

**INDIAN INSTITUTE OF TECHNOLOGY KANPUR****Tender Notice No. 63 /Elect./2018****SCHEDULE OF QUANTITY****Name of Work: Construction of Security Barrack Building at IIT Kanpur (SH: Electrical Work)**

Name of the Contractor				
S. No	Description of Items	Qty	Unit	Rate in Figures in Rupees
1	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 steel conduit, with modular switch modular plate, suitable GI box and Earthing the point with 1.5sq.mm FRLS PVC insulated copper conductor single core cable etc. as required .			
a)	Group C	90.00	Point	
2	Wiring for twin control light point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface/recessed steel conduit,2 way modular type switch, modular plate, suitable GI box and Earthing the point with 1.5sq.mm FRLS PVC insulated copper conductor single core cable etc. as required.	6.00	Point	
3	Wiring for group controlled (looped) light point/fan point/exhaust fan point/ call bell point (without independent switch etc.) with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable in surface/recessed steel conduit, and Earthing the point with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable etc. as required.			
a)	Group C	45.00	Point	
4	Wiring for circuit/ sub main wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed steel conduit as required.			
a)	2 X 1.5 sq. mm +1 X 1.5 sq. mm earth wire	400.00	Metre	
b)	2 X 4 sq. mm +1 X 4 sq. mm earth wire	350.00	Metre	
c)	2 X 6 sq. mm +1 X 6 sq. mm earth wire	50.00	Metre	
d)	4 X 16 sq. mm + 2 X 6 sq. mm earth wire	20.00	Metre	

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5	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.			
a)	20 mm	50.00	Mtr.	
b)	25 mm	30.00	Mtr.	
c)	32 mm	10.00	Mtr.	
6	Supplying and fixing two module stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	50.00	Each	
7	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	15.00	Each	
8	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 amps modular socket outlet and 5/6 amps modular switch, connection etc. as required. (For light plugs to be used in non residential buildings).	100.00	Each	
9	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 amps modular socket outlet and 15/16 amps modular switch, connection etc. as required.	30.00	Each	
10	Supplying and drawing 2 pair 0.5 mm dia FRLS PVC insulated annealed copper conductor, unarmoured telephone cable in the existing surface/ recessed steel/ PVC conduit as required.	40.00	Metre	
11	Supplying and fixing Telephone socket outlet (RJ-11) modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.	2.00	Each	
12	Supplying and fixing following size/ modules, GI box along with modular base & cover plate for modular switches in recess etc. as required.			
a)	1 or 2 Module (75 mmX75 mm)	5.00	Each	

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b)	4 Module (125 mmX75 mm)	5.00	Each	
13	Providing and fixing circular/ Hexagonal cast iron or M.S. sheet box for ceiling fan clamp, of internal dia 140 mm, 73 mm height, top lid of 1.5 mm thick M.S. sheet with its top surface hacked for proper bonding, top lid shall be screwed into the cast iron/ M.S. sheet box by means of 3.3 mm dia round headed screws, one lock at the corners. Clamp shall be made of 12 mm dia M.S. bar bent to shape as per standard drawing.	50.00	Nos.	
14	Supply and fixing metal box of following size (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including painting etc. required .			
a)	150 mm x 150 mm x 60 mm	2.00	Set	
b)	180mm x 100 mm x 60 mm	2.00	Set	
c)	200 mm x 150 mm x 60 mm	2.00	Set	
d)	250 mm X 300 mm X 100 mm	2.00	Set	
15	Supplying and drawing following sizes of FRLS PVC insulated copper conductor, single core cable in the existing surface/recessed steel/PVC conduit as reqd.			
a)	1 X 1.5 Sq.mm	20.00	Mtr	
b)	2 X 1.5 Sq.mm	20.00	Mtr	
c)	3 X 1.5 Sq.mm	20.00	Mtr	
d)	2 x4 Sq.mm..	20.00	Mtr.	
e)	3 x 4 Sq.mm	30.00	Mtr	
f)	2 x10 Sq.mm..	10.00	Mtr.	
g)	6 x10 Sq.mm..	10.00	Mtr.	
16	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.			
a)	5/6 Amp switch	5.00	Nos.	
b)	3 pin, 5/6 Amp socket	5.00	Nos.	
c)	Blanking plate	5.00	Nos.	

