



**INDIAN ASSOCIATION FOR THE
CULTIVATION OF SCIENCE**

**2A & 2B RAJA S C MULICK ROAD
KOLKATA 700 032**

Name of Work: Supply, Installation, Testing & Commissioning of Electrical Works for 2 X 500 kVA & 1 X 250 kVA D.G. Sets including arrangement of AMF cum Auto-Synchronisation and Exhaust Chimneys etc. at IACS, Jadavpur, Kolkata.

(PRICE BID)

**CONSULTANT
ENERGY INDIA
1, BRITISH INDIAN STREET
OLD BLOCK, 1ST. FLOOR
KOLKATA – 700 069.**

SCHEDULE OF WORKS

Name of Work: Supply, Installation, Testing and Commissioning of Electrical Works for 2 X 500KVA & 1 X 250KVA DG Sets including arrangement of AMF cum Auto-Synchronising & Exhaust Chimneys etc. at IACS, Jadavpur, Kolkata

PART-A (For 2 x 500kVA DG Sets) :

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
1	<p><u>REPLACEMENT & RETROFIT OF ACBS</u></p> <p>Retrofitting of 1no. 1600A, 415V, 50kA, 3P, MDO, Air Circuit Breaker with in-built Microprocessor based LSIG Release after necessary modification of bus bar connections, cubicle doors, back covers, Panel Indication & Metering, Control circuits etc. of existing Panel-1 cubicle in s/s room including supply of materials as will be required and complete with testing and commissioning comprising the following devices:</p>	1	Set		
1.1	1600A, 415V, 50kA, 3P, MDO, Air Circuit Breaker with in-built Microprocessor based LSIG Release-1 No.				
1.2	Multifunctional Meters with Accuracy Class 1.0 (EM-6436/ Elite 442)-1 no.				
1.3	LED Indication lamp for R,Y,B,ON,OFF,TRIP-6 nos.				
1.4	6A, 10kA,TPN, MCB for metering Circuit -1 no.				
1.5	10A, 10kA, DP, MCB for ACB Control Circuit-1 no.				
1.6	Modification of Existing Panel and Retrofitment-1 no.				

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
2.	<p><u>ESSENTIAL PCC-1 CUM AUTO SYNCHRONISING PANEL FOR 500KVA DG SET</u></p> <p>Design, Manufacture, Supply, installation, testing and commissioning of AMF cum Auto-Synchronising Panel with IP54 enclosure and Copper Busbar suitable for Synchronising and load sharing of 2 nos. 500kVA DG set complying to CPWD General Specification for Electrical works (Chapter- 4, Part-VII, DG Sets, 2013) as per Specification and SLD enclosed and comprising the following devices in addition to other necessary materials as required for this job:</p>	1	Set		
2.1	500kVA DG Incomer Feeders consisting of following :				
2.1.1	800A, 415V, 50kA, 3P, EDO, Air Circuit Breaker with in-built Microprocessor based LSIG Release and U/V Release-2 nos.				
2.1.2	300A, AC3 Duty, 3P, Power Contactor for switching DG Neutral Circuit-2 nos.				
2.1.2.1	Contactor Coil-2nos.				
2.1.2.2	2NO+2NC Add On Contacts-2nos.				
2.1.3	Multifunctional Meters with Demand & RS-485 port (EM-6400 / Elite 443)-2nos.				
2.1.4	Auto Synchronising Cum Load Sharing Relay (EASYGEN-3500) : 2nos.				
2.1.5	Square, Flush, 96 mm X96 mm, 0-50V, DC, Analog Voltmeter-2nos.				
2.1.6	Square, Flush, 96 mm X96 mm, 0-50A, DC Analog Ammeter with 75mV, 50 Amp External Shunt-2nos.				
2.1.7	Emergency Stop PB with Mushroom Head with 2NC Element-2nos.				

