

CIVIL WORK BOQ-NEPAL POLYTECHNIC

S.no.	Description	Unit	Qty	Rate	Amount
1.00	Earthwork in excavation				
1.01	Clearing grass, removal of the rubbish, roots or any kind of dumped material within the construction premise required to start the project and disposal of same aout of site peripheri, complete	Sqm	9585		
1.02	Earth work in excavation including back filling by mechanical means (Hydraulic excavator) or manual, over the area (not exceeding 1.5 in depth, and 10 sqm on plan) and disposal of surplus excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed(excavation shall be measured according to neat line for measurement)				
	a) All kinds of soil	cum	10680		
1.03	Extra for depth exceeding from 1.5 m to 3.0 m (Rate is over corresponding basic item for depth upto 1.5 m)	meter	200		
1.04	Extra for depth exceeding from 3.0 m to 4.5 m (Rate is over corresponding basic item for depth upto 3 m)	meter	100		
1.05	Filling with available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m	cum	3500		
1.06	Supply and stacking of excavated earth brought from outside by any means of transport including loading,unloading spreading,compacting,ramming etc.by using Road Roller upto 90% Proctor density complete as per instructions of site in-charge.				
	a) Lead of source Upto 10 Km	RO			
	b)Extra over for lead beyond 10 Km, per km	RO			

S.no.	Description	Unit	Qty	Rate	Amount
1.07	Providing and injecting chemical emulsions for pre-construction anti-termite treatment and creating continuous chemical barrier under and all around the column pits, wall trenches, top surfaces of plinth filling, junctions of walls and floors, along the external perimeter of buildings, expansion joints, over the top surface of consolidated earth on which plinth protection is to be laid, surrounding of pipes and conduits etc. complete, in accordance with IS:6313 (Part II). (Plinth area of the building at ground level shall only be measured): Using Chloropyriphos Emulsifiable concentrate 0.2%.	Sqm	9585		
1.08	Providing and laying (consolidated thickness) hard core fill (Stone soiling), under footing, pavings and other locations, with approved hard stones of size 150-200 mm and down, thoroughly filled with smaller chips, Dry soiling and consolidated to required level complete.	RO			
1.09	Supplying and filling in plinth with fine sand under floors including, watering, ramming consolidating and dressing complete.	Cum	500		
	Total of Eartwork in Excavation				
2.00	Plain cement concrete works				
2.01	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering .				
	a) 1:2:4 (1 Cement : 2 coarse sand : 4 graded stone aggregate 40 mm nominal size).	Cum	50		
	b) 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size)	Cum	50		
	c) 1:4:8 (1 Cement : 4 coarse sand : 6 graded (stone aggregate 40 mm nominal size).	Cum	1250		
	d) 1:5:10 (1 Cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size).	Cum	50		
	Total of Plain Cement Concrete				

S.no.	Description	Unit	Qty	Rate	Amount
3.00	Reinforced Cement Concrete				
	NOTE: Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design is payable/recoverable seperately				
	Providing and laying in position design mix concrete of specified grade for reinforced cement concrete work including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement including Admixtures in recommended proportions as per IS 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. M-25 grade reinforced cement concrete.. In foundation and plinth(all structural members under plinth shall be calculated in this item)	cum	3200		
3.01	Providing and laying in position design mix concrete of specified grade for reinforced cement concrete work but excluding the cost of centering, shuttering, finishing and reinforcement including Admixtures in recommended proportions as per IS 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. M-25 grade reinforced cement concrete by using 428 kg. of cement per cum of concrete. : In Columns and piers of any shape and profile.				
	a) From plinth to all levels	cum	5600		
15.21	Providing and laying 50 mm thick damp proof course with cement concrete 1:2:4 with graded stone aggregate 12.5 mm nominal size, including side shuttering, compacting etc.including applying a cost of residual petroleum bitumen of penetration 80/100 @ 1.70 kg/sq. on damp proof course.	Sqm	2500		
Total of Reinforced Cement Concrete Works					

S.no.	Description	Unit	Qty	Rate	Amount
4.00	Reinforcement works				
	Receiving , storing , stacking and placing reinforcement steel in all reinforced concrete work including straightening , cutting , removal of loose rust by wire brush , bending , binding , placing in position to the shape and profile required at all levels and heights as per drawing and design and /or as directed by Enigineer-in-charge , binding with 18 gauge SWG annealed steel wire including cost of binding wire etc. complete. (contractor has to arrange the annealed steel wire at his own cost.)				
4.01	HYSD bars of grade Fe 500 bars	M.T	1140		
	Total of Reinforcement works				
5.00	Centering & Shuttering				
	Providing and fixing centering and shuttering for concrete work (reinforced concrete only) including strutting, propping, bracing, bolting tie bolt / spring coil / plastic cone, wedging, easing, striking, removal and for coating with approved mineral shutering oil (REEBOL of FOSROC / equivalent) to prevent adhesion etc, complete. (All works upto plinth level)	sqm	7600		
5.01	Providing and fixing centering and shuttering for concrete work (plain and reinforced) including strutting, propping, bracing, bolting tie bolt / spring coil / plastic cone, wedging, easing, striking, removal etc, complete. Allow for foming groovers, drips, throats, chamfers, cut-outs, opening etc. where called for and for dressing with approved mineral shuttering oil (REEBOL of FOSROC / equivalent) to prevent adhesion . (From plinth to all level)				

S.no.	Description	Unit	Qty	Rate	Amount
5.01(a)	Soffits and sides of beams, , lintels, ties, ribs, pergolas and such other, string courses, cornices, corbels.	Sqm	10000		
5.01(b)	Soffits and sides of suspended slabs, floor and roof projections, landing slabs, canopies, chajjas, slabs of planting boxes and such other horizontal elements , coffer ribs and slabs.	Sqm	21000		
5.01(c)	Soffits and sides and side waist slabs of stairs, sides of risers and stepped waist slabs, spirals stair cases etc.	Sqm	1400		
5.01(d)	Sides of columns,wall , piers of any shape or profile	Sqm	10000		
Total of Centering And Shuttering works					
Brickwork					
6.00	Providing and laying brick work with bricks of class 75 in half brick thick joints finished flush/raked to 12 mm depth, cured including necessary scaffolding complete in cement mortar 1:4 with coarse sand,	Sqm	1500		
6.02	Providing and laying brick work with bricks of class 75, joints finished flush/raked to 12 mm depth, cured including necessary scaffolding complete in cement mortar 1:6 with coarse sand, in : Super structures (For all levels)	Cum	5000		
Total of Brickwork					
7.00	Finishing works				
7.01	Providing 15-18mm thick average cement plaster in two coats to rough surface of walls, columns, piers etc., applied, finished smooth and cured, complete in cement mortar 1:6 (1 cement : 6 fine sand) , (for external surfaces)	sqm	22000		

S.no.	Description	Unit	Qty	Rate	Amount
7.02	Providing 12-15mm thick average cement plaster to smooth surface of walls, columns, piers etc., applied, finished smooth and cured, complete, with mixes : 1:6 with coarse sand. (for internal surfaces)	sqm	32000		
7.03	Providing 6 mm thick average cement plaster to ceiling., applied, finished smooth and cured, complete, with mixes : 1:4 with fine sand	sqm	16000		
	Total of Finishing Works				
8.00	False ceiling works				
8.01	Providing and fixing Gypsum Board false ceiling/ drop facias(Frid ceiling) with GI frame work and suspenders as per manufacturers standard specifications, with 12mm th Gypsum board fixed with jointless ceiling including finishing smooth in line & levels as per ceiling detail. (The rates should be on the basis of actual surface area and inclusive of necessary cutouts (upto 4 sq ft) for fittings, lights, speakers or AC outlets, but excluding the cost of painting of ceiling.)	sqm	800		
	Total of False Ceiling				
9.00	Painting works				
9.01	Painting three or more coat of Oil bound distemper on interior surface including the base cement primer and smothering of the surface by BIRLA / JK putty complete as per instructions of Architect.	sqm	40000		
9.02	Painting of walls with textured paint, double spary coat or eq. of approved shade & colour complete as per manufacturers specs . Finishing walls with textured exterior paint of required shadeNew work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/ 10 sqm	Sqm	8500		

