

**UNIVERSITY OF KERALA
ENGINEERING UNIT, KARIAVATTOM.**

Electrification work of Geological Museum and Rock Garden in Department of Geology at Kariavattom Campus							
Sl. No	Qty		Specification	Unit	Rate	Rate in words	Amount
1			Supply and wiring points according to IS 732-1989 using rigid PVC conduit of minimum size 20 mm with specials conforming to IS 9537 part III 1983 and with suitable size specials conforming to IS 3419-1988, fixing the conduit using metal saddles spacing not exceeding 50 cm or concealed suitably and with 1.00 sq mm FR PVC insulated stranded single core copper conductor cable 650V grade, including <i>providing switch board main and continuous earthing with No.14 SWG bare copper</i> , required quantity of copper earth socket, brass bolt and nut crimping/ soldering etc complete with suitable size modular type metal switch boxes, <i>modular type front plates (white)</i> etc. up to and including 6A modular type SP switches and making good the surface of wall, colour washing etc. complete. All the terminations in the switch boards and DB's shall be tinned and the wires shall be drawn and fixed along the periphery of the box using suitable ties, tie mounts etc as required. <i>(Group B/ RoHS compliant modular accessories)</i> .				
1.1	5	nos	Single control light point without ceiling rose	E	823.00		4115.00
						Rs.Eight hundred & twenty three only	
1.2	2	nos	Independent plug	E	561.00	Rs. Five hundred & sixty one only	1122.00

2			Supply and wiring points according to IS 732-1989 through the <i>existing conduit</i> with 1.00 sq mm FR PVC insulated stranded single core copper conductor cable 650V grade, including <i>providing switch board main and continuous earthing with No.14 SWG bare copper</i> , required quantity of copper earth socket, brass bolt and nut crimping/ soldering etc complete with suitable size modular type metal switch boxes, <i>modular type front plates (white)</i> etc. up to and including 6A modular type SP switches and making good the surface of wall, colour washing etc. complete. All the terminations in the switch boards and DB's shall be tinned and the wires shall be drawn and fixed along the periphery of the box using suitable ties, tie mounts etc as required. (<i>Group B/ RoHS compliant modular accessories</i>).				
2.1	57	nos	Single control light point with 6A, 3 plate ceiling rose	E	676.00	Rs.Six hundred & seventy six only	38532.00
2.2	53	nos	Single control light point without ceiling rose	E	579.00	Rs.Five hundred & seventy nine only	30687.00
2.3	13	nos	Single control ceiling fan point with 6 A, 3 plate ceiling rose & with socket size stepped electronic regulator.	E	1231.00	Rs.One thousand two hundred & thirty one only	16003.00
2.4	5	nos	Combined plug point with 6 A, 5 pin plug socket controlled by 6 A switch in the same switch board as that of light points.	E	338.00	Rs.Three hundred & thirty eight only	1690.00
3	13	nos	Supply and installation of suitable size <i>MS rod type fan clamp</i> as per IS 732 as required.	E	124.00	Rs.One hundred & twenty four only	1612.00
4	5	nos	<i>Charges for cutting holes</i> suitable for accommodating <i>exhaust fans</i> of sizes up to 305 mm sweep including plastering, colour washing etc. as required.	E	294.00	Rs.Two hundred & ninety four only	1470.00

5			Supply, conveyance, installation, testing and commissioning of the following sizes of exhaust fans in the existing opening, fixing necessary bolt and nuts, making good the damages etc. as required including giving connections with required length of 24/0.20mm PVC insulated and PVC sheathed 3 core round copper conductor flex wire conforming to relevant ISS.				
5	5	nos	200 mm, single phase, light duty exhaust fan in plastic body with self opening louvers	E	1538.00	Rs.One thousand five hundred & thirty eight only	7690.00
6			Supply and fixing the following sizes of <i>PVC Conduit</i> conforming to IS 9537 / 1983 part III along with all required accessories <i>on surface</i> including making good the damages etc as required.				
6.1	20	m	20 mm dia medium gauge	m	87.00	Rs.Eighty seven only	1740.00
6.2	20	m	25 mm dia medium gauge	m	99.00	Rs.Ninety nine only	1980.00
7			Supply and fixing the following sizes of <i>PVC Conduit</i> conforming to IS 9537 / 1983 part III along with all required accessories <i>in recess</i> including cutting the wall and making good the damages etc as required.				
7.1	350	m	20 mm dia medium gauge	m	124.00	Rs.One hundred & twenty four only	43400.00
7.2	30	m	25 mm dia medium gauge		136.00	Rs.One hundred & thirty six only	4080.00
7.3	40	m	32 mm dia medium gauge	m	167.00	Rs.One hundred & sixty seven only	6680.00
8			Supplying and clamping the following sizes of <i>corrugated PVC flexible conduit</i> with necessary compression gland with locking ring and check nut at termination pointed using suitable size GI / painted MS saddles spacing not exceeding 60 cms on surface including making good the damages, colour washing etc. as required.				
8.1	15	m	20 mm dia	m	52.00	Rs.Fifty two only	780.00

