

SETTING UP OF EDUTAINMENT COMPONENTS FOR SCIENCE CITY AT KOTTAYAM

PART A- SPACE THEATRE (ELECTRICAL WORKS)

S.N	DESCRIPTION	QTY	UNIT	RATE (In figures and words)	AMOUNT (Rs)
	Rates of only ISI marked conduits, cables, switches and socket outlets were taken in the following items. Unless and otherwise specified, only such conduits, cables, switches and socket outlets shall be used in the work.				
I	PART I - CPWD				
1	Point wiring in PVC conduit, with modular type switch.				
	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc as required.				
	Group C	91	Point		
2	Twin control point wiring in PVC conduit, with modular type switch:				
	Wiring for twin control light point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, 2 way modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc as required.	1	Point		
3	Wiring for circuit/ sub main:				
	Wiring for circuit/ submain wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required.				
3.1	2x1.5 sq.mm + 1x1.5sqmm earth wire	2100	Rm		

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3.2	2x2.5 sq.mm + 1x2.5sqmm earth wire	750	Rm		
3.3	2x4 sq.mm + 1x4sqmm earth wire	70	Rm		
4	Telephone wiring in existing conduit:				
	Supplying and drawing following pair 0.5 mm dia FRLS PVCinsulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC conduit as required				
	2 Pair	250	Rm		
5	TV cable in existing conduit:				
	Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mmsolid copper conductor PE insulated, shielded with fine tinnedcopper braid and protected with PVC sheath in the existingsurface/ recessed steel/ PVC conduit as required.	90	Rm		
6	PVC conduit:				
	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cuttingthe wall and making good the same in case of recessed conduitas required.				
6.1	20mm	300	Rm		

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6.2	25mm	830	Rm		
6.3	32mm	70	Rm		
7	Modular type switch /socket:				
	Supplying and fixing following modular switch/socket on the existing modular plate & switch box including connections but excluding modular plate etc as required.				
7.1	2 way 5/6 amps switch	1	Each		
7.2	Telephone socket outlet	10	Each		
7.3	TV antenna socket outlet	3	Each		
8	Modular type electronic fan regulator:				
	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc as required.	1	Each		
9	Modular type blanking plate:				

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	Supplying and fixing modular blanking plate on the existing modular plate as required.	5	Each		
9.1	Modular boxes, base & cover plate:				
	Supplying and fixing following size/modules, GI box along with modular base & cover plate for modular switches in recess etc as required				
9.2	1 or 2 Module (75mm x 75mm)	27	Each		
10	S/F 6A & 16A socket with switch				
10.1	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3pin 5/6 amps modular socket outlet and 5/6 amps modular switch, connection etc as required.	28	Each		
10.2	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6pin 15/16 amps modular socket outlet and 15/16 amps modular switch, connection etc as required.	26	Each		
11	Ceiling rose:				
	Supplying and fixing 3 pin, 5amps, ceiling rose on the existing junction box\ wooden block including connection etc as required.	1	Each		
12	Erection of Wall/ceiling/ LED light fittings:				
	Erection of wall bracket/ ceiling/ LED fittings of all sizes and shapes containing LED lamps per fitting, complete with all accessories including connection etc. as required.	125	Each		

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13	ITC flourescent/ LED fitting directly on surface:				
	Installation, testing and commissioning of pre-wired, fluorescent fitting/ compact fluorescent fitting/ LED fitting of all types, complete with all accessories and tube etc directly on ceiling/ wall, including connection with 1.5 sq.mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.	42	Each		
14	ITC ceiling fan:				
	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (up to 30cm) with 1.5 sq.mm FR PVC Insulated, copper conductor, single core cable etc as required.	1	Each		
15	Numbering of fan/ittings:				
	Numbering of ceiling fan/exhaust fan/flourscent fitting as required.	1	Each		
16	Supply & Drawing UTP cable:				
	Supplying and drawing of UTP 4 pair CAT 6 LAN cable in the existing surface/ recessed steel/ PVC conduit as required.	1350	Rm		
17	S/F TP MCCB DB:				
	Supplying and fixing following ways, surface/recess mounting, vertical type, 415 volts, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200A tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's with provision for 63/100A FP 16kA MCCB as incomer, interconnection between incomer MCCB and busbars (but without MCCB/MCB) as required.				