S.no.	Description	Unit	Qty	Rate	Amount
9.03	Washed stone grit plaster on exterior walls height upto 10 metre above ground level, in two layers, under layer 12 mm cement plaster 1:4 (1 cement : 4 coarse sand), furrowing the under layer with scratching tool,applying cement slurry on the under layer @ 2 Kg of cement per square metre, top layer 15 mm cement plaster 1:1/ 2:2 (1 cement: 1/2 coarse sand : 2 stone chipping 10 mm nominal size), in panels with groove all around as per approved pattern, including scrubbing and washing the top layer with brushes and water to expose the stone chippings ,complete as per specification and direction of Engineer-in- charge (payment for provoding grooves shall be made separately).	Sqm	7000		
9.04	Forming groove of uniform size in the top layer of washed stone grit plaster as per approved pattern using wooden battens, nailed to the under layer,including removal of wooden battens, repair to the edges of panels and finishing the groove complete as per specifications and direction of the Engineer-in-Charge				
	15 mm wide and 15 mm deep groove	Meter	2000		
	20 mm wide and 15 mm deep groove	Meter	2000		
9.05	Extra for washed grit plaster on exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof	Sqm	2000		
9.06	Extra for washed stone grit plaster on circular work not exceeding 6 m in radius (in two coats).	Sqm	1000		
9.07	Forming groove of uniform size from 12x12 mm and upto 25x15 mm in the top layer of washed stone grit plastered surface as per approved pattern including providing and fixing aluminum channels of appropriate size and thickness (not less than 2 mm), nailed to the under layer with rust proof screws and nails and finishing the groove complete as per specifications and direction of the Engineerin-Charge	Meter	4000		

S.no.	Description	Unit	Qty	Rate	Amount
9.08	Providing three coats of lime wash to ceilings applied evenly to give uniform finish including preparation of surfaces using plastic putty to give an even shade.	Sqm	2000		
9.09	Providing two coats of Acrylic emulsion paint(external) to walls & ceilings applied evenly to give uniform finish including preparation of surfaces using plastic putty, cement primer coat to give an even shade.	Sqm	14000		
9.10	Providing three finish coats of synthetic enamel colour paint, applied evenly and finished to approved texture, including, preparation of surface using plastic putty and a coat of primer, complete : Steel surfaces with zinc chromate primer	Sqm	1000		
Total of Painting Works					
10.00	Flooring and Stone Cladding				
	Flooring				
A					
10.01	52 mm thick cement concrete flooring with concrete hardener topping under layer 40 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacturer's specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete	Sqm	650		
10.02	Providing and laying 12/18 mm IPS skirting on walls in cement mortar 1:3 including finishing smooth complete all as specified	cum	20		

S.no.	Description	Unit	Qty	Rate	Amount
10.03	Providing and laying 18-20 mm thick mirror polished , machine cut Granite stone slab flooring on kitchen / pantry platforms . Vanity counter facias and similar locations of required size and approved shade, colour & texture laid in patterns and profiles on a bed of 12 mm average thick cement mortar 1:3 (with coarse sand) to make up a total thickness of 50 mm, including laying slabs in cement slurry, pigmented to match the shade of slabs, grinding, rubbing , epoxy touch ups , polishing , curing and making the full round gola on nosing etc complete at all levels (Basic rate Rs. 1350/sqm).	Sqm	1250		
10.04	P/F mirror-polished vitrified tiles 10mm thick (mirror polished) of aproved quality and shade for flooring & skirting. The leveling of base floor to be included, laid in pattern in desired shade with adhesive 600 x 600 (as/approved sample)base rate of tile is Rs 45/sft	Sqm	3300		
10.05	Providing and laying Kota stone 20 mm thick in flooring,risers of steps , skirting , dado and pillars laid on 12 mm (average) thick cement mortar 1 : 3 (1 cement 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of slabs , including rubbing , full round nosing and mirror polishing complete.	Sqm	5000		
10.06	Providing and laying in position Anti Skid ceramic colour tiles(300x300) in flooring , laid in patterns and profiles on a backing of 20 mm thick cement mortar 1:3 with coarse sand and set in cement paste and joints filled with cement, pigmented to match the shade of tiles	Sqm	1000		
10.07	Providing and laying in position ceramic colour tiles in , skirting, risers of steps and/or dado,walls laid in patterns and profiles on a backing of 20 mm thick cement mortar 1:3 with coarse sand and set in cement paste and joints filled with cement, pigmented to match the shade of tiles	Sqm	2800		

S.no.	Description	Unit	Qty	Rate	Amount
10.08	Providing and fixing 18 mm thick FLAMED GRANITE STONE FLOORING as per drawing including cutting, fixing with 1:3 cement mortar, etc complete as per Architect /engineer-in-charge Instructions.	SqM	300		
10.09	25 mm wooden planking, tongued and grooved in flooring, including fixing with iron screws complete with Second class teak wood	Sqm	125		
	Total Of Flooring				
11.00	Doors and windows				
11.01	Providing and fixing Aluminium work for doors, windows & ventilators with extruded builtup standard tubular and other sections of approved make (INDAL, HINDALCO or JINDAL) confirming to IS 733 and IS 1285, powder coated to required shade fixed with rawl plug and screws or with fixing clips or with expansion hold fasteners including necessary filling up the gaps at junctions at top, bottom, and sides with required silicon sealant, of make GE silicon,. Aluminium sections shall be smooth straight metered and jointed mechanically wherever required with cleat angle including aluminium snap on beading for 5 mm thick glazing/ panelling of 12 mm thick prelaminated boards in the bottom panel & glazing,in top panel , stainless steel screws all complete as per architectural drawings and the direction of Engineer in charge, . including all hardware & fittings required of 14 gauge or as specified fully glazed windows / ventilators/Partitions/doors	Sqm	1250		

S.no.	Description	Unit	Qty	Rate	Amount
11.02	Providing and fixing 35 mm thick flush door shutters, conforming to IS:2202 (part 1 & 2) non decorative type , core of block board construction with frame of 1st class hard wood and well matched 3mm thick ply veneering with vertical grains or cross bands and face veneers on both faces of shutters with necessary polishing on shutter and anodised aluminium butt hinges,screws and all aluminium hardware and latches as per the sample approved by the Architect.	Sqm	1250		
11.03	Providing and fixing Hydraulic door closer bottle type M.S. body with necessary accessories and screws complete	Nos	300		
	Total of Doors & windows				
12.00	Steel works				
12.01	P/Fixing Gate,railing,grills made out of MS (square pipes,Plates,round pipes,square bars,channels etc.) as per the design and details I/c primer and painting by synthatic enamel paint as per the instruction of the Architect/site incharge.	MT	5		
12.02	Providing, fabricating and erecting welded TRUSS of structural steel sections (Beams, channels, pipes, angles, tees etc) including hardwares i.e Nuts, Bolts & washers, applying a primer coat of zinc chromate and three or more coats of synthatic enamel paint on duly prepared surfaces, complete.	MT	30		

S.no.	Description	Unit	Qty	Rate	Amount
12.03	Providing and fixing pre-coated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm (+ 0.05 %) total coated thickness with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto drilling /any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.	SqM	950		
12.04	Providing and fixing pre-coated galvanised steel sheet roofing accessories 0.50 mm (+ 0.05 %) total coated thickness, Zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws complete				
a	Ridges plain (500 - 600mm)	Meter	100		
b	Flashings/ Aprons.(Upto 600 mm)	Meter	270		
a	North light curves	Meter	270		
b	Barge board (Upto 300 mm)	Meter	270		
a	Crimp curve	Sqm	270		
b	Gutter .(600 mm over all girth)	Meter	270		
Total of Steel works					
13.00	Terracing works				

