

**Name of Work: Construction of Mechanical lab and its Site Development Works at Jigme Namgyel Engineering College**

**Sub Head: Electrical BoQ Mechanical Block**

Sl. No	Description of Items	Qty.	Units	Rate (Nu.)	Amount (Nu.)
<b>A</b>					
A.1	Supplying & installation of panel mounded case circuit breaker (MCCB) with electronics release, breaking capacity Icu = 70KA, 630A, 4 pole 415V A.C, complete with all accessories etc. as required. For main switch. <i>(Legrand or equivalent Make)</i> .	1	No.s		
A.2	Provide, installation & testing of TPN MCB 32A, 415 volts A.C, complete with all accessories suitable to fix in din-bar etc. as required. <i>(Legrand or equivalent Make)</i> .	7	No.s		
A.3	Provide, installation & testing of TPN MCB 40A, 415 volts A.C, complete with all accessories suitable to fix in din-bar etc. as required. <i>(Legrand or equivalent Make)</i> .	3	No.s		
A.4	Provide, installation & testing of TPN MCB 63A, 415 volts A.C, complete with all accessories suitable to fix in din-bar etc. as required. <i>(Legrand or equivalent Make)</i> .	6	No.s		
A.5	Provide, installation, testing and commissioning of Lexic residual current circuit breaker Lexic (RCCB), 32A, 4 pole, sensitivity 30mA, 415volts A.C, complete with all accessories suitable to fix on a din-bar etc. as required. <i>(Legrand or equivalent Make)</i> .	1	No.s		
A.6	Provide, installation, testing and commissioning of Lexic residual current circuit breaker Lexic (RCCB), 40A, 4 pole, sensitivity 30mA, 415volts A.C, complete with all accessories suitable to fix on a din-bar etc. as required. <i>(Legrand or equivalent Make)</i> .	3	No.s		
A.7	Provide, installation, testing and commissioning of Lexic residual current circuit breaker Lexic (RCCB), 63A, 4 pole, sensitivity 30mA, 415volts A.C, complete with all accessories suitable to fix on a din-bar etc. as required. <i>(Legrand or equivalent Make)</i> .	6	No.s		
A.8	Provide, installation & testing of single pole Lexic MCB 6A, B-Type, 230 volts A.C, complete with all accessories etc. as required. <i>(Legrand or equivalent Make)</i> .	81	No.s		
A.9	Provide, installation & testing of Lexic miniature circuit breaker single pole (MCB), 16A, B-Type, 230 volts, A.C, complete with all accessories suitable to fix on din-bar etc. as required. <i>(Legrand or equivalent Make)</i> .	190	No.s		

SI. No	Description of Items	Qty.	Units	Rate (Nu.)	Amount (Nu.)
A.10	Provide, installation & testing of TPN distribution board 6-ways (DIN type, horizontal) with arcylic door, 415 volts A.C, Busbar neutral link, Earth bar, and Din Rail, complete with accessories without TPN MCB/Isolator out going or incoming etc. as required. ( <i>Legrand or equivalent Make</i> ).	2	No.s		
A.11	Provide, installation & testing of TPN distribution board 8-ways (DIN type, horizontal) with arcylic door, 415 volts A.C, Busbar neutral link, Earth bar, and Din Rail, complete with accessories without TPN MCB/Isolator out going or incoming etc. as required. ( <i>Legrand or equivalent Make</i> ).	1	No.s		
A.12	Provide, installation & testing of TPN distribution board 12-ways (DIN type, horizontal) with arcylic door, 415 volts A.C, Busbar neutral link, Earth bar, and Din Rail, complete with accessories without TPN MCB/Isolator out going or incoming etc. as required. ( <i>Legrand or equivalent Make</i> ).	7	No.s		
A.13	Provide, installation & testing of pre-fabricated MS busbar chamber with copper busbar, 4 strips, 1350mm bar, 800A, complete with all accessories etc. as required. ( <i>Hensel/ Geco/Ship/Sputnik Make</i> ),(As per the SQCA approved brand).	1	No.s		
A.14	Supply & installation of 4 pole metal clad commercial/industrial type plug & socket outlet with earth terminal and incoming control gear MCB etc as required , 415 volt A.C.				
	32A	6	No.s		
A.15	Supplying of heavy duty brass single compression gland for 3.5- Core 1.1KV grade PVC insulated and sheathed Copper/ Aluminium conductor armoured/ un-armoured power cables.				
	85mm dia, 630sq.mm	2	Each		
A.16	Installation, Testing and Commissioning of end termination with single/double compression gland for PVC insulated and sheathed aluminium/ copper conductor cable of 1.1KV grade including connections etc. as required.				
	78/82/85mm dia	2	Each		
<b>TOTAL (A)</b>					