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
2.1.8	12 Channel Annunciators -2nos.				
2.1.9	Hooter for Fault Alarm, 24V DC-2nos.				
2.1.10	LED Indication lamp for R,Y,B,ON,OFF,TRIP-12nos.				
2.1.11	LED Indication Lamp for "DG Fault" , Control Supply Volt-24V DC -12nos.				
2.1.12	Push Buttons for for DG Start, Stop, Fault Test, Accept & Reset-10 nos.				
2.1.13	10A, SP , 2 Way Auto/ Manual Selector Switch -2nos.				
2.1.14	10A, DP, 2 Position DG Selector Switch-2nos.				
2.1.15	25A, SP TNC Switch - 2nos				
2.1.16	800/5A, 15VA, CL-1 CT for Metering 12nos.				
2.1.17	800/5A, 15VA, CL-PS , CT for Protection-12nos.				
2.1.18	500/5A, 15VA, CL-PS , CT for Protection-2nos.				
2.1.19	Auxiliary Contactor with 2NO+2NC, Coil Voltage -220V AC-10 nos.				
2.1.20	Auxiliary Contactor with 2NO+2NC Contact, Coil Voltage- 24V DC-10 nos.				
2.1.21	220V AC / 24V DC, Float Cum Boost Battery Charger Unit -2nos.				
2.1.22	6A, 10kA,TPN, MCB for Protection Circuit -4 nos.				
2.1.23	6A, 10kA,TPN, MCB for metering Circuit -4nos.				
2.1.24	10A, 10kA, DP, MCB for ACB Control Circuit-4nos.				
2.1.25	6A, 10kA, DP, MCB for DC Control Circuit-2nos.				
2.1.26	16A, 10KA, DP, MCB for Battery Charging Circuit Input -2nos.				
2.1.27	32A, DC, 10KA, DP, MCB for Battery Charging Circuit Input-2nos.				

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
2.2	1000 kVA Transformer Incoming Feeders Consisting of Following:				
2.2.1	1600A, 415V, 50kA, 4P, EDO, Air Circuit Breaker with in-built Microprocessor based LSIG Release and U/V Release -2nos.				
2.2.2	Multifunctional Meters with Demand & RS-485 port (EM-6400 / Elite 443)-2nos.				
2.2.3	25A,SP TNC Switch-2nos.				
2.2.4	LED Indication lamp for R,Y,B,ON,OFF,TRIP-12nos.				
2.2.5	1600/5A, 15VA, CL-1 CT for Metering-6nos.				
2.2.6	Auxiliary Contactor with 2NO+2NC, Coil Voltage -220V AC : 10 nos.				
2.2.7	Current Transducer (4-20mA DC) for PLC input-2nos.				
2.2.8	6A, 10kA,TPN, MCB for Protection Circuit-2nos.				
2.2.9	6A, 10kA,TPN, MCB for metering Circuit-2nos.				
2.2.10	10A, 10kA, DP, MCB for ACB Control Circuit-4nos.				
2.2.11	6A, 10kA, DP, MCB for DC Control Circuit-2nos.				
2.2.12	CFL Lamps-2nos.				
2.2.13	Plug & Socket-2nos.				
2.2.14	Door Limit Switch-2nos.				
2.3	Bus Coupler Consisting of Following:				
2.3.1	1600A, 415V, 50kA, 3P, EDO, Air Circuit Breaker without Release-1no.				
2.3.2	25A,SP TNC Switch-1no.				
2.3.3	LED Indication lamp for ON,OFF-4nos.				
2.3.4	Aux. Contactor with 2NO+2NC, Coil Voltage -220V AC-6nos.				
2.3.6	Woodward LS-5 Breaker Control Relay-1no.				