S.no.	Description	Unit	Qty	Rate	Amount
13.01	Brick Bat Coba Waterproofing treatment to terraces, roof surfaces & such other locations as called for, by providing an even base layer of minimum 20 mm thick cement mortar 1:4 with coarse sand admixed with acrylic water proofing compound, brick bats of size ranging from 40mm to 100mm laid with gaps of 10 to 15mm between them and grouted with cement mortar 1:4 with coarse sand admixed with acrylic waterproofing compound laid to slope of 1:12 or as specified and with a protective coat of 20mm thick cement mortar 1:4 coarse sand admixed with acrylic water proofing compound and finished neat in squares of 300 X 300 mm. Traetment to vertical faces of parapets, walls, beams, etc. with 20mm thick cement plaster 1:4 with coarse sand admixed with acrylic waterproofing compound and finished neatly. (only horizontal treated areas shall be measured for payment) The average thickness shall be 120mm. The minimum thickness at khurra shall be 80mm.	Sqm	11000		
	Total of Terracing works				
14.00	Waterproofing works				

S.no.	Description	Unit	Qty	Rate	Amount
14.01	Three coats of "Tapecrete" applied to surfaces where called for, 1st coat in proportion of 2 :1 (2 parts of cement & 1 part of Tapecrete), 2nd coat in proportion of 2:1:1.5 (2 parts of white cement :1 part of tape create & 1.5 part silica sand) & 3rd coat in proportion of 2:1 (2 part cement & 1 part of Tapecrete) to a total thickness of not less than 4mm after preparation of surface etc. including a protective layer of 12mm thick cement plaster in 1:4 mortar with coarse sand and application of epoxy base putty at junctions and corners, around pipes and other out lets etc. prior to application of final coat of tapecrete. Allow for necessary curing & drying time for each coat, providing proper bonding keys in the coats where required & necessary curing.Tapecrete shall be polymer modified cementitious emulsion. The work shall be carried out broadly outlined above and shall carry guarantee against leakage, seepage, sweating & other defects for 10 (Ten) years.Treated surface area shall only be measured for payment : Floors, horizontal and curved surfaces	Sqm	11000		
14.02	Providing and filling the sunken portion of slab, raft, toilets etc. with cinder concrete in 1:3:6 mix (1 cement, 3 fine sand and 6 cinder), complete.	Sqm	100.00		
	Total of Water proofing works				
15.00	Roads and Pavements				
15.01	Preparation of subgrade by excavating or filling with available earth to an average of 225 mm depth, dressing to camber, watering and compacting with road roller of 8-10 t capacity including making good the undulations etc. and disposal of surplus earth / bringing earthfrom borrow pits within a lead of 50 m, complete all as per drawing and specifications.	Sqm	12250		

S.no.	Description	Unit	Qty	Rate	Amount
15.02	Providing and laying water bound macadam with hard stone aggregate, stone screening and blinding material including screening, sorting, spreading to template and compacting with power road roller of 8 to 10 t capacity etc, complete, of courses : Subbase with stone aggregate 90 to 45 mm including stone screening 13.2 mm size, complete all as per drawing and specifications.	Cum	1250		
15.03	Providing 50 mm thick premix carpet with 4.5 cum and 2.25 cum of hard stone chippings of 13.2 mm size and 11.2 mm size respectively per 100 sqm. and 52 kg. and 56 kg. of hot bitumen per cum. of stone chippings of 13.2 mm and 11.2 mm size respectively including a tack coat with hot straight run bitumen and consolidation with road roller of 6 to 8 t capacity etc., of paving asphat : 80/100, heated and then mixed with solvent at 70 grams per kg. of asphalt complete all as per drawing and specifications.	Sqm	12225		
15.04	Providing and laying 10mm seal coat of premixed fine aggregate (passing 2.36 mm and retained on 180 micron sieve) with bitumen using 150 kg. of bitumen of grade 80/100 and 1.20 cum of fine aggregate per 100 sqm of road surface including rolling and finishing with road roller of 8-10 tonne capacity, complete all as per drawing and specifications.	Sqm	12225		
15.05	Providing and laying M-20 grade precast concrete kerb stones including setting in cement mortar 1:4 with coarse sand and pointing of joints with same mortars etc. complete of size : 300 x 300 x 150 mm thick	RM	2000		

S.no.	Description	Unit	Qty	Rate	Amount
15.06	Providing and laying of design mix cement concrete in road having a minimum works test beam flexural strength of 30kg/cm ² at 28 days using not less than 340 kg of cement per cum of finished concrete as per specified design criteria approved by Engineer-in charge mechanically vibrated using needle and surface vibrators including steel form work with sturdy M.S.channel section including curing and providing and filling construction joints and dummy joints with approved joint filler and primer including rounding of the edges and filling the grooves 10X25mm deep at top for construction joints and 10X50mm deep at top for dummy joints with joint sealing compound including making necessary arrangements for expansion joints etc.all complete.	RO			
15.07	providing and laying in position bitumen hot sealing compound for filler in expansion joints.	RO			
15.08	Providing and laying 60mm thick factory made cement concrete interlocking paver block of M-30 grade made by block making machine with strong vibratory compaction and of approved size and design/shape laid in required colour and pattern over and including 50mm thick compacted bed of course sand,filling the joints with coarse sand etc. all complete as per the direction of Engineer-in-charge.	Sqm	2000		
Total of Road and Pavement					
16.00	Miscellaneous works				
16.01	Making plinth protection, 50 mm thick, of cement concrete 1:3:6 with coarse sand on 75 mm bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand including finishing the top surface smooth.	Sqm	1000		
16.02	Providing cement concrete Gola of size 75 x 75 mm in 1:2:4 mix, finishing with cement mortar 1:3 with fine sand including cutting of chase.	RM	2000		

S.no.	Description	Unit	Qty	Rate	Amount
16.03	Making khurras 450 x 450 mm with average minimum thickness of 5 cm. cement concrete 1:2:4 over PVC sheet of 1 m x 1m x 400 micron finished with 12 mm cement plaster 1:3 with coarse sand and a coat of neat cement, rounding the edges, making and finishing the outlet complete.	Nos	200		
16.04	Providing and fixing MS pipe sleeves 600mm long with suitable puddle flanges and grouting in cement concrete wall in over head and under ground water tanks including epoxy painting on steel surface.				
	a) 50mm dia	Nos	5		
	b) 100mm dia	Nos	5		
	c) 150mm dia	Nos	5		
	d) 200mm dia	Nos	5		
	e) 250mm dia	Nos	5		
16.05	Clearing buildings Malba and removal of the rubbish upto a distance of 5k m outside the periphery of the area enclosed	Cum	2000		
16.06	Dismantling of the following including disposal of unservicable material upto a lead of 5Km or as specified.				
	(a) Concrete	cum	5		
	(b) Brick Work	cum	5		
	(c) Any type of flooring	Sqm	100		
16.07	providing and fixing Chain link fabric fencing of size 50x50 mm made of G.I.wire of dia 4 mm	Sqm	500		
16.08	Supply and fixing in position barbed wire fencing as per drawing No.BW - 02 , barbed wire shall be of specification 125 grams per RM.	Meter	1000		

S.no.	Description	Unit	Qty	Rate	Amount
1.00	Total of Eartwork in Excavation				
2.00	Total of Plain Cement Concrete				
3.00	Total of Reinforced Cement Concrete Works				
4.00	Total of Reinforcement works				
5.00	Total of Centering And Shuttering works				
6.00	Total of Brickwork				
7.00	Total of Finishing Works				
8.00	Total of False Ceiling				
9.00	Total of Painting Works				
10.00	Total of Flooring and cladding work				
11.00	Total of Doors & windows				
12.00	Total of steel works				
13.00	Total of Terracing works				
14.00	Total of Water proofing works				
15.00	Total of Road and Pavement work				
16.00	Total Of Misc. Works				