9			Supply and drawing 650/1100 V grade <i>PVC insulated stranded single core copper conductor cables</i> conforming to IS 694 part I 1990 in the existing surface / recess conduit as required including giving necessary connections of the following sizes.				
9.1	60	m	1.50 sq mm 1 run	m	45.00	Rs.Forty five only	2700.00
9.2	90	m	1.50 sq mm 3 run	m	77.00	Rs.Seventy seven only	6930.00
9.3	160	m	2.50 sq mm 1 run	m	55.00	Rs.Fiffive only	8800.00
9.4	60	m	2.50 sq mm 2 run	m	81.00	Rs.Eighty one only	4860.00
9.5	160	m	4.00 sq mm 2 run	m	106.00	Rs.One hundred & six only	16960.00
9.6	5	m	4.00 sq mm 4 run	m	184.00	Rs.One hundred & eighty four only	920.00
9.7	35	m	6.00 sqmm 4run	m	260.00	Rs.Two hundred & sixty only	9100.00
10			Supply and drawing the following sizes of multi-core PVC insulated & PVC sheathed 650/1100 V grade <i>copper conductor round flexible cables</i> conforming to IS 694 part I 1960 in the existing surface / recess conduit as required including giving necessary connections of the following sizes.				
10.1	10	m	3 core 0.75 sq. mm.	m	55.00	Rs.Fifty five only	550.00
11			Supplying & Drawing unarmored PVC insulated and & PVC sheathed copper conductor <i>Telephone Pair Cable</i> conforming to ITD specification for indoor application through the existing conduit				
11.1	10	m	2 Pair	m	32.00	Rs.Thirty two only	320.00
12			Supply & Fixing the following types/ sizes of boxes suitable for modular accessories in surface/ recess including making good the damages, colour washing etc as required (<i>Group B/ RoHS compliant</i>)				
12.1	1	nos	1 module metal box in recess	E	165.00	Rs.One hundred & sixty five only	165.00
12.2	14	nos	2 module metal box in recess	E	165.00	Rs.One hundred & sixty five only	2310.00
12.3	4	nos	3 module metal box in recess	E	180.00	Rs.One hundred & eighty only	720.00

12.4	14	nos	6 module metal box in recess	E	198.00	Rs.One hundred & ninety eight only	2772.00
12.5	2	nos	8 module metal box in recess	E	232.00	Rs.Two hundred & thirty two only	464.00
13			Group B modular accessories - S & F front plates				
13.1	1	nos	1 module white/ off-white	E	101.00	Rs.One hundred & one only	101.00
13.2	14	nos	2 module white/ off-white	E	101.00	Rs.One hundred & one only	1414.00
13.3	4	nos	3 module white/ off-white	E	116.00	Rs.One hundred & sixteen only	464.00
13.4	14	nos	6 module white/ off-white	E	152.00	Rs.One hundred & fifty two only	2128.00
13.5	2	nos	8 module white/ off-white	E	187.00	Rs.One hundred & eighty seven only	374.00
14			Supply and Fixing the following modular switches & accessories in the existing front plates and giving necessary connections as required (<i>Group B RoHS compliant</i>)				
14.1	31	nos	6 A SP 1 way switch	E	119.00	Rs.One hundred & nineteen only	3689.00
14.2	5	nos	16 A SP 1 way switch	E	161.00	Rs.One hundred & sixty one only	805.00
14.3	7	nos	32 A DP switch with indicator	E	304.00	Rs.Three hundred & four only	2128.00
14.4	7	nos	25 A Socket	E	316.00	Rs.Three hundred & sixteen only	2212.00
14.5	5	nos	6/16 A socket	E	223.00	Rs.Two hundred & twenty three only	1115.00
14.6	1	nos	RJ 11 Telephone Jack with shutter	E	139.00	Rs.One hundred & thirty nine only	139.00
14.7	7	nos	16 A 3 pin plug top	E	90.00	Rs.Ninety nine only	630.00
15			Supply and installation of sheet steel, phosphatised and painted, dust and vermin proof enclosure of MCB DB including copper /brass bus bar, neutral link, earth bus and DIN rail suitable for fixing MCB/ isolator etc. fixed on wall using suitable anchor bolts or fixed in recess including cutting hole on the wall , making good the damages, colour washing etc. as required				
15.1	5	nos	12 way single phase double cover (IP 42/43)	E	1899.00	Rs.One thousand eight hundred & ninety nine only	9495.00