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	4 way (8 + 12), Double door	1	Each		
18	S/F TP MCB DB:				
	Supplying and fixing following ways, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 volts, on surface/ recess, complete with tinned copper bus bar, neutral bubar, earth bar, din bar, detachable gland plate, interconnections, phosphatised and powder painted including earthing etc. as required(But without MCB/RCCB/Isolator)				
18.1	4 way (8 + 12), Double door	5	Each		
18.2	6 way (8 + 18), Double door	2	Each		
18.3	8 way (8 + 24), Double door	1	Each		
19	S/F SP MCB DB:				
	Supplying and fixing following ways, horizontal type single pole and neutral, sheet steel, MCB distribution board, 240 volts, on surface/ recess, complete with tinned copper bus bar, neutral bubar, earth bar, din bar, detachable gland plate, interconnections, phosphatised and powder painted including earthing etc. as required(But without MCB/RCCB/Isolator)				
19.1	8 way (4 + 8), Double door	1	Each		

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19.2	12 way (4 + 12), Double door	1	Each		
20	MCB's				
	'C' series, SP MCB:				
	Supplying and fixing 5 amps to 32 amps rating, 240 Volts, 'C' curve, miniature circuit breaker suitable for inductive and other loads of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
20.1	Single pole	140	Each		
20.2	Triple pole	4	Each		
21	MCB ISOLATORS				
	Supplying and fixing following rating, double pole, 240 volts, isolators in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
21.1	32A	2			
	Supplying and fixing following rating, four pole, 415 volts, isolators in the existing MCB DB complete with connections, testing and commissioning etc. as required.				

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21.2	32A	4			
21.3	40A	3			
21.4	63A	1			
22	RCCB				
	Supplying and fixing following rating, double pole, (single phase and neutral), 240 volts, residual current circuit breaker (RCCB),having a sensitivity current upto 300 milliampere in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
22.1	25A 30mA DP RCCB	2	E		
	Supplying, fixing, testing and commissioning four pole, 415 volts, residual current circuit breaker RCCB of the following rating and sensitivity current in the existing MCB DB complete with connections, etc. as required.				
22.2	63A 100mA FP RCCB	1	E		
22.3	40A 100mA FP RCCB	3	E		

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22.4	25A 30mA FP RCCB	4	E		
23	ENCLOSURES				
23.1	Supplying and fixing DP sheet steel enclosure on surface/ recess along with 25/32 amps 240 volts "C" curve DP MCB Isolator complete with connections, testing and commissioning etc. as required.	1	Each		
23.2	Supplying and fixing TPN sheet steel enclosure on surface/ recess along with 16/25/32/63 amps 415 volts "C" curve 4P MCB Isolator complete with connections, testing and commissioning etc. as required.	1	Each		
24	FROM TEST JOINT TO EARTH PIT & INTERCONNECTIONS				
	Providing and laying G.I. tape 32 mm X 6 mm from earth electrode directly in ground as required.	160	Rm		
25	CABLE TRAYS				
	Supplying and installing following size of 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 and nuts, painting suspenders etc as required.				
25.01	450mm width x 50mm depth x 2.0mm thickness	15	Rm		
25.02	375mm width x 50mm depth x 2.0mm thickness	41	Rm		

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25.03	150mm width x 50mm depth x 1.6mm thickness	80	Rm		
25.04	100mm width x 50mm depth x 1.6mm thickness	10	Rm		
	Supplying and installing following size of pre-painted M.S Cable trays bends with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S suspenders including bolts and nuts, painting suspenders etc as required.				
25.05	375mm width x 50mm depth x 2.0mm thickness	5	Each		
25.06	150mm width x 50mm depth x 1.6mm thickness	8	Each		
25.07	100mm width x 50mm depth x 1.6mm thickness	2	Each		
	Supplying and installing following size of pre-painted M.S Cable trays reducers with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S suspenders including bolts and nuts, painting suspenders etc as required.				
25.08	375mm width x 50mm depth x 2.0mm thickness	2	Each		