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
2.3.7	PLC , 32 - I/O with 6 Analog Input (Siemens : S7-200)- 1no.				
2.3.8	8 Channel Relay Board for PLC , 1 C/O Relay, 24V DC- 1no.				
2.3.9	10A, 10kA, DP, MCB for ACB Control Circuit-1no.				
2.3.10	6A, 10kA, TPN, MCB for Controller Circuit-1no.				
2.4	400A MCCB Outgoing Feeders Consisting of Following:				
2.4.1	400A, 415V, 50kA, 4P, MCCB with thermal magnetic release having adjustable O/L & S/C Release (Easypact CVS or eqv.)-6nos.				
2.4.1.1	Auxilliary Contacts-1C/O -6nos.				
2.4.1.2	Extended Rotary Handle-6 nos.				
2.4.1.3	Terminal Spreaders-6nos.				
2.4.1.4	Terminal Phase Barrier-6nos.				
2.4.2	LED Indication lamp for ON,OFF,TRIP-18nos.				
2.4.3	6A, 10kA, DP, MCB for Control Circuit -6nos.				
2.5	250A MCCB Outgoing Feeders Consisting of Following:				
2.5.1	250A, 415V, 50kA, 4P, MCCB with thermal magnetic release having adjustable O/L & S/C Release (Easypact CVS or eqv.)-9nos.				
2.5.1.1	Auxiliary Contacts-1C/O-9nos.				
2.5.1.2	Extended Rotary Handle-9nos.				
2.5.1.3	Terminal Spreaders-9nos.				
2.5.1.4	Terminal Phase Barrier-9nos.				
2.5.2	LED Indication lamp for ON,OFF,TRIP-27nos.				
2.5.3	6A, 10kA, DP, MCB for Control Circuit-9nos.				

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
3	GRP / Air Insulated Overhead Bus Duct for Essential PCC-1				
3.1	Supplying, installing by supporting over the flanges of two adjacent panels 1800 mm. apart at 2100mm level, testing and commissioning of Bus Duct System of rating 2000A, 50kA, 3Ph-4W, 415V, 50Hz with metal clad enclosure made of 2.0 mm thick sheet steel duly powder coated reinforced with MS angle of suitable size with required flanges at ends complete with 4 nos. Copper bus bars, necessary elbow joints along with continuous earthing strip of suitable size connecting to earthing system as required as per IE Rules.	3.6	M		
4	LT CABLING FOR 2 X 500KVA DG SYSTEM				
4.1	Supply of Cables:				
	Supplying of Earthed, Armoured, Aluminium Conductor, XLPE Power Cable of 1.1 kV Grade conforming to IS:7098 (Part-II) as per following sizes:				
4.1.1	3.5C X 400 sq.mm (Panel-1 & 2 to Ess PCC-1)	80	M		
4.1.2	3.5C X 240 sq.mm (Panel-1 & 2 to Ess PCC-1)	10	M		
4.1.3	3.5C X 150 sq.mm (Panel-1 & 2 to Ess PCC-1)	10	M		
4.2	Laying of Cables in Existing Masonry Open Duct				
	Laying of Earthed, Armoured, Aluminium Conductor, XLPE power cable of 1.1kV grade of following sizes				
4.2.1	1 X 4R X 3.5C X 400 sq.mm (From Existing S/S Bldg. to Incomer-1 of new Ess. PCC1)	10	M		
4.2.2	1 X 4R X 3.5C X 400 sq.mm (From Existing S/S Bldg. to Incomer-4 of new Ess. PCC1)	12	M		
4.2.3	4 X 1R X 3.5C X 400 sq.mm (Outgoing Cables from New Ess. PCC1)	5	M		
4.2.4	7 X 1R X 3.5C X 150 sq.mm (Outgoing Cables from New Ess. PCC1)	5	M		