15.2	1	nos	4 way single phase double cover (IP 42/43)	E	1397.00	Rs. One thousand three hundred & ninety seven only	1397.00
15.3	1	nos	6 way (8+18) - double cover TPN vertical DB with provision for fixing MCCB as incomer and SP/ TP MCB as outgoing (IP 42/43)	E	10124.00	Rs.Ten thousand one hundred & twenty four only	10124.00
16			Supply and installation of the following <i>accessories</i> suitable for 50 Hz , AC supply conforming to IS 8828-1995/ IEC 60898 of the following current ratings in the existing enclosure and giving connections as required				
16.1	5	nos	40 A double pole mini break isolator	E	356.00	Rs.Three hundred & fifty six only	1780.00
16.2	1	nos	63 A four pole mini break isolator	E	752.00	Rs.Sevn hundred & fifty two only	752.00
16.3	5	nos	40 A, 2 pole, 30 mA RCCB	E	2357.00	Rs.Two thousand three hundred & fifty seven only	11785.00
16.4	1	nos	63 A, 4 pole, 100 mA RCCB	E	3306.00	Rs.Three thousand three hundred & six only	3306.00
16.5	1	nos	100A, 25/35 kA (Ics=100%Icu), 4 pole, current limiting type MCCB having thermal setting range of 80 - 100% with thermal magnetic release having adjustable OL	E	7633.00	Rs.Seven thousand six hundred & thirty three only	7633.00
16.6	50	nos	6-32A(C curve) SP MCB	E	219.00	Rs.Two hundred & nineteen only	10950.00
16.6	7	nos	6 A to 32 A, 10 kA, SP MCB (D curve)	E	273.00	Rs.Two hundred & seventy three only	1911.00
17	5	kg	Fabrication, supply, conveyance and fixing cable entry/ wire way box made out 1.60 mm CRCA sheet of suitable size to match the switch gear and enabling the cables to be connected without strain, <i>painted</i> with 2 coats of synthetic enamel paint over a coat of red oxide primer & with drilled holes and mounting to the switch gear etc as required.	kg	133.00	Rs.one hundred & thirty three only	665.00

18			Supply & laying of one number PVC insulated and PVC sheathed armoured aluminium power cable of 1.1KV grade of the following sizes in the existing RCC/ HUME / STONE WARE/ GI/ DWC pipe as required.				
18.1	70	m	4 core 70 sq mm	m	530.00	Rs.Five hundred & thirty only	37100.00
19			Supply, laying and clamping of 1 no. PVC insulated and PVC sheathed armoured aluminium power cable, 1.1 KV grade of the following sizes using clamps noted along with the cables, spacing of clamps not exceeding 60cms, making good the damages , colour washing etc. as required.				
19.1	10	m	4c 70 sqmm	m	548.00	Rs.Five hundred & forty eight only	5480.00
20			Supply & laying of DWC pipe in ordinary soil 0.75m below ground level including excavation				
20.1	60	m	63 / 50 mm or nearest size	m	160.00	Rs.One hundred & sixty only	9600.00
21			Supply & laying of DWC pipe in ordinary soil 1.2 m below ground level including excavation				0.00
21.1	10	m	63 / 50 mm or nearest size	m	177.00	Rs. One hundred & seventy seven only	1770.00
22	4	nos	Supply route marker with 102mmx102mm <i>cast iron, spike</i> 5mm thick with inscription ' <i>LT Cable</i> ' there on bolted / welded to 35x35x6mm angle iron 60cm long and fixing the same in ground as required.	E	194.00	Rs.One hundred & ninety four only	776.00
23			Supplying siemens / tropodur type nickel plated Double compression brass cable gland for PVC insulated and PVC sheathed armoured aluminium/ copper conductor cable 1.1 KV grade, and making end termination suitable for 2/ 3/ 3½/ 4 core cable of the following sizes as required.				
23.1	2	nos	70 sq mm	E	714.00	Rs.Seven hundred & fourteen only	1428.00