S.no.	Description	Unit	Qty	Rate	Amount
	TOTAL OF CIVIL WORK				

EXTERNAL ELECTRICAL BOQ-NEPAL POLYTECHNIC

Sr. No.	Description	Unit	Total Qty	Rate	Amount
	WIRING				
1.0	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 piano type switch, phenolic laminated sheet, suitable size M.S. box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc as required.				
a)	Group C	Point	21		
2.0	Wiring for light/ power plug with 2X4 sq. mm FRLS PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit alongwith 1 No 4 sq. mm FRLS PVC insulated copper conductor single core cable for loop earthing as required.	Metre	210		
3.0	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required				
a)	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	Metre	230		
b)	2 X 6 sq. mm + 1 X 6 sq. mm earth wire	Metre	80		
4.0	Supplying and drawing following pair 0.5 sq mm FRLS PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC conduit as required.				
5.0	2 Pair	Metre	100		
6.0	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
a)	25 mm	Metre	100		
7.0	Supplying and fixing metal box of following sizes (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including painting etc as required.				
a)	100 mm X 100 mm X 60 mm deep	Each	9		
8.0	Supplying and fixing following piano type switch/ socket on the existing switch box/ cover including connections etc. as required.				
a)	Telephone socket outlet	Each	4		

9.0	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	Each	2		
10.0	Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.				
a)	1 or 2 Module (75mmX75mm)	Each	4		
11.0	Supplying and fixing metal box of 180mm X 100mm X 60mm deep (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including providing and fixing 6 pin 5/6 & 15/16 amps socket outlet and 15/16 amps piano type switch, connection, painting etc. as required.	Each	14		
12.0	Supplying and fixing 3 pin, 5 amp ceiling rose on the existing junction box/ wooden block including connection etc as required.	Each	4		
16.0	MCCB, MCB & DB'S				
17.0	Supplying and fixing following way prewired SP&N MCB distribution board of steel sheet for 240 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FR PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required. (But without MCB/ RCCB/ Isolator)				
a)	2 + 4 way, Double door	Each	4		
18.0	Supplying and fixing 5 amps to 32 amps rating, 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	Each	12		
19.0	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	Each	4		
20.0	Supplying and fixing following rating, double pole, 240 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a)	40 amps	Each	4		
21.0	Supplying and fixing following rating, double pole, (single phase and neutral), 240 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a)	25 amps	Each	4		

22.0	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 enameled white on both sides, and with inscription in single red colour on front side as required.	Each	10		
23.0	Providing and fixing H.T. danger notice plate of 250 mm X 200 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	Each	4		
24.0	E A R T H I N G				
25.0	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	Each	8		
26.0	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.	Set	52		
27.0	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. (but without charcoal/ coke and salt) as required.	Set	6		
28.0	Supplying and laying 6 SWG G.I. wire at 0.50 metre below ground level for conductor earth electrode, including connection/ termination with GI thimble etc. as required. (For Pole earthing).	Metre	2500		
29.0	Providing and fixing 25 mm X 5 mm copper strip in 40 mm dia G.I. pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required.	Metre	400		
30.0	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	Metre	2100		
31.0	Providing and laying earth connection from earth electrode with 6 SWG dia G.I. Wire in 15 mm dia G.I. pipe from earth electrode including connection with G.I. thimble excavation and re-filling as required.	Metre	200		
32.0	MV CABLE LAYING				
33.0	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
a)	Upto 35 sq. mm	Metre			

b)	Above 35 sq. mm and upto 95 sq. mm	Metre	140		
c)	Above 95 sq. mm and upto 185 sq. mm	Metre			
d)	Above 185 sq. mm and upto 400 sq. mm	Metre	960		
34.0	Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground in the same trench in one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
a)	Above 35 sq. mm and upto 95 sq. mm	Metre			
b)	Above 95 sq. mm and upto 185 sq. mm	Metre			
c)	Above 185 sq. mm and upto 400 sq. mm	Metre	3000		
35.0	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
a)	Upto 35 sq. mm	Metre	360		
b)	Above 35 sq. mm and upto 95 sq. mm	Metre	915		
c)	Above 95 sq. mm and upto 185 sq. mm	Metre	1752		
d)	Above 185 sq. mm and upto 400 sq. mm	Metre	5075		
36.0	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.				
a)	Upto 35 sq. mm (clamped with 1mm thick saddle)	Metre	670		
b)	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	Metre	220		
c)	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	Metre	100		
d)	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	Metre	50		
	H V CABLE LAYING				
37.0	Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size direct in ground in the same trench in one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the trench etc as				
a)	Above 120 sq. mm and upto 400 sq. mm	Metre	30		
38.0	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
a)	Above 120 sq. mm and upto 400 sq. mm	Metre	170		
b)	MV CABLE JOINTING & END TERMINATION				

39.0	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
a)	2 X 6 sq. mm (19mm)	each	40		
b)	3 X 10 sq. mm (22mm)	each	6		
c)	3 X 16 sq. mm (25mm)	each	2		
d)	3½ X 50 sq. mm (35mm)	each	10		
e)	3½ X 70 sq. mm (38mm)	each	2		
f)	3½ X 95 sq. mm (45mm)	each	28		
g)	3½ X 185 sq. mm (57mm)	each	14		
h)	3 ½ X 150 sq mm (50 mm)	each	4		
i)	3½ X 240 sq. mm (62mm)	each	8		
j)	3 ½ X 300 sq mm (70 mm)	each	52		
k)	4 X 25 sq. mm (28mm)	each	28		
l)	HV CABLE JOINTING & END TERMINATION				
40.0	supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :				
a)	240 sq. mm	Each	5		
41.0	Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :				
42.0	240 sq. mm	Each	2		
	CIVIL ITEMS				
43.0	Providing, laying and fixing following dia RCC pipe NP2 class (light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement : 2 fine sand) including trenching (75 cm deep) and refilling etc as required.				
a)	150 mm dia	metre	410		
b)	300 mm dia	metre	500		
	Total of Schedule items				
44.0	ELECTRICAL-NON SCHEDULE ITEMS				
47.0	D.G. Set Work:				
	All civil foundation of DG sets shall be in the scope of the Civil Contractor. However, DG Set Contractor has to co-ordinate with				
	DG Sets shall be manufactured and installed strictly in accordance with the Noise limits and Emmission limits as per the latest				

	Make and Specifications: For make of equipment refer list of approved makes as given in the Technical Specifications.				
	Difference in Rates: In case of difference in quoted rate of same/similar items, under different subheads, the lowest quoted				
	The rate for each item of work included in the Schedule of Quantities shall, unless expressly stated otherwise, include cost of :				
	All materials, fixing materials, accessories, appliances tools, plants, equipment, transport, labour and incidentals required in				
	Wastage on materials and labour.				
	Loading, transporting, unloading, handling/double handling, hoisting to all levels, setting, fitting and fixing in position, protecting,				
	Liabilities, obligations and risks arising out of Conditions of Contract.				
	All requirements of Specifications, whether such requirements are mentioned in the item or not. The Specifications and				
	All equipment and material shall be IS approved.				
	All approvals shall be obtained from Owner / Consultant				
	All vendor drawings shall be approved by the Owner/Consultant before fabrication work starts.				
	All Testing and Commissioning shall be as per relevant IS for equipment and IS:732:1989 for the installation. All these testing				
	As a part of contract, following documentation shall be furnished.				
	General arrangement plan of DG set.				
	Piping schematic diagram				
	Layout of fuel and exhaust piping.				
	Layout and constructional details of acoustic treatment.				
	Calculations for ventilation system design.				
	Engine wiring diagram.				
	Test certificate for engine and alternator.				
	Installation, operation and maintenance instructions for diesel engine, alternator.				
	Spare parts list.				
	Approval from Pollution Control Board.				
48.0	HIGH SIDE DG SET WORKS:				
	Supply, instalation, testing & commisioning of following rating, 415 V, 3 Phase, 4-wire, 50 Hz at 0.8 p.f. silent diesel generator set with acoustically treated cannopy suitable for AMF/Manual operation with Radiator cooling , alternator, of suitable rating 415 Volts at 1500 RPM, 3 phase, 50Hz AC supply with 0.80 lagging power factor at 40°C 50% RH & at 1000 Mtrs. MSL, 24 V batteries, charger with battery leads,one day fuel Tank(Capacity as per manufacturer standard),Residential silencer and AVM Pads, all accessories as specified in the specifications, including first fill of lube oil providing common base plate, anti vibration isolators, cable termination adopter box, drip trays, foundation bolts, glands, nuts etc. as required for a complete installation.				