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16	Supplying and fixing of following way, single pole and neutral, sheet steel, MCB distribution board, 240 volts, on surface / recess, complete with loose wire box, terminal blocks, duly prewired with suitable size of FRLS PVC insulated copper conductor up to terminal blocks ,tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnection, phosphatized and powder painted including Earthing etc. as required (But without MCB/RCCB/Isolator).			
a)	8 Way Double door	1.00	Each	
17	Supplying and fixing 8 way (4 + 24), Double door way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including Earthing etc. as required. (But without MCB/RCCB/ Isolator)	4.00	Each	
18	Supplying and fixing following rating and pole , 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.			
a)	Single pole (5-32A)	76.00	Each	
b)	Double pole(5-32A)	2.00	Each	
c)	Four Pole and Neutral (40-63A)	4.00	Each	
19	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	5.00	Each	
20	Supplying and fixing following rating, double pole, (single phase and neutral), 240 V, residual current circuit breaker (RCCB), having a sensitivity current 300 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.			
a	40 Amps	1.00	Each	
b	63 Amps	12.00	Each	

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21	Supply and fixing 20 Amp. 240 volts SPN industrial type socket outlet with two pole and earth metal enclosure plug top along with 20 Amp. C series SP MCB in sheet steel enclosure on surface in recess with chain metal cover for the socket outlet and complete with connection testing and commissioning etc. as required.	2.00	Nos.	
22	S & F metal enclosure suitable for DP/TPN MCB / DP ELCB on surface or recessed etc. as reqd.	1.00	Nos.	
23	Supplying, Installation, testing and commissioning of M.V. cubical type totally enclosed free standing type, dust, dump and vermin proof Main LT Panel complete with bus bars , MV danger notice plate, Ammeter, Ammeter selector switch , voltmeter , Voltmeter selector switch , indicating lamps, CT's , Interconnection with suitable capacity aluminium strips / rods, connection of incoming and outgoing cables with thimbles , stove enamelled painted and having following incoming and outgoing ACB, MCCB, switch fuse/ fuse with complete as required.			
	1 no. 250A, 415V, Ics= 35kA, 4P MCCB with variable O/C &, S/C and E/F releases.			
	1 No. Digital type multifunction meter of CL 1.0, CTR-/1A to show KWH, KVAH, P.F., H2 and digital 0 - 500V voltmeter with selector switch, 0-125A ammeter with selector switch, and set of cast resin C.T.'s 200/5A			
	1 Set of phase indicating lamp with MCB.			
	BUS BARS:			
	400A four pole bus bars of aluminium alloy.			
	OUT GOING:			
	6 nos. 100A TPN MCCB of 25 kA.	1.00	Set	
24	Supplying and laying one number of 3 1/2 x 120 sq.mm. XLPE power cables (heavy duty) aluminium conductor, steel armoured cable of 1.1kV grade as per IS:1554 (Part-1) as reqd complete in following manners.			
a)	Direct in ground I/c excavation, sand cushioning, protective covering and refilling the trench etc. as reqd.	150.00	Mtr.	
b)	Laying charges direct in pipe	30.00	Mtr.	
c)	Laying charges direct in open duct	5.00	Mtr.	

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d)	Laying charges on surface 25x 3 mm MS flat Clamp) as required complete	5.00	Mtr.	
25	Supplying and making end termination with brass compression glands and aluminium lugs for following sizes of XLPE aluminium conductor cable of 1.1. kv grade as required.			
a)	3 1/2 x 120 sq.mm	2.00	Set	
26	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	2.00	Each	
27	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	30.00	Metre	
28	Providing, laying and fixing following dia G.I. pipe (medium class) in ground complete with G.I. fittings including trenching (75 cm deep)and re-filling etc. as required			
a)	50mm dia	10.00	Metre	
b)	80mm dia	20.00	Metre	
29	Supplying and laying Insulating mat "Shock safe" in front of electrical panels, ISI marked as required complete. 2.5 mm thick class B up to 11 kV	2.00	sq. Mtr.	

