insulation .				
	Sanction if required shall be obtained from CPCB.				
	Supply, erection, testing and commissioning of auxillary DC power supply unit, 24V, 120AH with stationary type, high discharge perfomance, sealed maintenance free battery (VRLA or Tubular), battery charger including all other accessories etc as required.				
	Rate to be quoted for				
	Supply	E	1		
	Labour	E	1		
28.0	DC POWER SUPPLY				
	Supply, erection, testing and commissioning of auxillary DC power supply unit, 24V, 24 AH with stationary type, high discharge perfomance, sealed maintenance free battery (VRLA or Tubular), battery charger including all other accessories etc as required.				
	Supply	E	1		
	Labour	E	1		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
29.0	EXHAUST PIPES				
	Supply, erection, commissioning of additional length of exhaust pipes with long radius bend from residential silencer with necessary clamps, fixtures, civil works and painted with heat resistant, rust proof, bituminous paint of approved colors to a maximum of 10 m in stages of following sizes including suitable rain cap for top to avoid rain water entry. The distance between exhaust pipe and rain cap should be higher than diameter of pipe. It is also recommended that horizontal run of exhaust piping should slope downwards away from engine to the condensate trap. Silencer should be installed with drain plug at bottom. Fixing shall be done with proper clamps, expansion bolts, and all other accessories as instructed by the Engineer and the rate inclusive of all minor civil works required for installation.				
29.1	200mm dia				
	Supply	m	10		
	Labour	m	10		
29.2	250mm dia				
	Supply	m	10		
	Labour	m	10		
29.3	300mm dia				
	Supply	m	10		
	Labour	m	10		
29.4	350mm dia				
	Supply	m	5		
	Labour	m	5		
30.0	Busbar Trunking				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Supply, erection, testing and commissioning of IP 54, compact aluminium sandwich busbar trunking 600V, 3 phase 4W (100% neutral) and 50% capacity integral earth bus, of following ampere with aluminium bus bar with class B insulation, 130 degree centrifuge vendor certified polyester mylar film, joints with silver plated aluminium, dual Housing (ANSI 49 gray epoxy painted sheet steel+Aluminium) joints should be silver plated aluminium, complete with reducers, provision for tap off box suitable for connecting 100A to 400A 36kA MCCB (Ics=100% Icu)				
	ANSI 49 gray epoxy painted sheet housing, fixing clips, mounting brackets where ever applicable and all necessary accessories required to support the rising busbar complete etc as required as approved by engineer in charge/ consultant. Bus trunking joints shall				
	be with one bolt type which utilize high strength belleville washers to maintain proper pressure over a large contact surface area. Bolts shall be torque indicating and at earth potential. Bus trunking and all busbar trunking products and fittings must in accordance with IEC 61439-6 2012. The bus trunking includes flanged end, vertical & horizontal feeder bus, flat wise elbow, double elbow, edge wise elbow, T-Section, End cover, End feed, cable box, Spring Hangers, Edgewise Hangers etc complete accessories required for installing the bus bar at site as per the direction of engineer in charge.				
30.01	1000A IP54 Plugin/Feeder Bus				
	Supply	m	65		
	Labour	m	65		
30.02	630A IP54 Plugin/Feeder Bus				
	Supply	m	35		
	Labour	m	35		
30.03	400A IP54 Plugin/Feeder Bus				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Supply	m	70		
	Labour	m	70		
31	Bustrunking Tap Off Box				
	Supply, Installation, testing & commissioning of the following rating tap off boxes of approved make to the existing compact bus bar trunking system including all suply of flexible coupling and all accessories etc as required as approved by the site engineer incharge/consultant.				