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
4.3	Laying of Cables Direct In Ground Laying of PVC insulated and PVC sheathed/ XLPE power cable of 1.1kV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required:				
4.3.1	1 X 4R X 3.5C X 240 sq.mm (DG-1 to Incomer 2 of New Ess. PCC1)	8	M		
4.3.2	1 X 4R X 3.5C X 240 sq.mm (DG-2 to Incomer 3 of New Ess. PCC1)	15	M		
4.4	Laying and Fixing of Cables on Wall Surface Laying and Fixing of PVC insulated and PVC sheathed/ XLPE power cable of 1.1kV grade of following size on Wall Surface fixing with 40 X 3mm MS Flat Clamp:				
4.4.1	1 X 4R X 3.5C X 400 sq.mm (From Existing PCC inside S/S Bldg. to Incomer-1 of new Ess. PCC1)	6	M		
4.4.2	1 X 4R X 3.5C X 400 sq.mm (From Existing PCC inside S/S Bldg. to Incomer-4 of new Ess. PCC1)	15	M		
4.5	Dismantling and Removing of Cables Dismantling and Removing of earthed, Armoured, Aluminium Conductor, XLPE power cable of 1.1kV grade of following sizes from existing Panel-1, Panel-2, AMF Panel :				
4.5.1	2 X 4R X 3.5C X 240 sq.mm (From DG1 & DG2 to existing AMF Panel)	20	M		
4.5.2	7 X 1R X 3.5C X 150 sq.mm (From Panel-1 & 2 to New Ess. PCC-1)	10	M		
4.5.3	4 X 1R X 3.5C X 400 sq.mm (From Panel-1 & 2 to New Ess PCC-1)	10	M		

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
4.6	Cable Jointing & End Termination Supplying and making end termination with brass compression gland and <u>Copper lugs</u> for following sizes of armoured, aluminium conductor, XLPE power cable of 1.1kV Grade:				
4.6.1	3.5C X 400 sq.mm (Mains Incomer)	16	Set		
4.6.2	3.5C X 240 sq.mm (DG Incomer)	8	Set		
4.6.3	3.5C X 150 sq.mm (Outgoing Feeders)	7	Set		
4.6.4	3.5C X 400 sq.mm (Outgoin feeders)	4	Set		
4.7	Straight through Cable Joint with necessary kit etc Supplying and making straight through joint with heat shrinkable Kit including ferrules and other jointing materials for following sizes of PVC insulated and XLPE aluminium conductor cable of 1.1kV grade as required.				
4.7.1	3.5C X 240 sq.mm (DG Incomer)	2	Set		
4.7.2	3.5C X 150 sq.mm (Outgoing Feeders)	2	Set		
5	Exhaust Pipe Line Extension for 2 X 500kVA DG Set				
5.1	Support Structure Base with RCC Civil Foundation of LxWxD : 1700x1700x2000 including 4 sets of MS Fixing Base Plates and Bolts	1	Nos.		
5.2	Supply & Erection of Steel Support Structure for the Self-Standing Chimney using MS Plates, ISA and ISMC Steel section	1500	Kgs		
5.3	Supply & Erection of 250mm Dia MS Black Exhaust Pipe of 4.25 mm thickness	20	M		

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
5.4	Supply & Erection of Insulation with 50 mm thick Mineral Wool of 64Kg/M ³ density covered with Chichen mesh and Cladded with 24 swg Aluminium sheet for the following:	20	M		
5.4.1	Insulation and Cladding of 250 mm dia exhaust pipe				
5.4.2	Insulation and Cladding of Flange Boxes	6	Nos.		
5.4.3	Insulation and Cladding of Residential type Silencer	2	Nos.		
5.4.4	Insulation and Cladding of 90 deg MS Flat Elbow for 250mm Dia Pipe	2	Nos.		
5.5	Supply & Erection of Rain Caps	2	Nos.		
5.6	Supply & Erection of Pollution Caps	8	Nos.		
TOTAL AMOUNT (PART-A)					

PART B (For 1 x 250kVA DG Set) :