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25.09	150mm width x 50mm depth x 1.6mm thickness	1	Each		
25.10	100mm width x 50mm depth x 1.6mm thickness	1	Each		
26	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 on cable tray as required.				
26.1	Above 185sqmm to 400sqmm (clamped with 40x3mm MS flat clamp)				
	Rate to be quoted for				
	Labour	40	Rm		
26.2	Above 95sqmm to 185sqmm (clamped with 25/40x3mm MS flat clamp)				
	Rate to be quoted for				
	Labour	15	Rm		
26.3	Upto 35sqmm (clamped with 1mm thick saddle)				
	Rate to be quoted for				

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	Labour	265	Rm		
27	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.				
27.1	3.5x240sq.mm Al Cable	4	Each		
27.2	3.5x120sq.mm Al Cable	2	Each		
27.3	3.5x35sq.mm Al Cable	6	Each		
27.4	4x16sq.mm Al Cable	6	Each		
27.5	4x10sq.mm Al Cable	2	Each		
27.6	4x6sq.mm Al Cable	8	Each		
28	GROUP CONTROL				

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	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 1.5 sq mm FRLS PVC insulated stranded single core copper conductor cable 650V grade, and continuous earthing with 1.5 Sq.mm green coloured FRLS PVC insulated stranded single core copper conductor cable 650V grade, generally conforming to IS 694-1990 complete with suitable size modular type metal switch boxes, modular type front plates (white or off white) 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				
28.1	Two Lights controlled by one switch w/o ceiling rose	82	Each		
28.2	Three Lights controlled by one switch w/o ceiling rose	24	Each		
28.3	Four Lights controlled by one switch w/o ceiling rose	42	Each		
	TOTAL				
II	PART II - MARKET ITEMS				
29	POWER DISTRIBUTION PANELS				

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	Supply, Installation, testing and commissioning of cubicle type, dust and vermin proof, floor/ wall mounted, front operated MV panel board made out of 14 SWG thick CRCA sheet, powder coated after 7 tank process, fully compartmentalised complete with hinges and earthed front doors with name plate, danger notice board, heavy duty rubber gaskets, removable gland plates made out of 3mm thick sheet steel with all necessary meters, indications, CTs etc as shown in the electrical drawing or as per the latest Electrical Inspectorate requirement complete with all connections and interconnections for the following panels.				
	Special Note:				
	All breaker releases shall be set as per the ratings shown in the drawings				
	Bus bar sizes shall be taken either as shown in the drawing or as design parameter of 0.8A/Sqmm for AL and 1.2A/Sqmm for Cu which ever is higher.				
	Cable Chamber shall be provided for incoming & outgoing cables or as required				
	All SDFs and SDUs mentioned shall be 415V, 50Hz AC23 duty type				
	Earth bus shall be full length of the panel and all Switches/breakers shall be double earthed				
	GA drawings for all the panels before manufacturing shall submit to the Electrical Consultants to get approval before manufacturing.				
	The board shall confirm IS 8623 standards.				
29.1	SPACE THEATRE PANEL (FLOOR MOUNTED)				
	Incomer				
	630A, 35kA, 4P MCCB (Microprocessor based) - 1 no				
	Single phase digital ammeters with range 0-600A - 3 nos.				