	Tap Off Boxes with MCCB				
31.01	400A				
	Supply	Each	1		
	Labour	Each	1		
31.02	250A				
	Supply	Each	1		
	Labour	Each	1		
31.03	200A				
	Supply	Each	6		
	Labour	Each	6		
31.04	160A				
	Supply	Each	3		
	Labour	Each	3		
31.05	100A				
	Supply	Each	13		
	Labour	Each	13		
31.06	63A				
	Supply	Each	12		
	Labour	Each	12		
32	Uninterupted Power Supply SYSTEM				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Supply of approved make 3 nos. 80kVA three phase UPS indoor (IP42) with surge protection system with 15 min backup battery (SMF battery of reputed make), having redundancy, input pf>.99, less input current consumption, built in isolation transformers in input and output, with necessary battery circuit breaker., double conversion technology with input 450V, 50Hz three phase, output 450V, 50Hz three phase, SNMP card for network monitoring etc .It shall be 100% generator compatabile and including all accessories etc as required.The system shall comply to IEC /EN 62040-1 and relevant IS standard				
	80kVA UPS with Built In Isolation Transformer - 3Nos Battery Circuit Breaker-3Nos SNMP for Remote Monitoring -3Nos Battery - 12V 120AH X 42 No's for providing 15 Minutes Back UP and Battery Accessories				
	Supply	Each	1		
	Labour	Each	1		
33	PLC Panel				
	Supply, erection, testing & commisioning of PLC Panel with SIMATIC ET 200 PLC and Interfacing module 151- 8 PN/DP CPU - 1 no, MMC 128 kB - 1 no, Power module PME 24V - 1 no, terminal module for PM - 1 no, terminal module for electronic modules - 7 nos, 8 channel DI module 24V standard- 4 nos, 8 Channel DO module 24V standard- 3 nos, DP Mater Interface module - 1 no,				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Terminal module for PM - 1 no, Rack, front connectors, Memory card, 5A power supply - 2 nos, Profibus cable 2 core - 50mts, Profibus connectors - 3 nos, Profibus card for the PC, SCADA software 512 tags with run time licence, battery, push buttons, Cooling fan and other accessories as required for synchronising the generators. Complete as required including control wiring, supply of PC with 17" LCD monitor, UPS and Table for PC etc as approved by the site engineer in charge/consultant.				
	Generator synchronising GENOP relay module (Siemens make) - 2 nos				
	Siemens make Win-CC SCADA software with 512 tags and runtime configuration- 1 no				
	Touch panel display of size 5.7" to control the system - 1 no				
	Design Engineering & Commissioning				
	Supply	Each	1		
	Installation	Each	1		
34	EARTHING & LIGHTNING PROTECTION SYSTEM				
34.01	Supplying and fixing of air terminals as per IEC -62305 part-3 and IS 2309 16mm rod tapered to 10 mm aluminium rod 2 meter rod: Meets the technical specification according to DIN EN 50164-2 (VDE 0815 part 202). Meets the requirement of VDE0185/305(IEC 62305)				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	<p>101 VL 2000: semi-hard (E-ALMgSiO5 corresponds to DIN 48801) Suitable for high wind load. System consist of Fang Fix with base and clamp on the top air terminal is erected. Fang fix clamp made of cable bracket, lightning tested for 100 kA 10/350 micro sec waveform. 16 KG stone of 365 mm diameter, high level of stability. Quick and easy mounting of interception rod using anchors. Concrete, frost-resistant, can be stacked.</p>				
	Supply	Each	2		
	Labour	Each	2		
34.02	<p>4 meter air terminal with accessories:Providing and fixing Air terminals as per IEC -62305 part-3 and IS 2309 16mm rod tapered to 10 mm aluminium rod 4 meter rod: Meets the technical specification according to DIN EN 50164-2 (VDE 0815 part 202). Meets the requirement of VDE0185/305(IEC 62305) 101 VL 4000: semi-hard (E-ALMgSiO5 corresponds to DIN 48801) Suitable for high wind load. System consist of Fang Fix with base and clamp on the top air terminal is erected. Fang fix clamp made of cable bracket, lightning tested for 100 KA 10/350 micro sec waveform. 2 nos of 16 KG stone of 365 mm diameter, high level of stability. Quick and easy mounting of interception rod using anchors. Concrete, frost-resistant, can be stacked.</p>				