<p>DG Sets shall include one day fuel tank (990 liters/as per design) for each D.G. set. The day fuel tank shall be fabricated out of 2 mm thick MS sheets and shall include the cost of removable cover with locking arrangement, the cost of painting, the cost of providing all the required appurtenances like inlet & outlet connection, float valves, drain connection, mechanical oil level indicator and low level/high level alarms and the cost of support arrangement etc. complete as per specification and as required. The Alternator overload capacity shall not be less than 110% of rated capacity for 1 hour in every continuous running of 12 hours. The DG Set shall be mounted on a fabricated rigid common base frame with anti-vibration mountings to provide at least 98% vibration isolation. The DG set shall include all accessories, fittings, instruments and standard tool kit complete as per specification and as required including control cabling.</p>				
Radiator cooling system.				
Fly Wheel to suit flexible/rigid coupling with guard.				
Fly wheel housing complete with starter gear ring and coupling.				
Fuel hoses.				
Electronic Governor.				
Air Cleaner with Vacuum Indicator.				
Fuel and Lub Oil Filter.				
By pass filter				
Corrosion inhibitor coolant.				
Fuel Pump PT Type.				
Lub Oil Pump.				
Electric Starter 24 Volts DC.				
<p>Battery Charging Alternator with Built-in-regulator - 24 Volts, 30 Amps. With MS battery stand complete with insulated mattings and instrument panel comprising of switch with key & battery charging voltmeter.</p>				
<p>Residential Silencer (as per latest CPCB norms including baffle plates and 75mm thick glass/mineral wool insulation complete with wire mesh chicken mesh and 26 gauge aluminium cladding from engine upto silencer, supporting arrangement complete as required). with dry exhaust manifold.</p>				
i) Expansion below fabricated out of SS sheet.				
ii) Flue pipe of required size from DG set flue outlet upto Silencer.				
Lube oil pressure gauge				
Water temperature gauge				

Safety control for low lube oil pressure				
Over speed and high cooling temperature with indication and tripping etc.				
Alternator insulation Class "H" suitable to withstand tropical conditions.				
Fabricated rigid common base frame with anti-vibration mountings.				
Vibration Isolator				
Adaptor box and extension of busbars for aluminium cable termination/bus duct insulation as required.				
Lub Oil Cooler.				
Flexible Pipe joints for Silencer.				
Anti Vibration Pads.				
Droop setting for the synchronization.				
Naturally aspirated turbocharger as per manufacturer's specifications.				
suitable ACOUSTIC ENCLOSURE Radiator cooled diesel engine.				
Rating of DG Sets as Follows :-				
500 KVA, DG Set	Set	1		
Copper & GI Earthing pits for DG Sets shall be part of Electrical Tender package. Contractor shall be coordinated with the Electrical Contractor.				
The electrical power cabling/Bus duct from alternator to the panel will be carried out by other agencies. However the DG control cabling from the DG to the DG Panel will be carried out by the DG vendor.				
The contractor shall appoint an experienced full time engineer throughout the installation period till the set is handed over. One month maintenance from the date of commissioning shall be carried out by the DG vender.				
The contractor shall carry out the control cabling from the engine control panel to the breakers in the main panel.				
Connecting block with wiring diagram shall be provided in the DG Panel for integrating with the EB Panel.				
PLC Based Auto Start, Auto Changeover, Auto Load Balancing shall be part of Main MV Panel.				
Providing and fixing NO SMOKING & DANGER ZONE signboards.	Nos.	2		
Providing and fixing fire bucket of 9 lit. capacity made of 24 gauge MS sheet on existing structure.	Nos.	4		
Providing and fixing ISI marked portable fire extinguishers:				

CO ₂ 4.5 Kg. Capacity as per latest IS.	Nos.	2		
Chemical foam type of 9 liters as per latest IS (trolley marker).	Nos.	2		
Dry chemical powder type (5 Kg.) as per latest IS.	Nos.	2		
Supply and fixing of approved shock treatment chart in position & written in English and Hindi. The chart shall be framed using wooden frame and glass.	Nos.	1		
PACKAGE SUBSTATIONS				
11KV PACKAGE SUBSTATION-1:				
Supply, receiving, storing, inspection, handling, assembling, installation in correct aligned position, effecting proper connections, testing and commissioning of Outdoor type package type substation with continuous rating 800 KVA , Step Down, 11/0.433 kV oil filled OFF load tap changer transformer with 4 mm thick beae and 2 mm thick wall of each compartment with compartment, with IP 54 for HT & LT compartment and IP 23 for transformer compartment, with naturally cooled type canopy (Hot Galvanized Steel), required capicity power pack and the following specifications confirming to IS: 2026				
Package sub station should have the following equipments:				
RMU-NON-Extensible 3WAY , 11 KV ,(2 isolators, 1 Vaccum circuit breaker),				
TYPE:- Free standing, Metal Clad, Vaccum insulated Ringmaster with 2Nos 630A load breaking, Fault Breaking Switches and 630A T off Vaccum Circuit Breaker.				
Self Powered Relay. Type IDMT				
Ring switches and T OFF vaccum circuit breaker with Integrated Earthing Switches				
Live Cable Indicator for Ring Switches				
Padlocking Facility				
Shunt trip coil rating- 230V AC.				
Padlocking facility				
11KV/433V, 800kVA three phase, Dyn11, OFF load tap changer with +5% to -15% in steps of 1.25%on HT side, CU winding Oil type Transformer with standard accessories.				
Metering, Indication & Protection:				
Multifunction digital meter (consisting of Voltage, Current, Frequency, PF, kWh, kVA parameter) with RS-485 Port.				

Sets of 1250/5A, CL-1, 15VA CTs for measuring.				
Sets of 1250/5A, CL-5P 10, 15VA CTs for Protection.				
Sets of phase indicating lamps with 2A control MCBs.				
Sets of ON/OFF/Trip/Trip circuit healthy/ready to close lamps.				
4W annunciator with Audio/Visual alarm and accept/test/ reset push button.				
IDMTL relay Two O/C & One E E/F with 1250/5A, CL-5P10, 15VA CTs.				
1250/5A, CL-1, 15VA CT for APFCR.				
Restricted earth fault relay with 1250/5A, CL-PS, CTs (3 Nos. to be mounted in panel and 1 No. to be supplied loose with panel).				
Under voltage relay				
Trip circuit supervision relay				
Master trip lockout relay.				
LV Compartment (With Inbuilt capacitor banks and sub panels out goings.)				
1No. 4pole, 1250A, 50KA MDO ACB with O/C,S/C & E/F Protection				
Busbar				
Electrolytic high conductivity Aluminium three pole and neutral busbars rated at 1600 amps (after deration) with current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoings to sub panels				
1 Nos.800A TP+NL microprocessor Base MCCB(21-KA)				
2 Nos.630A TP+NL microprocessor Base MCCB(21-KA)				
1 Nos.400A TP+NL microprocessor Base MCCB(21-KA)				
1 Nos.800A TP+NL thermal magnetic Base MCCB(21-KA) For Spare only.				
1 Nos.630A TP+NL Thermal magnetic Base MCCB(21-KA) For Spare only.				
300 kVAR Capacitor Banks:				
(3x 50KVAR + 4 x 25kVAR + 1 x 20 kVAR + 2x10 KVAR + 2x5 kVAR)				