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
1	<p><u>ESSENTIAL PCC-2 FOR 250KVA DG SET</u></p> <p>Design, Manufacture, Supply, installation, testing and commissioning of 415V Panel with IP54 enclosure and Copper Busbar suitable for power distribution from 1 no. 250kVA DG AMF panel complying to the Specification and SLD enclosed and comprising the following devices in addition to other necessary materials as required for this job:</p>	1	Set		
1.1	250kVA DG Incoming from AMF Panel Consisting of the following:				
1.1.1	400A, 415V, 36kA, 4P, MCCB with thermal magnetic release having adjustable O/L & S/C Release (Easypact CVS or eqv.)-1no.				
1.1.1.1	Earth Fault Module for MCCB-1No.				
1.1.1.2	Shunt Trip Release for E/F Module-1No.				
1.1.1.3	Auxiliary Contacts-1C/O -1No.				
1.1.1.4	Extended Rotary Handle-1No.				
1.1.1.5	Terminal Spreaders-1No.				
1.1.1.6	Terminal Phase Barrier-1No.				
1.1.2	Multifunctional Meters with Demand & RS-485 port (EM-6400 / Elite 443) -1No.				
1.1.3	400/5A, 15VA, CL-1 CT for Metering -3Nos.				
1.1.4	LED Indication lamp for R,Y,B,ON,OFF,TRIP -6Nos.				
1.1.5	6A, 10kA,TPN, MCB for metering Circuit -1No.				
1.1.6	6A, 10kA, DP, MCB for Control Circuit -1No.				

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
1.2	200A MCCB Outgoing Feeders Consisting of the following:				
1.2.1	200A, 415V, 36kA, 4P, MCCB with thermal magnetic release having adjustable O/L & S/C Release (Easypact CVS or eqv.) -1No.				
1.2.1.1	Auxilliary Contacts-1C/O -1No.				
1.2.1.2	Extended Rotary Handle-1No.				
1.2.1.3	Terminal Spreaders-1set				
1.2.1.4	Terminal Phase Barrier-1set				
1.2.2	LED Indication lamp for ON,OFF,TRIP-3Nos.				
1.2.3	6A, 10kA, DP, MCB for Control Circuit-1No.				
1.3	125A MCCB Outgoing Feeders Consisting of the following:				
1.3.1	125A, 415V, 36kA, 4P, MCCB with thermal magnetic release having adjustable O/L & S/C Release (Easypact CVS or eqv.) -6Nos.				
1.3.1.1	Auxilliary Contacts-1C/O -6Nos.				
1.3.1.2	Extended Rotary Handle-6Nos.				
1.3.1.3	Terminal Spreaders-6 sets				
1.3.1.4	Terminal Phase Barrier-6 Sets				
1.3.2	LED Indication lamp for ON,OFF,TRIP -18Nos.				
1.3.3	6A, 10kA, DP, MCB for Control Circuit -6Nos.				

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
1.4	63A MCCB Outgoing Feeders Consisting of the following:				
1.4.1	63A, 415V, 36kA, 4P, MCCB with thermal magnetic release having adjustable O/L & S/C Release (Easypact CVS or eqv.) -2Nos				
1.4.1.1	Auxilliary Contacts-1C/O-2Nos.				
1.4.1.2	Extended Rotary Handle-2Nos.				
1.4.1.3	Terminal Spreaders-2sets.				
1.4.1.4	Terminal Phase Barrier-2sets.				
1.4.2	LED Indication lamp for ON,OFF,TRIP-6Nos.				
1.4.3	6A, 10kA, DP, MCB for Control Circuit-2Nos.				
2	<u>DISTRIBUTION BOARD - WALL MOUNTED</u> Design, Manufacture, Supply, installation, testing and commissioning of Wall Mounted DB suitable for power distribution complying to CPWD General Specification for Electrical works complete with all necessary components including the following devices:				
2.1	DB for CV Raman & SN Bose Hall	1	no.		
2.1.1	125A, 415V, 25kA, 4P, MCCB with thermal magnetic release having adjustable O/L & S/C Release (Easypact CVS or eqv.) -1No.				
2.1.1.1	Earth Leakage Device (Vigi) for MCCB-1no.				
2.1.1.2	Auxiliary Contacts-1C/O-1no.				
2.1.1.3	Direct Rotary Handle-1no.				
2.1.1.4	Terminal Phase Barrier-1set				
2.1.1.5	LED Indication lamp for ON,OFF,TRIP : 3 nos				
2.1.1.6	6A, 10kA, DP, MCB for Control Circuit : 1 no.				
2.1.2	63A, 10kA, TP, MCB (CV Raman Hall) : 1no.				
2.1.3	63A, 10kA, TP, MCB (SN Bose Hall) : 1no.				
2.1.4	40, 10kA, TP, MCB (O/G as Spares) : 2nos.				