	Supply	Each	1		
	Labour	Each	1		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
34.03	<p>8mm solid aluminium round conductor: For concrete building parapet application Meets the technical specification according to DIN EN 50164-2 (VDE 0815 part 202). Meets the requirement of VDE0185/305(IEC 62305) RD 8/ALU: semi-hard (E-ALMgSiO5 corresponds to DIN 48801) With 50 sq.mm cross sectional area. Polyamide Conductor holder: With M8 female thread or diameter 7mm, M8 Screw to connect the conductor holder. Weather and temperature resistant from -35 to +90 degree Celsius tested. Conductor holder @ 1 meter distance</p>				
a)	Vertical run- Down conductor				
	Supply	m	30		
	Labour	m	30		
b)	Horizontal run-Parapet application				
	Supply	m	300		
	Labour	m	300		
34.04	<p>8mm solid aluminium round conductor: For concrete building Terrace application: Meets the technical specification according to DIN EN 50164-2 (VDE 0815 part 202). Meets the requirement of VDE0185/305(IEC 62305) RD 8/ALU: semi-hard (E-ALMgSiO5 corresponds to DIN 48801) With 50 sq.mm cross sectional area. Polyamide roof cable holder for flat roof: DIN 48829 Form B1. Closed form with bottom. With double conductor holder. Filling weight 1Kg (frost-resistant concrete). Sleeve from polyethylene, black. OBO Glue: All weather conditions tested glue to fix holder.</p>				
	Supply	m	200		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Labour	m	200		
34.05	Providing and fixing of cross connector/T connector: to route vertical down conductor /mesh formation made of stainless steel/hot dipped galvanised iron with necessary screws etc as required. Installed with 4 hexagonal bolts M8*25 with M8 hexagonal nuts				
	Rate to be quoted for				
	Supply	Each	12		
	Labour	Each	12		
34.06	Providing and fixing of expansion piece with connector: For equalising temperature related length changes. Necessary on conductors length over 20 meters. For round conductor Rd 8/ALU. Connector: For T cross and parallel connectors. Quick installation using hexagonal bolt M10X30 high-grade hot dip galvanised. Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)				
	Supply	Each	50		
	Labour	Each	50		
34.07	Test Joint to connect 8mm aluminium round conductor and GI strip 30*3. Conforms to the requirement to DIN 0185-305 (IEC 62305) with hexagonal bolts hot dip galvanised.				
	Supply	Each	12		
	Labour	Each	12		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
34.08	Providing and laying Galvanised Steel Flat 30X3 mm thick from earth electrode directly in ground as required. Hot Dip GI strip, corrosion resistant. Cross sectional area of 90mm square According to DIN EN 50164-2 (VDE 0185 part 202) Meets the requirement of VDE0185/305(IEC 62305) Zinc coating: 500 g/m square (70 micron coating) Should be tested and use exclusively for lightning protection earthing system and ring equipotential bonding.				
	Supply	Each	4550		
	Labour	Each	4550		
34.09	Providing & fixing of earth fixed point: Made of V4A Stainless Steel, grade 316L. Connection to earthing systems, air terminals and reinforcement. Contact plate: 79 mm diameter, made of rustproof stainless steel (V4A). Clamping bolt 10mm diameter, rustproof (V2A). Including plastic cover for simple installation.				
	Supply	Each	128		
	Labour	Each	128		
34.10	Providing & fixing of cross connector for reinforcement, Flat galvanised steel and earth fixed point. This connects earth fixed point to reinforcement. Installed with 2 hexagonal bolts M8x 20 (F).				
	Supply	Each	128		
	Labour	Each	128		
34.11	Providing & fixing of diagonal clamp @ every 1 meter (max up to 2 meters can be permitted): For reinforced steel of diameter 6-22mm and Flat 30x3 galvanised steel strip. Installed with screws M10x40. Simple installation with open slot.				
	Supply	Each	726		
	Labour	Each	726		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
34.12	Providing and fixing of Cross connector for Flat: Suitable for 30mm Galvanised steel strip. Installed with 4 nos of hexagonal plate.				