Sl. No	Description of Items	Qty.	Units	Rate (Nu.)	Amount (Nu.)
<b>B</b>					
B.1	Supplying & laying of 630 sq. mm, 3.5 core 1.1 kV grade XLPE/PVC insulated and sheathed Aluminium conductor armoured power cables in the ground including excavation, sand cushioning, protective covering and refilling the trenches etc. as required. <i>(KEI/Polycab/as per the BSB approved brand).</i>	50	Meters		
B.2	Supplying & laying of 10 sq. mm, 4 core 1.1 kV grade PVC insulated and sheathed Aluminium conductor armoured power cables as complete as required. <i>(KEI/Polycab/as per the BSB approved brand).</i>	260	Meters		
B.3	Supplying & laying of 16 sq. mm, 4 core 1.1 kV grade PVC insulated and sheathed Aluminium conductor armoured power cables as complete as required. <i>(KEI/Polycab/as per the BSB approved brand).</i>	52	Meters		
B.4	Supplying & laying of 25 sq. mm, 4 core 1.1 kV grade PVC insulated and sheathed Aluminium conductor armoured power cables as complete as required. <i>(KEI/Polycab/as per the BSB approved brand).</i>	109	Meters		

Sl. No	Description of Items	Qty.	Units	Rate (Nu.)	Amount (Nu.)
B.5	Wiring for light, fans and call bells with 2x1.5 sq.mm 1.1kV grade, PVC insulated copper conductor cable multistrand in recessed (25mm HDPE pipe) including connections, painting, testing and commissioning etc. as required. <i>(Royal cable or equivalent make).</i>				
	Medium Point point	93	points		
	Long Point point	244	points		
B.6	Wiring for light point, light circuit and 5/6 pins, 6A power sockets from SDB with 2x2.5 sq.mm 1.1kV grade, PVC insulated copper conductor cable, multistrand in recessed (25mm HDPE pipe), including connections, painting, testing and commissioning etc. as required. <i>(Royal cable or equivalent make).</i>				
	2x2.5 sq.mm	1627	Meters		
B.7	Wiring for 5/6 pin, 16 ampere power point from (SDBs to PPs) with 2x4sq.mm 1.1kV grade, PVC insulated copper conductor cable, multistrand in recessed (25mm HDPE pipe), including connections, painting, testing and commissioning etc. as required. <i>(Royal cable or equivalent make).</i>				
	2x4 sq.mm	3906	Meters		
B.8	Wiring for power point with 1x1.0 sq.mm, single core multistrand 1.1kV grade, PVC insulated copper conductor cable, in recessed HDPE pipe including connections, painting, testing and commissioning etc. as required earth wire (i.e., green colour). <i>(Royal cable or equivalent make).</i>				
	1x1.0 sq mm	3906	Meters		
B.9	Wiring for points in excess length above long points with 2x1.5 sq.mm, 1.1 kV grade, PVC insulated copper conductor cable in recessed HDPE pipe including connections, painting, testing and commissioning etc. as required. <i>(Royal cable or equivalent make).</i>	2782	Meters		
B.10	Provide and draw high density polythene insulated & sheathed copper conductor 0.5mm dia telephone wire in existing surface/ recessed conduit wiring system complete as required.				
	2 pair	632	Meters		
B.11	Supplying and drawing of UTP, CAT-6 LAN cable in existing surface/recessed conduit wiring system complete as required.				