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
2.2	DB for Ground Floor South Wing	1	no.		
2.2.1	125A, 415V, 25kA, 4P, MCCB with thermal magnetic release having adjustable O/L & S/C Release (Easypact CVS or eqv.) -1no.				
2.2.1.1	Earth Leakage Device (Vigi) for MCCB-1no.				
2.2.1.2	Auxilliary Contacts-1C/O-1no.				
2.2.1.3	Direct Rotary Handle-1no.				
2.2.1.4	Terminal Phase Barrier-1set				
2.2.1.5	LED Indication lamp for ON,OFF,TRIP : 3 nos				
2.2.1.6	6A, 10kA, DP, MCB for Control Circuit : 1 no.				
2.2.2	63A, 10kA, TP, MCB (O/G) : 2nos.				
2.2.3	40, 10kA, TP, MCB (O/G) : 2nos.				
2.3	DB for 1st. Floor near A.R. Lab	1	no.		
2.3.1	200A, 415V, 25kA, 4P, MCCB with thermal magnetic release having adjustable O/L & S/C Release (Easypact CVS or eqv.) -1no.				
2.3.1.1	Earth Leakage Device (Vigi) for MCCB-1no.				
2.3.1.2	Auxilliary Contacts-1C/O -1no.				
2.3.1.3	Direct Rotary Handle-1no.				
2.3.1.4	Terminal Phase Barrier-1no.				
2.3.1.5	LED Indication lamp for ON,OFF,TRIP : 3 nos				
2.3.1.6	6A, 10kA, DP, MCB for Control Circuit : 1 no.				
2.3.2	125A, 10kA, TP, MCB (O/G for A.R. Lab) : 2 nos.				
2.3.3	63A, 10kA, TP, MCB (O/G) : 2 nos.				
2.3.4	40, 10kA, TP, MCB (O/G) : 2 nos.				

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
2.4	DB for 2 nd. Floor North Wing	1	no.		
2.4.1	125A, 415V, 25kA, 4P, MCCB with thermal magnetic release having adjustable O/L & S/C Release (Easypact CVS or eqv.) -1no.				
2.4.1.1	Earth Leakage Device (Vigi) for MCCB-1no.				
2.4.1.2	Auxilliary Contacts-1C/O-1no.				
2.4.1.3	Direct Rotary Handle-1no.				
2.4.1.4	Terminal Phase Barrier-1no.				
2.4.1.5	LED Indication lamp for ON,OFF,TRIP : 3 nos				
2.4.1.6	6A, 10kA, DP, MCB for Control Circuit : 1 no.				
2.4.2	63A, 10kA, TP, MCB (O/G) : 2nos.				
2.4.3	40, 10kA, TP, MCB (O/G) : 2nos.				
2.5	DB for 2 nd. Floor South Wing	1	no.		
2.5.1	125A, 415V, 25kA, 4P, MCCB with thermal magnetic release having adjustable O/L & S/C Release (Easypact CVS or eqv.) -1no.				
2.5.1.1	Earth Leakage Device (Vigi) for MCCB-1no.				
2.5.1.2	Auxilliary Contacts-1C/O -1no.				
2.5.1.3	Direct Rotary Handle-1no.				
2.5.1.4	Terminal Phase Barrier-1no.				
2.5.1.5	LED Indication lamp for ON,OFF,TRIP : 3 nos				
2.5.1.6	6A, 10kA, DP, MCB for Control Circuit : 1 no.				
2.5.2	63A, 10kA, TP, MCB (O/G) : 2nos.				
2.5.3	40, 10kA, TP, MCB (O/G) : 2nos.				