Supply and commissioning of Cubicle type, free floor mounted front operated panel with following capacitor units in formation including cost of tier formation, interconnections upto panel, connection to earthing system complete as specified for following rating capacitor unit suitable for operation on automatic control and shall form part of automatic control in cubicle form made out of 14 gauge CRCA powder coated sheet steel complete with 32 x 6 mm aluminium earth tape from end to end of the panel for following capacities of capacitor panel.				
630A TP Al. busbar suitable for receiving incoming cables/Bus duct				
12 Step APFC Relay having feature of changing the sequence of operation with Auto/Manual selector switch.				
Auto/Manual Indicating lamps.				
Set of Phase indicating lamps with 2A control MCBs.				
One No. Control Transformer 415/230V AC rating as required with 2A control MCBs for Metering and Control Circuit.				
3 Sets of 50 kVAR each set having 63A, TP MCCB (21 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
4 Sets of 25 kVAR each set having 40A, TP MCCB (21 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
1 Sets of 20 kVAR each set having 25A, TP MCCB (21 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
2 Sets of 10 kVAR each set having 25A, TP MCCB (21 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
2 Sets of 5 kVAR each set having 16A, TP MCB (21 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
300 kVAR Capacitor				
11KV PACKAGE SUBSTATION-1 described as above:	Set	1		
11KV PACKAGE SUBSTATION-2 (RESIDENTIAL SUBSTATION):				

Supply, receiving, storing, inspection, handling, assembling, installation in correct aligned position, effecting proper connections, testing and commissioning of Outdoor type package type substation with continuous rating 400 KVA , Step Down, 11/0.433 kV oil filled OFF load tap changer transformer with 4 mm thick beae and 2 mm thick wall of each compartment with compartment, with IP 54 for HT & LT compartment and IP 23 for transformer compartment, with naturally cooled type canopy (Hot Galvanized Steel), required capicity power pack and the following specifications confirming to IS: 2026				
Package sub station should have the following equipments:				
RMU-NON-Extensible 3WAY , 11 KV ,(2 isolators, 1 Vaccum circuit breaker),				
TYPE:- Free standing, Metal Clad, Vaccum insulated Ringmaster with 2Nos 630A load breaking, Fault Breaking Switches and 630A T off Vaccum Circuit Breaker.				
Self Powered Relay. Type IDMT				
Ring switches and T OFF vaccum circuit breaker with Integrated Earthing Switches				
Live Cable Indicator for Ring Switches				
Padlocking Facility				
Shunt trip coil rating- 230V AC.				
Padlocking facility				
11KV/433V, 400kVA three phase, Dyn11, OFF load tap changer with +5% to -15% in steps of 1.25%on HT side, CU winding Oil type Transformer with standard accessories.				
Metering, Indication & Protection:				
Multifunction digital meter (consisting of Voltage, Current, Frequency, PF, kWh, kVA parameter) with RS-485 Port.				
Sets of 630/5A, CL-1, 15VA CTs for measuring.				
Sets of 630/5A, CL-5P 10, 15VA CTs for Protection.				
Sets of phase indicating lamps with 2A control MCBs.				
Sets of ON/OFF/Trip/Trip circuit healthy/ready to close lamps.				
4W annunciator with Audio/Visual alarm and accept/test/ reset push button.				
IDMTL relay Two O/C & One E E/F with 630/5A, CL-5P10, 15VA CTs.				
630/5A, CL-1, 15VA CT for APFCR.				

Restricted earth fault relay with 630/5A, CL-PS, CTs (3 Nos. to be mounted in panel and 1 No. to be supplied loose with panel).				
Under voltage relay				
Trip circuit supervision relay				
Master trip lockout relay.				
LV Compartment (With Inbuilt capacitor banks and sub panels out goings.)				
1No. 4pole, 630A, 50KA MDO ACB with O/C,S/C & E/F Protection				
Busbar				
Electrolytic high conductivity Aluminium three pole and neutral busbars rated at 800 amps (after deration) with current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoings to sub panels				
1 Nos.630A TP+NL microprocessor Base MCCB(21-KA)				
1 Nos.100A TP+NL microprocessor Base MCCB(21-KA)				
1 Nos.200A TP+NL microprocessor Base MCCB(21-KA)				
1 Nos.630A TP+NL thermal magnetic Base MCCB(21-KA) For Spare only.				
1 Nos.200A TP+NL Thermal magnetic Base MCCB(21-KA) For Spare only.				
125 kVAR Capacitor Banks:				
(1x 50KVAR + 2 x 25kVAR + 1x10 KVAR + 3x5 kVAR)				
Supply and commissioning of Cubicle type, free floor mounted front operated panel with following capacitor units in formation including cost of tier formation, interconnections upto panel, connection to earthing system complete as specified for following rating capacitor unit suitable for operation on automatic control and shall form part of automatic control in cubicle form made out of 14 gauge CRCA powder coated sheet steel complete with 32 x 6 mm aluminium earth tape from end to end of the panel for following capacities of capacitor panel.				
200A TP Al. busbar suitable for receiving incoming cables/Bus duct				
7 Step APFC Relay having feature of changing the sequence of operation with Auto/Manual selector switch.				
Auto/Manual Indicating lamps.				
Set of Phase indicating lamps with 2A control MCBs.				
One No. Control Transformer 415/230V AC rating as required with 2A control MCBs for Metering and Control Circuit.				

1 Sets of 50 kVAR each set having 63A, TP MCCB (21 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
2 Sets of 25 kVAR each set having 40A, TP MCCB (21 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
1 Sets of 10 kVAR each set having 25A, TP MCCB (21 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
3 Sets of 5 kVAR each set having 16A, TP MCB (21 kA) capacitor duty contactor, ON/OFF indicating lamps with 2A control MCBs and ON/OFF push buttons.				
130 kVAR Capacitor				
11KV PACKAGE SUBSTATION described as above:	Set	1		
M.V. SWITCH GEARS & DISTRIBUTION BOARDS				
GENERAL NOTES:				
This BOQ to be read in conjunction with technical specifications and Single Line Diagram (attached for reference). If any discrepancy occurs that should be brought to the notice of Client/Consultant before quoting the price otherwise stringent condition will be deemed to have been considered.				
All ACBs to be provided with ON/OFF/Trip lamps, 3 NO + 3NC Auxiliary contacts other than used in control circuit.				
All Transformer and DG incoming ACBs shall be provided with inbuilt Microprocessor based O/L, S/C and E/F releases.				
All outgoing ACBs shall be provided with thermal magnetic O/L and S/C releases.				
All I/C ACB shall be with inbuilt display for voltage , current & KWH.				
All I/C ACB shall be with trip histry display.				
All MCCBs shall be provided with rotary operating handle, thermal magnetic O/L & S/C releases and ON/OFF lamps. Incoming MCCBs should be provided with E/F release and shunt trip release also.				
All MCCB shall have double isolatiom feature.				
For all MCCB Icu=Ics =100%.				
All meters shall be digital type.				
Multi-function meter to be provided as required to cover all the parameters as mentioned.				