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	CTs- ratio 600/5A 15VA CL-1 - 3 nos.				
	Voltmeter selector switch with three phase digital voltmeter range (0-500) V complete with fuses - 1 no.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoings				
	200A 25kA TP MCCB - 2no				
	125A 25kA TP MCCB - 1no				
	100A 25kA TP MCCB - 2no				
	Busbar				
	630Amps uniformly rated, continuous duty, 415Volts A/C, 3 phase and neutral Aluminium busbar with colour coded heat shrink sleeves supported on SMC type grip supports 35kA.				
	Accessories as per schematic drawing.				
	Rate to be quoted for				
	Supply and Labour	1	Each		
29.2	SPACE THEATRE - SSB (FLOOR MOUNTED)				
	Incomer				
	125A, 25kA, 4P MCCB (Microprocessor based) - 1 no				

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	Single phase digital ammeters with range 0-125A - 3 nos.				
	CTs- ratio 125/5A 15VA CL-1 - 3 nos.				
	Voltmeter selector switch with three phase digital voltmeter range (0-500) V complete with fuses - 1 no.				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoings				
	63A 16kA TP MCCB - 2 no				
	40A 16kA TP MCCB - 4 no				
	25A 16kA TP MCCB - 4 no				
	25A 16kA DP MCCB - 1 no				
	Busbar				
	125Amps uniformly rated, continuous duty, 415Volts A/C, 3 phase and neutral Aluminium busbar with colour coded heat shrink sleeves supported on SMC type grip supports 36kA.				
	Accessories as per schematic drawing.				
	Rate to be quoted for				
	Supply and Labour	1	Each		

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29.3	LIFT PANEL (WALL MOUNTED)				
	Incomer				
	63A, TPN Isolator - 1 no				
	RYB phase indicating LED lamps with control fuses and switches - 1 set.				
	Outgoings				
	40A TP MCB - 1 no				
	40A 300mA FP RCCB - 1 no				
	16A SP MCB - 3 no				
	Busbar				
	100Amps uniformly rated, continuous duty, 415Volts A/C, 3 phase and neutral Aluminium busbar with colour coded heat shrink sleeves supported on SMC type grip supports 25kA.				
	Accessories as per schematic drawing.				
	Rate to be quoted for				
	Supply and Labour	1	Each		
30	S/F SURGE ARRESTOR/ ISOLATOR IN METAL ENCLOSURE				
30.1	Supply of fixing of 3P+NPE Surge Arrestor - Type B+C in metal enclosure complete with all necessary interconnections etc as required.				

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	Rate to be quoted for				
	Supply	1	Each		
	Labour	1	Each		
30.2	Supply of fixing of 2P+NPE Surge Arrestor - Type B+C in metal enclosure complete with all necessary interconnections etc as required.				
	Rate to be quoted for				
	Supply	1	Each		
	Labour	1	Each		
31	Supply and fixing of 200A TPN isolator in sheet steel enclosure including necessary interconnections etc as required.				
	Rate to be quoted for				
	Supply	2	Each		
	Labour	2	Each		
32	S/F FP MCCB:				

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	Providing and fixing following rating and breaking capacity and pole MCCB in existing cubicle panel board/DB including drilling holes in cubicle panel, making connections etc as required				
	63A, 16kA MCCB WITH ELM				
	Rate to be quoted for				
	Supply	1	Each		
	Labour	1	Each		
33	LT CABLE SUPPLY				
	Supply of one number PVC insulated and PVC sheathed/ XLPE armoured power cable of 1.1 KV grade of following size as required.				
33.1	3.5x240sq.mm Al Cable				

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	Rate to be quoted for				
	Supply	40	Rm		
33.2	3.5x120sq.mm Al Cable				
	Rate to be quoted for				
	Supply	15	Rm		
33.3	3.5x35sq.mm Al Cable				
	Rate to be quoted for				
	Supply	75	Rm		
33.4	4x16sq.mm Al Cable				
	Rate to be quoted for				
	Supply	75	Rm		
33.5	4x10sq.mm Al Cable				
	Rate to be quoted for				
	Supply	10	Rm		
33.6	4x6sq.mm Al Cable				

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	Rate to be quoted for				
	Supply	105	Rm		