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
3	LT CABLING FOR 250KVA DG SYSTEM				
3.1	Supply of Cables: Supplying of earthed, Armoured, Aluminium Conductor, XLPE Power Cable of 1.1 kV Grade conforming to IS:7098(Part-II) as per following sizes:				
3.1.1	3.5C X 400 sq.mm (Panel-2 to AMF)	75	M		
3.1.2	3.5C X 240 sq.mm (Ess PCC-2 to 1st FI DB)	130	M		
3.1.3	3.5C X 150 sq.mm (1st Floor AR Lab)	55	M		
3.1.4	3.5C X 95 sq.mm (Various dist.)	550	M		
3.2	Laying of Cables Direct In Ground Laying of PVC insulated and PVC sheathed/ XLPE power cable of 1.1kV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required:				
3.2.1	1R X 3.5C X 400 sq.mm (Panel-2 to AMF)	70	M		
3.3	Laying and Fixing of Cables on Wall Surface Laying and Fixing of PVC insulated and PVC sheathed/ XLPE power cable of 1.1kV grade of following size on Wall Surface:				
3.3.1	1R X 3.5C X 240 sq.mm clamped with 40 x 3 mm MS flat Clamp(Ess PCC-2 to 1st Floor DB)	125	M		
3.3.2	1R X 3.5C X 150 sq.mm clamped with 40 x 3 mm MS flat Clamp(1st Floor AR Lab)	50	M		
3.3.3	1R X 3.5C X 95 sq.mm clamped with 25 x 3 mm MS flat Clamp (Various dist.)	550	M		

Item. No.	Description of Work	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
3.4	Cable Jointing & End Termination Supplying and making end termination with brass compression gland and Copper lugs for following sizes of armoured, aluminium conductor, XLPE power cable of 1.1kV Grade:				
3.4.1	1R X 3.5C X 400 sq.mm (Panel-2 to AMF)	2	nos		
3.4.2	3.5C X 240 sq.mm (Ess PCC-2 to 1st FI DB)	2	nos		
3.4.3	3.5C X 150 sq.mm (1st Floor AR Lab)	2	nos		
3.4.4	3.5C X 95 sq.mm (Various dist.)	12	nos		
4	Exhaust Pipe Line Extension for 250kVA DG Set				
4.1	Support Structure Base with RCC Civil Foundation of LxWxD : 1200x1200x1500 including 4 sets of MS Fixing Base Plates and Bolts	1	No.		
4.2	Supply & Erection of Steel Support Structure for the Self-Standing Chimney using MS Plates, ISA and ISMC Steel section	1200	Kgs		
4.3	Supply & Erection of 200 mm Dia MS Black Exhaust Pipe of 3.25 mm thickness	12	M		
4.4	Supply & Erection of Insulation with 50 mm thick Mineral Wool of 64Kg/M ³ density covered with Chichen mesh and Cladded with 24 swg Aluminium sheet for the following:				
4.4.1	Insulation and Cladding of 200 mm dia exhaust pipe	12	M		
4.4.2	Insulation and Cladding of Flange Boxes	3	Nos.		
4.4.3	Insulation and Cladding of Residential type Silencer	1	Nos.		
4.4.4	Insulation and Cladding of 90 deg MS Flat Elbow for 200mm Dia Pipe	2	Nos.		
4.5	Supply & Erection of Rain Caps	1	Nos.		
4.6	Supply & Erection of Pollution Caps	5	Nos.		
TOTAL AMOUNT (PART-B)					

ABSTRACT OF COST

Name of Work: Supply, Installation, Testing and Commissioning of Electrical Works for 2 X 500KVA & 1 X 250KVA DG Sets including arrangement of AMF cum Auto-Synchronising and Exhaust Chimneys etc. at IACS, Jadavpur, Kolkata

Total for PART-A (For 2x500 KVA DG Set): Rs.....

Total for PART-B (For 1x250 KVA DG Set): Rs.....

GRAND TOTAL (PART-A + PART-B): Rs.....

(Rupees)