	Supply	Each	20		
	Labour	Each	20		
34.13	Providing and fixing of Plastic Corrosion Protection strip: Approx 1.1 mm thick. Width 50mm. Made of petrolatum- coated chemical fibre fabric.				
	Supply	Each	20		
	Labour	Each	20		
35	SURGE ARRESTORS				
35.1	SURGE ARRESTOR FOR PANEL				
	This panel should include Pluggable type surge arrester Class B & Class C/ Class 1 & Class 2 as per IEC 61643 (IP 20) with potential free contact, with IP 66 completely assembled enclosure & provision for inbuilt common remote indication for defective arresters 3 nos of encapsulated spark gap & 3 nos of single large block of				
	MOV with series thermal fuse and cooling gel to connect between Line and Neutral and one number arrester encapsulated spark gap type to connect between Neutral and Earth of following ratings including base element & pluggable arresters. Nominal voltage -230V 50Hz, Impulse current-150 kA (10/350µ sec) & 60KA (8/20µ sec) for Line to Neutral & 125 KA(10/350µ sec) for Neutral to Protective Earth, voltage protection level <1.3 KV (L to N) & <1.3 KV (N to E). Operating temp -40° to +85°C. Response time <100 nano sec				
	Supply	Each	2		
	Labour	Each	2		
35.2	SURGE ARRESTOR FOR VDB / DB				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	This panel should include pluggable type surge arrester in suitable enclosure Class B+C/ Class 1+2 as per IEC 61643 (IP 20) with potential free contact, thermal dis connector & provision for inbuilt common remote indication for defective arresters to connect between Line and Neutral and one number arrester Spark Gap type to connect between Neutral and Earth of following ratings including base element & pluggable arresters. Nominal				
	voltage -230V 50Hz, type single MOV with built in thermal fuse and cooling gel(L to N) & spark gap encapsulated / non exhausting (N to E) . Lightning Impulse Current - 21 kA (10/350µ sec) for Line to Neutral & 25 kA(10/350µ sec) for Neutral to Earth,Nominal discharge current-30 kA (8/20µ sec) for Line to Neutral & 40 kA(8/20µ sec) for Neutral to Earth, max discharge current 150 kA (8/20µ sec) for Line to Neutral & 50 kA(8/20µ sec) for Neutral to Earth. Voltage protection level 1300V (L to N) & 1200V (N to E). Operating temp -40° to +80°C. Response time <25 nano sec (L to N), < 100 nano sec (N to E) DIN rail mounting type etc complete with back up fuse as required and as directed.				
	Supply	Each	87		
	Labour	Each	87		
35.3	SURGE ARRESTOR FOR SUB PANELS				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	<p>This panel should include pluggable type surge arrester in suitable enclosure Class C/ Class 2 as per IEC 61643 (IP 20) with potential free contact, thermal dis connector & provision for inbuilt common remote indication for defective arresters to connect between Line and Neutral and one number arrester Spark Gap type to connect between Neutral and Earth of following ratings including base element & pluggable arresters. Nominal voltage -230V 50Hz, type single MOV with built in thermal fuse and cooling gel(L to N) & spark gap encapsulated / non exhausting (N to E) Nominal discharge current-20 kA (8/20μ sec) for Line to Neutral & 50 kA(8/20μ sec) for Neutral to Earth, max discharge current 40 kA (8/20μ sec) voltage protection level 1400V (L to N) & 1200V (N to E). Operating temp -40° to +80°C. Response time <25 nano sec (L to N), < 100 nano sec (N to E)DIN rail mounting type etc complete with back up fuse as required and as directed.</p>				
	Supply	Each	17		
	Labour	Each	17		
36	SOLAR GRID-TIED SYSTEM				
36.1	For Research Block				
	Design, supply, installation, testing & commissioning of solar 20kWp Grid -Tied Roof top System comprising of 80 nos 300 Wp Solar photo voltaic module, one no: 20kVA Grid Tied Inverter, AJB - 1no, ACDB and energy meter, earthing systems and including necessary cabling, module mounting structures and installation accessories etc as required.				