24			Supplying and providing <i>earth clamps</i> for siemens/tropodur type cable glands of suitable length and other dimensions noted along with each size of glands for the following sizes of cables as required.				
24	2	nos	25 sq - 95sq mm with 20 mm wide x 1.20 mm thick clip	E	27.00	Rs. Twenty seven only	54.00
25			Supply of superior quality <i>aluminium tubular cable socket</i> and making core termination of cables of the following sizes including crimping etc. as required.				
25	16	nos	70 sq mm	E	24.00	Rs. Twenty four only	384.00
26	2	nos	Supply and providing <i>plate earthing</i> as per IS 3043 with 600x600x6.30 mm GI/CI earth plate, 20 mm GI watering pipe fixed to the earth plate with 20 x 3 mm 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 300 x 300 x 300 mm) but excluding test joint, earth continuity conductor to the plate, and covering at the top. (<i>in ordinary soil</i>)	E	3917.00	Rs. Thousand nine hundred & seventeen only	7834.00
27			Supply and providing the following sizes of <i>cast iron gully trap with covering</i> at the top of the inspection chamber of earth pit as required				
27.1	2	nos	300 x 300 x 6 mm cast iron gully trap with covering	E	267.00	Rs. Two hundred & sixty seven only	534.00

28			Supply and providing <i>test joint for the earthing system</i> using 2 Nos of the following sizes of strips including cutting and bending to shape, drilling necessary holes and fixed to the watering pipe etc as required.				
28.1	0.6	m	2 x 25 x 3 mm GI strip	m	165.00	Rs.One hundred & sixty five only	99.00
29			Supply and providing <i>earth lead from the test joint to the earth electrode</i> using the following sizes of conductors/ strips including cutting, drilling necessary holes (in case of strip) and fixing firmly with plate test joint etc as required.				
29.1	8	m	25 x 3 mm GI strip	m	73.00	Rs.Seventy three only	584.00
30			Supply and drawing bare <i>earthing conductors</i> of the following sizes <i>along with wiring/ cables</i> and giving connection as required.				
30.1	10	m	4.00 mm copper conductor (8 SWG)	m	97.00	Rs.Ninety seven only	970.00
31			Supply and laying bare <i>earthing conductors</i> of the following sizes <i>laid 0.6 m below ground level including excavating trench</i> of suitable size and refilling etc. as required (<i>in ordinary soil</i>).				
31.1	40	m	4.00 mm copper conductor (8 SWG)	m	107.00	Rs.One hundred & seven only	4280.00
32			supply of superior quality <i>copper earth socket</i> for the following sizes of earth conductor including crimping etc. as required.				
32.1	10	nos	4.00 mm (8 SWG)	E	23.00	Rs.Twenty three only	230.00
33			Supply and providing the following sizes of <i>bolt and nut</i> with washers on the existing MS box / earth bus etc. as required including drilling necessary holes as required				
33.1	10	nos	25 x 3mm brass bolt & nut	E	17.00	Rs.Seventeen only	170.00
34			Supplying , threading , laying and jointing of the following sizes of 'B' class <i>GI pipe</i> with all required accessories <i>in ground in the existing trench</i> as protective covering to earth leads.				

34.1	20	m	15 mm dia	m	90.00	Rs.Ninety only	1800.00
			Total				362005.00

PAC Rs.3,62,005/- (Rupees Three lakh sixty two thousand & five only)

I/We agreed to execute the work.

1.% above the estimate rate.

2.% below the estimate rate

3. At the estimate rate

CONTRACTOR

Sd/-

UNIVERSITY ENGINEER.