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34	Supply and drawing the following sizes of PVC insulated & PVC sheathed 650/1100 V grade copper conductor round flexible cables conforming to IS 694 part I 1960 in flexible PVC corrugated conduit (including supply of conduit) (surface / recess) as required including giving necessary connections of the following sizes.				
	Copper Unarmoured Cable				
34.1	1 core 25 sqmm	75	Rm		
34.2	1 core 16 sqmm	30	Rm		
35	Copper Unarmoured Cable terminations with PVC glands				
35.1	1 core 25 sqmm Cu. Flexible cable	20	Each		
35.2	1 core 16 sqmm Cu. Flexible cable	8	Each		
36	Supply and Fixing CAT 6 RJ 45 in the existing box, cover plate & accessories and giving necessary connections as required.				
	Rate to be quoted for				
	Supply	12	Each		

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	Labour	12	Each		
37	Supply and fixing of 6A, 2/3 pin shuttered socket with 10A control switch in the existing floor box complete in position and giving necessary interconnections etc as required.				
	Rate to be quoted for				
	Supply	40	Each		
	Labour	40	Each		
38	COMPUTER POINTS				
	3nos 6A international sockets controlled by 1 no 16/13A one way switch with indicator in recessed single metal box with front and inner plate etc complete in position and giving connection. (For computers)				
	Rate to be quoted for				
	Supply	12	Each		
	Labour	12	Each		
	SUPPLY, CARRIAGE AND ERECTION OF LIGHT FITTINGS				

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39	Supply, conveyance, installation, testing and commissioning of pre-wired light fittings with all accessories and lamps of all types directly on wall/ceiling and giving connections with 16/0.20 mm 3 core PVC insulated and sheathed round copper conductor flexible wire or extending the original wiring and giving connections, making good the damages, colour washing etc as required				
39.01	600 x 600 mm pre-wired fluorescent fitting/LED fitting suitable for 4x14W T5 FTL fitting, hanging, suspended from ceiling using 4 nos steel chain (16 SWG or nearest available size) properly hooked to steel hooks anchored to the ceiling. (Philips Make Wing C Quadra (OAD) or equivalent)				
	Rate to be quoted for				
	Supply	10	Each		
	Labour	10	Each		
39.02	Foot light/ skirting light fittings of all types directly on wall including cutting necessary holes. (Legrand Make Skirting Light 5735 64 or equivalent)				
	Rate to be quoted for				
	Supply	26	Each		
	Labour	26	Each		
39.03	LED recess mounted downlighters (Philips Make 18W DN192B or equivalent)				

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	Rate to be quoted for				
	Supply	77	Each		
	Labour	77	Each		
39.04	Projector Lights (Wipro Make 17W LED Aveo or equivalent)				
	Rate to be quoted for				
	Supply	20	Each		
	Labour	20	Each		
39.05	Track Lights (Philips 26.5W Green Accent LED 20 or equivalent)				
	Rate to be quoted for				
	Supply	25	Each		
	Labour	25	Each		

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39.06	Track for mounting track lights suspended from ceiling using 4 nos steel chain (16 SWG or nearest available size) properly hooked to steel hooks anchored to the ceiling				
	Rate to be quoted for				
	Supply	30	Rm		
	Labour	30	Rm		
	Supply of pre-wired light fittings with all accessories and lamps of all types etc as required				
39.07	LED surface mounted downlighters (Wipro Cleanray Make Halo13W CRDL11 or equivalent)				
	Rate to be quoted for				
	Supply	14	Each		
39.08	Up down light (Philips Make 23W Megapolis Cressida EWP300 or equivalent)				
	Rate to be quoted for				
	Supply	63	Each		
39.09	Wall Mount (Philips Make Smart LED 8W Wall Mount BWS 150 or equivalent)				
	Rate to be quoted for				

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	Supply	8	Each		
39.10	LED Batten (Philips Make 6W 1 Ft LED Linea or equivalent)				
	Rate to be quoted for				
	Supply	28	Each		
39.11	Bulk head (Philips Make NXC101 or equivalent)				
	Rate to be quoted for				
	Supply	40	Each		
39.12	LED Tube (Wipro Make 24W Trim LED LL20 or equivalent)				
	Rate to be quoted for				
	Supply	14	Each		
39.13	1200mm sweep ceiling fan complete with all standard accessories excluding regulator.(Havells Make XP-390 or equivalent)				
	Rate to be quoted for				
	Supply	1	Each		