S. No	Description of Items	Qty	Unit	Rate in Figures in Rupees
30	<p>Supply and installation of 20W linear 4ft LED integrated batten made of Epoxy powder coated white extruded aluminium channel housing for efficient heat dissipation. Milky white, special polycarbonate diffuser, for glare free efficient light distribution and Elegantly designed white coloured ABS end caps. High efficiency long life LED package in integral module with lumen efficacy > 90 Lm/W and viewing angle of 120° to ensure better uniformity. Powered by an integral electronic LED driver (SMPS based constant current supply) with output short circuit protection, surge protection. Can be fixed directly into the wall/ ceiling by means of mounting SS clips provided with the fixture. Lumen Output of 1800 lumens. CRI >80, THD <10% and PF>0.95,IP20 . Life class of 50,000 hrs @ L70, Operating Temperature:-10 TO +45 DEG.C; Input Supply Voltage Range:140-270 V, Frequency :50-60 HZ; Internal Surge Protection:3 KV; Protection : Reverse Polarity, Open & Short Circuit. Similar to Havells Endura linear Neo Cat. No. ENDURALINEARNEOBS20WLED865SPCWH or its equivalent approved make.</p>	80.00	Each	
31	<p>Supply and installation of 15 W Surface mounted LED down lighter with white powder coated aluminium housing with integrated electronic driver. LED are mounted on MC PCB,Over Voltage protection, Surge Voltage protection. CCT 6500, CRI>80, THD<10%, PF>.95, IP65,IK 07, Life class of 50,000 hrs @ L70, Operating Temperature:-10 TO +45 DEG.C; Input Supply Voltage Range:140-270 V, Frequency :50-60 HZ. Similar to Havells Cat No. cat. no. LHEAAGP6PL1W015 or equivalent as per approved list of make.</p>	53.00	Each	
32	<p>Supply and fixing testing and commissioning of 1X10 watt LED mirror light fixture with Electronic driver, lamp, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories and lamp as required complete.(eq. To Havells ENDURA LINEAR NEOBS 10W LED 865 SPCWH and approved make).</p>	4.00	Each	

S. No	Description of Items	Qty	Unit	Rate in Figures in Rupees
33	Supply and fixing testing and commissioning of 1X10 watt LED bulkhead fixture with Electronic driver, lamp, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories and lamp as required complete.(eq. To Havells cat. no. RUG BY NEO NFT 10W LED 760 SSYMBOPC approved make).	8.00	Each	
34	Supply installation testing and commissioning of 5 star rated 1200mm sweep ceiling fan, ISI marked, along with copper wound stator, blades, capacitor, down rod, split pin, reel but without regulator complete as required including wiring down rod with 1.5 sq.mm copper wire. (Havells ES 50 Premium or its equivalent approved make)	50.00	Each	
35	Supply installation testing and commissioning of 300 mm sweep metal body heavy duty, 900 RPM Exhaust fan with guard/ shutter and mounting arrangement.	6.00	Each	
36	Supply installation testing and commissioning of 450 mm sweep metal body heavy duty, 900 RPM Exhaust fan with guard/ shutter and mounting arrangement.	11.00	Each	
37	Supplying and fixing 3 pin, 5 A ceiling rose on the existing junction box/ wooden block including connections etc. as required.	15.00	Each	
38	Numbering of ceiling fan/ exhaust fan/ fluorescent fittings as required.	200.00	Each	
39	Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enamelled white on both sides, and with inscription in single red colour on front side as required.	1.00	Nos.	
40	Supplying, installation, testing and commissioning of Astronomical time switch of following configuration to be mounted in feeder pillars / Lighting DBs for automatic switching On & OFF of street lights at sun set & sun rise or twilight(Auto ON, Auto OFF, Auto modes) with manual override facility with 12/24 hour display format with suitable battery and indication for relay status i/c programming at site complete as required.			
a)	1 out put per phase and suitable for single phase only	1.00	Nos	

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41	Supply & fixing of 65 mm dia.'B' class GI pole 4.5 Mtr. Long for post top lantern i/c base plate 300 x 300 x 3mm GI reducer & nipple for mounting the fitting with painting etc. grounding in cement concrete 1: 3: 6 (1 cement : 3 coarse sand : 6 grade stone aggregate 40mm complete as reqd.	4.00	Each	
42	Supply, fixing, connecting, commissioning & testing of the following street light fixtures complete with all accessories and lamp as required complete.			
a).	Street Light luminaire CAT no LPTO-40-CDL/M Crompton make or it's equivalent	4.00	Nos.	
43	S&F, connecting and commissioning looping type cable end control box with MS sheet of 16 SWG of size 200 mm x 200 mm x 125 mm having 1 no. 6amp to 32 amp SPMCB 250 volt and 2 nos. brass neutral link 12.5 mm square rod 6 way approx. 60 mm long and fixed on 5 mm thick Bakelite sheet. Box shall have Almira type hinge and panel key type lock front door duly painted with Earthing stud etc. complete as required.	4.00	Each	
44	Supplying and laying one number of 2 x 6 sq.mm. XLPE power cables (heavy duty) aluminium conductor, steel armoured cable of 1.1kV grade as per IS:1554 (Part-1) as reqd complete in following manners.			
a).	Direct in ground I/c excavation, sand cushioning, protective covering and refilling the trench etc. as reqd.	150.00	Mtr.	
b)	Laying charges direct in pipe	20.00	Mtr.	
c)	Laying charges direct in open duct	20.00	Mtr.	
45	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop Earthing as required.	100.00	Mtr.	
46	Excavation for foundation in soft soil including dressing of sides and ramming of bottoms, lift up to 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 meters.	1.00	cum	
47	Providing brick work (in width 225 mm or more) with F.P.S. Bricks of class designation 7.5 in cement mortar 1:4 (1 cement : 4 coarse sand) at all levels	1.00	cum	