	Rate to be quoted for				
	Supply & Installation	Set	1		
36.2	For Hostel Block				

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
	Design, supply, installation, testing & commissioning of solar 34.2 kWp GRID-TIED Roof top System comprising of 114 nos 300 Wp Solar photo voltaic module, one no: 30kVA Grid Tied Inverter, AJB - 1no, ACDB and energy meter, earthing systems and including necessary cabling, module mounting structures and installation accessories etc as required.				
	Supply & Installation	Set	1		
37	LT CABLE SUPPLY				
	Supplying the following PVC insulated and PVC sheathed XLPE power cable of 1.1kV grade as per CPWD standards as required.				
37.01	3.5cx400sq.mm Al Cable				
	Supply	m	622		
37.02	3.5cx300sq.mm Al Cable				
	Supply	m	145		
37.03	3.5cx240sq.mm Al Cable				
	Supply	m	370		
37.04	3.5cx185sq.mm Al Cable				
	Supply	m	75		
37.05	3.5cx150sq.mm Al Cable				
	Supply	m	100		
37.06	3.5cx120sq.mm Al Cable				
	Supply	m	75		
37.07	3.5cx70sq.mm Al Cable				
	Supply	m	105		
37.08	1cx50sq.mm Cu Flexible Cable				
	Supply	m	240		
37.09	3.5cx50sq.mm Al Cable				
	Supply	m	160		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
37.10	3.5cx35sq.mm Al Cable				
	Supply	m	610		
37.11	4x16sq.mm Al Cable				
	Supply	m	395		
37.12	4x10sq.mm Al Cable				
	Supply	m	45		
37.13	4x6sq.mm Al Cable				
	Supply	m	165		
37.14	4x4sq.mm Al Cable				
	Supply	m	1230		
37.15	2x4sq.mm Al Cable				
	Supply	m	60		
37.16	4x2.5sq.mm Cu Cable				
	Supply	m	40		
37.17	2x1.5sq.mm Cu Cable				
	Supply	m	100		
37.18	2x2.5sq.mm Cu Cable				
	Supply	m	100		
37.19	12x2.5sq.mm Cu Cable				
	Supply	m	30		
37.20	3x1.5sq.mm Cu Cable				
	Supply	m	800		
38	END TERMINATION				
	Supply and making end termination with brass compression gland, earth clip and aluminum lugs/ Cu lugs for following size of PVC insulated and PVC sheathed/ XLPE aluminum conductor cable of 1.1kV Grade as required.				
38.01	4Cx6sq.mm Al Cable	E	24		

Item No	Description of items	Unit	Qty.	Rate in Rs	Amount in Rs
38.02	4Cx4sq.mm Al Cable	E	128		
38.03	2Cx4sq.mm Al Cable	E	12		
38.04	12Cx2.5 sq.mm Cu Control Cable	E	2		
38.05	4Cx2.5 sq.mm Cu Control Cable	E	2		
38.06	2Cx2.5 sq.mm Cu Control Cable	E	10		
38.07	3cx1.5sq.mm Cu Cable	E	122		
38.07	2Cx1.5 sq.mm Cu Control Cable	E	10		
39	HDPE PIPE				
	Supplying and laying the following size HDPE pipe in ground including excavation and refilling the ground etc as required.				
	Rate to be quoted for				
	Supply	m	10		
	Labour	m	10		
40	HT CABLE SUPPLY				
	Supplying the following PVC insulated and PVC sheathed XLPE power cable of 11kV grade as per CPWD standards as required.				
	3cx300sq.mm XLPE Cable				
	Rate to be quoted for				
	Supply	m	200		
41	PREPARATION OF ALL DRAWINGS				
	Preparation of all drawings submitting and getting approval from Electrical Inspectorate, submitting of Completion certificates and arranging inspection, getting sanction and energisation certificates from Electrical Inspectorate & KSEB, obtaining power allocation & power connection etc. for commissioning of the whole installation in the premises. All statutory payments will be reimbursed on production of the original receipts.	Set	1		
	TOTAL PART 2 - NON DSR ITEMS				
	TOTAL OF PART 1 and PART 2				