All current/voltage transformer shall be cast resin type.				
All indicating lamps shall be LED type.				
Current density for bus bar shall not be more than 0.8A/Sqmm. Rating of Bus bar is after considering all derating factors. Neutral bus in DG Power Panel/Main LT Panel/Bus Duct shall be fully rated. (Bus bar sizing calculation to be submitted for approval.)				
All starter shall be provided with ON/OFF/Trip lamp, start/stop button.				
All internal control wiring shall be heat resistant type.				
All incoming breakers in Main LT panel shall be electrically interlocked.				
All TP feeders shall be provided with Isolateable neutral link.				
Bus bar chamber shall be provided at top only. Incoming and outgoing cable entry shall be from top/bottom as required.				
DOL Starter shall be MPCB (with Magnetic element only). In case of S/C & O/L relay should trip respectively.				
All MCCB having rating above 250A should be Microprocessor base.				
M.V. PANEL BOARDS:				
Design, manufacture, supplying, fixing in position, testing and commissioning of following MV switchgear panels suitable for 415 V, 3 phase, 4 wire, 50 Hz power distribution system. The panel shall be Indoor, free standing, floor/wall mounting, sheet metal clad, cubicle, dead front, dust and vermin proof type compartmentalized design fabricated out of 14 SWG sheet steel, complete with copper bus bars, separate earth bus bar to be provided through out the length of the panel. The incoming and outgoing feeders shall be accommodated in a modular multitier arrangement and shall be interlocked to avoid paralleling, adequate size cable alley, painting, earthing, numbering, danger plate etc as required as per specifications and drawings.				
FEEDER PILLAR-1				
Tech. spec. as described above.				
Comprising of the following:				
Incomer:				
Incoming from 11 KV PACKAGE SUBSTATION -1 consist of:-				
One nos.400A, 4P microprocessor base MCCB (16KA)				
Metering & Indication:				

Combined Ammeter/Voltmeter with Selector Switch and 400/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Sets of ON,OFF,TRIP indicating lamp with 2A control MCBs.				
Busbar				
Electrolytic high conductivity Aluminium 4 pole and neutral busbars rated at 500 amps (after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves. N-100%				
Outgoing feeders:				
1 Nos. 63A TPN MCB (10KA).				
4 Nos. 100A TP+NL MCCB (10-KA).				
2 Nos. 40A 4P MCB (10-KA).				
1 Nos. 40A DP MCB (10-KA).				
1 Nos. 100A TP+NL MCCB (10KA). For Spare only.				
1 Nos. 63A TPN MCB (10-KA). For Spare only.				
1 Nos. 40A TPN MCB (10-KA). For Spare only.				
1 Nos. 40A DP MCB (10-KA). For Spare only.				
FEEDER PILLER -1 DESCRIBED AS ABOVE	Set	1		
FEEDER PILLAR-2				
Tech. spec. as described above.				
Comprising of the following:				
Incomer:				
Incoming from 11 KV PACKAGE SUBSTATION -1 consist of:-				
One nos.630A, 4P microprocessor base MCCB (16KA)				
Metering & Indication:				
Combined Ammeter/Voltmeter with Selector Switch and 630/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Sets of ON,OFF,TRIP indicating lamp with 2A control MCBs.				
Busbar				
Electrolytic high conductivity Aluminium 4 pole and neutral busbars rated at 800 amps (after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves. N-100%				
Outgoing feeders:				
3 Nos. 160A TP+NL MCCB (10KA).				

1 Nos. 100A TP+NL MCCB (10-KA).				
1 Nos. 63A TPN MCB (10-KA).				
1 Nos. 40A DP MCB (10KA)				
1 Nos. 160A TP+NL MCCB (10KA). For Spare only.				
1 Nos. 100A TP+NL MCCB (10-KA). For Spare only.				
1 Nos. 63A TPN MCB (10KA). For Spare only.				
1 Nos. 40A DP MCB (10KA) For Spare only.				
FEEDER PILLER -2 DESCRIBED AS ABOVE	Set	1		
FEEDER PILLAR-3				
Tech. spec. as described above.				
Comprising of the following:				
Incomer:				
Incoming from 11 KV PACKAGE SUBSTATION -1 consist of:-				
One nos.630A, 4P microprocessor base MCCB (16KA)				
Metering & Indication:				
Combined Ammeter/Voltmeter with Selector Switch and 630/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Sets of ON,OFF,TRIP indicating lamp with 2A control MCBs.				
Busbar				
Electrolytic high conductivity Aluminium 4 pole and neutral busbars rated at 800 amps (after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves. N-100%				
Outgoing feeders:				
2 Nos. 160A TP+NL MCCB (10-KA).				
3 Nos. 100A TP+NL MCCB (10-KA).				
1 Nos. 63A 4P MCB (10KA).				
1 Nos. 160A TP+NL MCCB (10KA). For Spare only.				
1 Nos. 100A TP+NL MCCB (10-KA). For Spare only.				
1 Nos. 63A 4P MCB (10KA). For Spare only.				
FEEDER PILLER -3 DESCRIBED AS ABOVE	Set	1		
EMERGENCY PANEL				
Tech. spec. as described above.				
Comprising of the following:				
Incomer:				

Incoming from 11 KV PACKAGE SUBSTATION -1 consist of:-				
One nos.800A, 4P microprocessor base MCCB (16KA)				
Metering & Indication:				
Combined Ammeter/Voltmeter with Selector Switch and 800/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Sets of ON,OFF,TRIP indicating lamp with 2A control MCBs.				
D.G. Incomer -: One (1) Nos. 500 KVA D.G. set incomer consisting of :				
Metering & Indication:				
Combined digital Ammeter/Voltmeter with Selector Switch and 800/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Sets of ON,OFF,TRIP indicating lamp with 2A control MCBs.				
Reverse power relay.				
Under voltage relay				
Over voltage relay				
Under frequency relay				
Over frequency relay				
Trip circuit supervision relay				
Master trip lockout relay.				
Bus Coupler				
One Nos. 800A, 4-pole microprocessor based MCCB(26KA)with O/L, S/C and E/F releases.				
Following items will be considered with each Bus Coupler				
6 nos NO/NC contacts				
Red/Green ON/OFF/TRIP & RYB indicating lamps with control MCB				
24volt DC Shunt trip & closing coil.				
Motor wound spring closing mechanism				
Breaker Control Switch.				
Busbar				
Electrolytic high conductivity Aluminium 4 pole and neutral busbars rated at 1000 amps (after deration)for section 1 and 2 having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves. N-100%				
Outgoing feeders:				
1 Nos. 400A TP+NL MCCB (10-KA).				

2 Nos. 100A,4P MCCB (10kA).				
2 Nos. 63A TP+NL MCCB (10-KA).				
1 Nos. 63A 4P MCB (10KA).				
1 Nos. 63A 4P MCB (10KA). For Spare only.				
1 Nos. 63A TP+NL MCCB (10-KA). For Spare only.				
1 Nos. 400A TP+NL MCCB (10-KA). For Spare only.				
EMERGENCY PANEL Described As Above	Set	1		
ADMIN BUILDING PANEL				
Supply, installation, testing and commissioning of front operated, front access, totally enclosed, free standing, dust and vermin proof Panel with IP65 ingress protection, fabricated from 2 mm thick CRCA sheets, with hinged, gasketed and lockable doors including the cost of interconnections, copper crimping lugs, brass glands, bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system with 25 MVA rupturing capacity at 415 volts complete as per specifications, as required and as below.				
Incoming:				
One(1) nos.400A, 4P Microprocessor based MCCB (25KA).				
Metering & Indication:				
Combined digital Ammeter/Voltmeter with Selector Switch and 400/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Sets of ON/OFF/Trip indicating lamp with 2A control MCBs.				
Bus Bar:				
Electrolytic high conductivity Aluminium three pole and neutral busbars rated at 500 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing:				
One (1) No. 160A, TP+NL MCCB (16kA).				
Two (2) No. 100A, TP+NL MCCB (16kA).				
Six (6) No. 63A, DP MCB (16kA).				
Four (4) Nos. 40A DP MCB (10-KA).				
One (1) Nos. 25A DP MCB (10-KA).				
Four (4) Nos. 63A 4P MCB (10-KA).				
One (1) No.17-25 Amp TP MPCB, 100 KA.				
One (1) No. 160A, TP+NL MCCB (16kA). For Spare only.				
One (1) No. 63A, TP+NL MCCB (16kA). For Spare only.				