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48	Providing 15mm thick cement plaster of mix 1:4(1 cement : 4 fine sand) at all levels.	5.00	sqm	
49	Providing and laying in position cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) in foundation of pump, DG set etc. including form work etc. as required.	1.00	cum	
50	<p>Supply of Active lightning arrestor of Class ‘A’ for building protection as per standard NF C 17-102 (of 2011). It shall work on Advanced Early Steamer Emission (ESE) principle and shall be made of Stainless Steel with a ΔT of 60 micro Sec or more. The system should be so designed to be capable of protecting against direct lightning point as well as conducting/diverting it to Earth completely after tracing the lightning in advance. The air terminal should be verified and tested from International lab for more than 100 kA current discharge. The system shall consist of:</p> <p>(i) Early Streamer Emission Air Terminal with following features:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Stainless steel central capture head of 316L, also avoiding bolting and water infiltration that can cause premature corrosion. Test Certificate for protection against foreign solid substances and access to dangerous parts and test of protection against water <input type="checkbox"/> Control over release of ions positive or negative <input type="checkbox"/> Generation of streamer through corona effect <input type="checkbox"/> Level IV protection covering a radius 107 Mtr approx. 			

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	<input type="checkbox"/> System should not depend on electrical energy. Note: Following test Certificates Shall be submitted at the time of supply (a) Advance triggering test time report (ΔT of 60 micro or more). (b) Short circuit test report (100 kA or more), triggering time @ temperature (-) 40o C to (+) 120o C. (c) 30 years Warranty Certificate from OEM. (d) Internal last inspection report of OEM shall be provided with every serial numbered lightning arrester (ii) Supply of BLC Lighting Strike Counter with following features: <input type="checkbox"/> Number of counts : 6 digits <input type="checkbox"/> Current sensitivity – 1 kA to 200 kA <input type="checkbox"/> Inductance shunt – 0.5 micro Henry <input type="checkbox"/> Enclosure – IP 67 (iii) No external power source is required (iv) Provision shall be there to test this device, if necessary, by an external tester.	1.00	Set	
51	Supply of Mast (50 mm dia, GI) and support hardware (cantilevered/ guyed type, as required at site) for suitable for mounting the ESE Lightning Arrester equipment for a height of 5 mtrs (above the roof, as required at site). All accessories like clamps, bracket, guy kit, cable ties, base plate, adapters, nut bolts etc. shall be supplied by the Contractor.	1.00	Set	
52	Supply of copper cable of size 70 sq. mm insulated copper cable (black colour) for high lightning current, as a down conductor. The tensile strength shall be between 220 – 270 N/ sq.mm. .	12.00	Mtr.	
53	Supply and making provision of Test Link Joints in IP 65 ABS Enclosure with transparent cover, Box size (180X180X138 mm), with all accessories complete. Copper test link size should be (150X25X3 mm)	1.00	Set	

S. No	Description of Items	Qty	Unit	Rate in Figures in Rupees
54	Supply of basic material to construct a Maintenance Free Ring Earth with Three Pits for achieving less than one Ohm Earth Resistance consisting of : (a) Copper bonded steel electrodes of 3.0 m long, 17.2 mm dia with copper bonding thickness of min 250 micron and UL listed and marked - 3 Nos. (b) Earth Enhancement compound of approved brand supplied in sealed bags of min 10 Kgs - 9 Nos. (c) Copper strip of 300 x 25 x 6mm (MEEB) - 1 No. (d) Copper strip of 150 x 25 x 6mm (SEEB) - 2 Nos.	1.00	Set	
55	Supply of 8mm dia Copper Coated Aluminium round conductor.	9.00	Mtr.	
56	Installation Charges for ESE lighting arrestor and Strike Counter along with down conductor fitting and 4 Earthing	1.00	Job	
	Total Rs.			



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