Sl. No	Description of Items	Qty.	Units	Rate (Nu.)	Amount (Nu.)
	4 pair UTP, CAT-6 LAN cable	3047	Meters		
<b>TOTAL (B)</b>					
<b>C</b>					
C.1	Supplying and fixing of (25 mm HDPE pipe) on recessed along all accessories such as screws, bends, elbows, Tees, corners, etc. complete as required.	7437	Meters		
C.2	Supplying and laying of 150x75mm MS cable channel on the floor including with all the accessories as required.	120	Meters		
<b>TOTAL (C)</b>					
<b>D</b>					
D.1	<b><u>Pluto Panel 34W LED(Surface)</u></b> Supply of Pluto Panel 34W LED surface mounted luminaire along with all the accessories as required. (Havells or equivalent Make).	274	No.s		
D.2	<b><u>Linear DLX 20W LED</u></b> Supply of 20W LED, decorative ultra slim linear LED lighting, wall/ceiling mounting with SS clips, with epoxy powder coated white extruded aluminium channel housing for efficient heat dissipation, milky white, special polycarbonate diffuser, for glare free light distribution covering, elegantly designed white coloured ABS end caps to enhance the aesthetic view of the fixture, In-built electronic driver with THD<10%, dimension: Length: 1156±1mm, Width: 25±1mm, Height: 35±1mm, made of Havells or equivalent. (Havells or equivalent make).	12	No.s		
D.3	<b><u>Crown Surface Mounted LED 12W</u></b> Supply of surface mounted LED Crown 12W luminaire along with all required accessories. (Havells or equivalent make).	160	No.s		
D.4	Supplying and Fixing of ceiling fan 240 volt A.C 1400 rpm with all accessories such as down rod, sweep 3 Nos., canopy 2 Nos., condenser and fan body etc. complete as required. (Havells or equivalent make)				
	1200mm sweep	73	No.s		

Sl. No	Description of Items	Qty.	Units	Rate (Nu.)	Amount (Nu.)
D.5	Supplying and Fixing of exhaust fan 240 volt A.C 900 rpm with all accessories such as frame with arm 3 Nos., sweep 3 Nos., condenser and fan body etc. complete as required. <i>(Havells or equivalent make)</i>				
	300mm sweep	19	No.s		
D.6	Installation testing and commissioning of pre-wired fluorescent fittings/LED luminaires of all surface type complete with all accessories and tubes/lamps directly on ceiling/wall as required including connection with PVC insulated copper conductor.				
	1.5 sq mm single core cable 1.1 KV grade	462	No.s		
<b>TOTAL (D)</b>					
<b>E</b>					
E.1	Supplying & fixing of 6A switch on existing metal box with fibre sheet cover (recessed or surface) including necessary cutting, connection testing etc. as required. <i>(Legrand/equivalent Make)</i>				
	6A switch SP 1-way	555	No.s		
E.2	Supplying & fixing of switch/socket on existing metal box with fibre sheet cover (recessed or surface)/ junction box (PVC/metal) including necessary cutting, connection testing etc. <i>(Legrand/equivalent Make)</i>				
	16A switch SP 1-way.	190	No.s		
	5/6 pin, 6/16A socket outlet, shuttered	240	No.s		

Sl. No	Description of Items	Qty.	Units	Rate (Nu.)	Amount (Nu.)
E.3	Supplying & fixing of socket/regulator on existing metal box with fibre sheet cover (recessed or surface) including necessary cutting, connection testing etc. as required. <i>(Legrand/equivalent Make)</i>				
	Dimmer/regulator	73	No.s		
	RJ 11 telephone socket	26	No.s		
	RJ 45 Computer socket	115	No.s		
<b>TOTAL (E)</b>					
<b>F</b>					
F.1	Supplying & fixing of metal boxes for switch/socket outlet/switch socket combined/ gang switches on surface including painting etc as required. <i>(Legrand/equivalent make)</i>				
	1-Module	92	No.s		
	2-Module	32	No.s		
	3-Module	151	No.s		
	4-Module	15	No.s		
	6-Module	64	No.s		
	8-Module	19	No.s		
	12-Module	29	No.s		
F.2	Supplying & fixing of metal POP-UP boxes for switch/socket outlet/switch socket combined/ gang switches on the floor including painting etc as required. <i>(Legrand/equivalent make)</i>				
	1-Module POP-UP Box	37	No.s		