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	EARTHING & LIGHTNING PROTECTION				
	EARTHING				
40	Earthing System comprises of molecularly bonded copper of 99.9% purity on low carbon steel of 3m length (1m (219 20 CU) x 3 nos), having a diameter of 20mm with copper coating thickness of 250 microns with self-coupling bore and peg arrangement (without the need for external coupler) with fault current withstand capability of 15 KA rms value for 1 second. For obtaining desired length, the number of rods shall be increased and is provided with Universal Clamp (2730 20 VA) made of SS 304 for clamping the cable/flat conductor to the rod. Impact point (219 20 IP) on the bottom rod for easy insertion. Earth enhancing mineral compound (ECS PB 12.5) is used for improving the soil conductivity. Earth enhancing mineral compound shall be so designed and constructed that in normal use their performance is reliable and without danger to persons and the surroundings. The material shall be mineral inert to sub soil and shall not pollute the environment. It shall provide a stable environment in terms.				
	Rate to be quoted for				
	Supply	4	Each		
	Labour	4	Each		
41	Supply and providing the following sizes of cast iron gully trap with covering at the top of the inspection chamber of earth pit as required				
	300 x 300 x 6 mm cast iron gully trap with covering				
	Rate to be quoted for				

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	Supply	4	Each		
	Labour	4	Each		
42	Supply and providing test joint for the earthing system 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.				
	2 x 25 x 3 mm tinned copper strip				
	Rate to be quoted for				
	Supply	4	Each		
	Labour	4	Each		
43	Supply and laying the following sizes of strips laid 0.60 m below ground level including excavating trench of suitable size and refilling etc. as required (in ordinary soil)				
	25 x 3 mm Cu tinned Strip				
	Rate to be quoted for				
	Supply	175	Rm		

SETTING UP OF EDUTAINMENT COMPONENTS FOR SCIENCE CITY AT KOTTAYAM

PART A- SPACE THEATRE (ELECTRICAL WORKS)

	Labour	175	Rm		
44	Supply and drawing bare earthing conductors of the following sizes along with wiring/ cables and giving connection as required.				
44.1	2.65 mm bare copper conductor (14 SWG)				
	Rate to be quoted for				
	Supply	25	Rm		
	Labour	25	Rm		
44.2	3.15 mm bare copper conductor (10 SWG)				
	Rate to be quoted for				
	Supply	500	Rm		
	Labour	500	Rm		
45	Supply of superior quality copper earth socket for the following sizes of earth conductor including crimping etc. as required.				

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PART A- SPACE THEATRE (ELECTRICAL WORKS)

45.1	2.65 mm bare copper conductor (14 SWG)				
	Rate to be quoted for				
	Supply	4	Each		
	Labour	4	Each		
45.2	3.15 mm bare copper conductor (10 SWG)				
	Rate to be quoted for				
	Supply	34	Each		
	Labour	34	Each		
	LIGHTNING PROTECTION				
	Strips (Horizontal & vertical)				
46	Supply and clamping 25x3mm Al strips on surface of wall/ parapet/ existing cable tray using clamps fabricated from 25 x 3 mm AL flat duly painted or heavy duty GI spacer saddles, spacing of clamps not exceeding 1m, making good the damages, colour washing etc. as required (for Horizontal run).				
	Rate to be quoted for				

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PART A- SPACE THEATRE (ELECTRICAL WORKS)

	Supply	900	Rm		
	Labour	900	Rm		
47	Supply and clamping 25x3mm Al strips on surface of wall/ parapet/ existing cable tray using clamps fabricated from 25 x 3 mm AL flat duly painted or heavy duty GI spacer saddles, spacing of clamps not exceeding 1m, making good the damages, colour washing etc. as required (for vertical run).				
	Rate to be quoted for				
	Supply	100	Rm		
	Labour	100	Rm		
	Riveting				
48	Riveting , sweating and soldering of one GI/ aluminium/ copper tape with another GI/ aluminium/ 25x3 mm copper tape using 2 nos. 6mm dia. GI bolt and nut/ rivets including drilling holes, tinning etc. as required.				
	Rate to be quoted for				
	Supply	16	Each		

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PART A- SPACE THEATRE (ELECTRICAL WORKS)

	Labour	16	Each		
49	Supplying, threading, laying, jointing & clamping of the following sizes of PVC pipe (8 Kgf/ cm ²) with all required accessories and clamp including cutting and making good the walls, colour washing etc. on surface of wall / parapet etc. as required.				
	32 mm dia				
	Rate to be quoted for				
	Supply	20	Rm		
	Labour	20	Rm		
	Testing Joint (Down Conductors)				
50	Supply and providing test joint for the earthing system 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. (for electrode)				
	2 x 25 x 3 mm tinned copper strip				
	Rate to be quoted for				
	Supply	8	Each		

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PART A- SPACE THEATRE (ELECTRICAL WORKS)

	Labour	8	Each		
51	Supply and installation of 300x150x75mm metal box neatly painted over a coating of red oxide primer with clamps for connecting down conductor and earth lead with 150mm overlap and 150mm long lead pieces in between and jointing bolts and nuts including all accessories etc as required.				
	Rate to be quoted for				
	Supply	8	Each		
	Labour	8	Each		
	Supply and providing the following sizes of cast iron gully trap with covering at the top of the inspection chamber of earth pit as required				
52	300 x 300 x 6 mm cast iron gully trap with covering				
	Rate to be quoted for				
	Supply	8	Each		
	Labour	8	Each		

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PART A- SPACE THEATRE (ELECTRICAL WORKS)

53	<p>Earthing System comprises of molecularly bonded copper of 99.9% purity on low carbon steel of 3m length (1m (219 20 CU) x 3 nos), having a diameter of 20mm with copper coating thickness of 250 microns with self-coupling bore and peg arrangement (without the need for external coupler) with fault current withstand capability of 15 KA rms value for 1 second. For obtaining desired length, the number of rods shall be increased and is provided with Universal Clamp (2730 20 VA) made of SS 304 for clamping the cable/flat conductor to the rod. Impact point (219 20 IP) on the bottom rod for easy insertion. Earth enhancing mineral compound (ECS PB 12.5) is used for improving the soil conductivity. Earth enhancing mineral compound shall be so designed and constructed that in normal use their performance is reliable and without danger to persons and the surroundings. The material shall be mineral inert to sub soil and shall not pollute the environment. It shall provide a stable environment in terms of physical and chemical properties and exhibit low resistivity. It shall not be corrosive to the earth electrode itself. The material should have a resistivity less than</p>		Each		
	Rate to be quoted for		Each		
	Supply	8	Each		
	Labour	8	Each		
54	FLOOR BOXES				
	<p>Supply and installation of floor mounted service outlets, made out of galvanised steel with support plates complete with all necessary accessories suitable for marble/tile flooring excluding sockets/switches</p>				
	Rate to be quoted for				
	Supply	20	Each		

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PART A- SPACE THEATRE (ELECTRICAL WORKS)

	Labour	20	Each		
55	Supply and providing 6 mm thick 2m x 1m wide electrical grade chequered type rubber mat to withstand 3.3 KV dielectric strength conforming to IS 5429/ 1969.	2	Sqm		
56	Supply & fixing of 9U network rack with adequate number of cable manager, power strip (5Ax5nos) and hardware packets complete with all necessary accessories etc as required				
	Rate to be quoted for				
	Supply	1	Each		
	Labour	1	Each		
57	Supply and fixing of 20 pair PVC Krone box IP 54 rated complete for connection and branching points for telecommunication cables with all accessories etc as required.				
	Rate to be quoted for				
	Supply	1	Each		

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PART A- SPACE THEATRE (ELECTRICAL WORKS)

	Labour	1	Each		
	TOTAL AMOUNT				