Sl. No	Description of Items	Qty.	Units	Rate (Nu.)	Amount (Nu.)
	6-Module POPUP Box	40	No.s		
<b>TOTAL (F)</b>					
<b>G</b>					
G.1	Providing and fixing of earthing including all accessories, machinery enclosure, C.I cover plate having locking arrangement, watering pipe with excavation and refilling work including charcoal or coke and salt complete as required as per standard earthing drawing.				
	With copper earth plate 600x600x3mm	1	Nos		
G.2	Providing and laying earth connection from earth electrodes in 15mm dia G.I pipe from earth electrodes as required as per guidance of standard earthing drawing.				
	With 4.06mm dia (8SWG) copper wire	3	Meters		
G.3	Providing and fixing of wire on surface or in recessed for loop earthing as required.				
	With 4.06mm dia (8SWG) copper wire	75	Meters		
G.4	Providing and laying of wire at 0.5m below ground level for conductor earth electrodes including soldering etc. as required.				
	With 4.06mm dia (8SWG) copper wire	25	Meters		
<b>TOTAL (G)</b>					
<b>H</b>					
H.1	Providing and fixing lightning conductor including holes etc. complete as required				



Sl. No	Description of Items	Qty.	Units	Rate (Nu.)	Amount (Nu.)
	25mm dia, 900mm long copper tube four prong at top	1	Nos		
H.2	Riveting, sweating and soldering as required				
	Copper tape with another copper tape	2	Nos		
H.3	Providing and fixing metal strip on parapet or surface of wall/roof for lightning conductor as required for horizontal run				
	25x4mm copper strip	25	Meters		
H.4	Providing and fixing metal strip on parapet or surface of wall/roof for lightning conductor as required for vertical run				
	25x4mm copper strip	22	Meters		
<b>TOTAL (H)</b>					
<b>I</b>					
I.1	Providing and fixing of earthing including all accessories, machinery enclosure, C.I cover plate having locking arrangement, watering pipe with excavation and refilling work including charcoal or coke and salt complete as required as per standard earthing drawing.				
	With copper earth plate 600x600x3mm	1	Nos		
I.2	Providing and laying earth connection from earth electrodes in 15mm dia G.I pipe from earth electrodes as required as per guidance of standard earthing drawing.				
	With 4.06mm dia (8SWG) copper wire	3	Meters		
I.3	Providing and laying of wire at 0.5m below ground level for conductor earth electrodes including soldering etc. as required.				

Sl. No	Description of Items	Qty.	Units	Rate (Nu.)	Amount (Nu.)
	With 4.06mm dia (8SWG) copper wire	20	Meters		
<b>TOTAL (I)</b>					
<b>J</b>					
J.1	Providing & fixing of prefabricated double-door panel board with minimum 50x50x6mm angle iron frame work with horizontal and vertical intermediate members of flat iron 40x6mm and 24 SWG sheet cover for mounting of switch gears(main distribution), incoming/outgoing bus bars including drilling holes, insulator, painting, denting, grouting etc. as required				
	Floor mounted cubical control panel board of welded (1 Nos. of Size: 1.8m x 1.6m x 0.35m thick)	2.35	cu.m		
J.2	Providing and fixing medium volt danger notice plate made of mild steel and painted with vitreous enamelled white paint on both sides, and with inscription in signal red colour on front side as required on prefabricated MS surface/ MS cubical control panel board on surface including drilling holes etc. as required				
	200x150x2mm	1	No.		
<b>TOTAL (J)</b>					
<b>GRAND TOTAL FOR ELECTRICAL</b>					