One (1) Nos. 25A 4P MCB (10-KA). For Spare only.				
One (1) Nos. 40A 4P MCB (10-KA). For Spare only.				
One (1) Nos. 63A 4P MCB (10-KA). For Spare only.				
One (1) No.17-25 Amp TP MPCB, 100 KA. For Spare only.				
The Switchboard shall be complete with all interconnections, risers, internal wiring, labels etc complete as required.				
Fully automatic Star Delta starters (for 20 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (17-25A for 20 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
20HP - 1 Nos. Starter				
Spare N.O. - N.C. contacts for each starter - 3Set.				
G.I. strip 25 x 3 mm throughout the length of MCC.				
All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
Admin Block Panel described as above.	Set	1		
HVAC Outdoor panel (ADMIN Block)				
Supply, installation, testing and commissioning of front operated, front access, totally enclosed, free standing, dust and vermin proof Panel with IP65 ingress protection, fabricated from 2 mm thick CRCA sheets, with hinged, gasketed and lockable doors including the cost of interconnections, copper crimping lugs, brass glands, bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system with 25 MVA rupturing capacity at 415 volts complete as per specifications, as required and as below.				
Incoming:				
One(1) nos.160A, TP+NL Microprocessor base MCCB (16KA).				
Metering & Indication:				
Combined digital Ammeter/Voltmeter with Selector Switch and 160/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Sets of ON/OFF/Trip indicating lamp with 2A control MCBs.				
Bus Bar:				

Electrolytic high conductivity Aluminium three pole and neutral busbars rated at 200 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing:				
Four (4) No. 17-25A, TP MPCB (100kA).				
Two (2) No. 12-18A, TP MPCB (100kA).				
One (1) No. 17-25A, TP MPCB (100kA).. For Spare only.				
Two (2) No. 12-18A, TP MPCB (100kA). For Spare only.				
The Switchboard shall be complete with all interconnections, risers, internal wiring, labels etc complete as required.				
Fully automatic Star Delta starters (for 20 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (17-25A for 20 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
Fully automatic Star Delta starters (for 12 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (12-18A for 12 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
12HP - 2 Nos. Starter				
20HP - 4 Nos. Starter				
Spare N.O. - N.C. contacts for each starter - 3Set.				
G.I. strip 25 x 3 mm throughout the length of MCC.				
All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
HVAC Outdoor panel (ADMIN Block) described as above.	Set	1		
UPS Panel(ADMIN Block)				
Tech. spec. as described above.				
Comprising of the following:				
Incomer:				
Two (2) nos.100A, 4P MCCB (16KA).				
Two(2) nos.100A, 4P Contactor				
Metering & Indication:				

Combined digital Ammeter/Voltmeter with Selector Switch and 100/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Sets of ON/OFF/Trip indicating lamp with 2A control MCBs.				
Busbar				
Electrolytic high conductivity Cu four pole busbars rated at 150 amps(after deration) having a maximum current density of 1.6 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing feeders:				
Two (2) Nos. 40A DP MCB (10-KA).				
Four (4) Nos. 63A DP MCB (10-KA).				
One(1) Nos. 40A DP MCB (10-KA). For Spare only.				
One(1) Nos. 63A DP MCB (10-KA). For Spare only.				
UPS Panel(Admin block) described as above	Set	1		
Panel for ACADEMIC Building				
Incoming:				
Supply, installation, testing and commissioning of front operated, front access, totally enclosed, free standing, dust and vermin proof Panel with IP65 ingress protection, fabricated from 2 mm thick CRCA sheets, with hinged, gasketed and lockable doors including the cost of interconnections, copper crimping lugs, brass glands, bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system with 25 MVA rupturing capacity at 415 volts complete as per specifications, as required and as below.				
One (1) No. 100A,4P MCCB (10kA)				
Metering & Indication:				
Combined digital Ammeter/Voltmeter with Selector Switch and 100/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Bus Bar:				
Electrolytic high conductivity Aluminium TPN+L busbars rated at 150 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing:				
Six (6) nos 40Amp 4P MCB, 10 KA.				
Six (6) nos 25Amp 4P MCB, 10 KA.				
Two (2) nos 40Amp 4P MCB, 10 KA. For Spare only.				
One (1) nos 25Amp DP MCB, 10 KA.. For Spare only.				

	Panel for ACADEMIC Building described as above	set	2		
	Auditorium Panel				
	Incoming:				
	One (1) No. 160A, TP+NL MCCB (16kA).				
	Metering & Indication:				
	Combined Ammeter/Voltmeter with Selector Switch and 160/5A, CL-1, 10VA CTs and 2A control MCB.				
	Sets of phase indicating lamp with 2A control MCBs.				
	Sets of ON/OFF/TRIP indicating lamp with 2A control MCBs.				
	Bus Bar:				
	Electrolytic high conductivity Aluminium 4P busbars rated at 200 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves & 100% neutral.				
	Outgoing:				
	Two (2) No. 25A, 4P MCB (10kA).				
	Two (2) No. 40A, 4P MCB (10kA).				
	One (1) No. 63A, 4P MCB (10kA).				
	One (1) No. (37-50A), TP MPCB (100kA).				
	One (1) No. (17-25A), TP MPCB (100kA).				
	One(1) No. (7-10A), TP MPCB (100kA). For Spare only.				
	One (1) No. (17-25A), TP MPCB (100kA). For Spare only.				
	One (1) No. 63A 4P MCB (10kA). For Spare only.				
	One (1) No. 40A, 4P MCB (10kA). For Spare only.				
	One (1) No. 25A, 4P MCB (10kA). For Spare only.				
	The Switchboard shall be complete with all interconnections, risers, internal wiring, labels etc complete as required.				
	Fully automatic Star delta starters (for 15 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (17-25A for 15 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
	Fully automatic Star Delta starters (for 40 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (37-50A for 40 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
	15HP - 1 Nos. Starter				

40 HP - 1 Nos. Starter				
Spare N.O. - N.C. contacts for each starter - 3Set.				
G.I. strip 25 x 3 mm throughout the length of MCC.				
All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
Auditorium Panel described as above	set	1		
Panel for BOYS HOSTEL Building				
Incoming:				
Supply, installation, testing and commissioning of front operated, front access, totally enclosed, free standing, dust and vermin proof Panel with IP65 ingress protection, fabricated from 2 mm thick CRCA sheets, with hinged, gasketed and lockable doors including the cost of interconnections, copper crimping lugs, brass glands, bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system with 25 MVA rupturing capacity at 415 volts complete as per specifications, as required and as below.				
One (1) No. 100A,4P MCCB (10kA)				
Metering & Indication:				
Combined digital Ammeter/Voltmeter with Selector Switch and 100/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Bus Bar:				
Electrolytic high conductivity Aluminium TPN+L busbars rated at 150 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing:				
Four (4) nos 40Amp 4P MCB, 10 KA.				
Five (5) nos 25Amp 4P MCB, 10 KA.				
One (1) No. (17-25A), TP MPCB (100kA).				
Two (2) nos 40Amp 4P MCB, 10 KA. For Spare only.				
One (1) nos 25Amp DP MCB, 10 KA.. For Spare only.				
One (1) No. (17-25A), TP MPCB (100kA). For Spare only.				

Fully automatic Star Delta starters (for 15 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (17-25A for 15 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
15 HP - 1 Nos. Starter				
Spare N.O. - N.C. contacts for each starter - 3Set.				
G.I. strip 25 x 3 mm throughout the length of MCC.				
All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
Panel for BOYS HOSTEL Building described as above	set	1		
Panel for GIRLS HOSTEL Building				
Incoming:				
Supply, installation, testing and commissioning of front operated, front access, totally enclosed, free standing, dust and vermin proof Panel with IP65 ingress protection, fabricated from 2 mm thick CRCA sheets, with hinged, gasketed and lockable doors including the cost of interconnections, copper crimping lugs, brass glands, bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system with 25 MVA rupturing capacity at 415 volts complete as per specifications, as required and as below.				
One (1) No. 100A,4P MCCB (10kA)				
Metering & Indication:				
Combined digital Ammeter/Voltmeter with Selector Switch and 100/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Bus Bar:				
Electrolytic high conductivity Aluminium TPN+L busbars rated at 150 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing:				
Two (2) nos 40Amp 4P MCB, 10 KA.				
Two (2) nos 25Amp 4P MCB, 10 KA.				
One (1) No. (17-25A), TP MPCB (100kA).				
One (1) nos 40Amp 4P MCB, 10 KA.. For Spare only.				

One (1) nos 25Amp DP MCB, 10 KA.. For Spare only.				
One (1) No. (17-25A), TP MPCB (100kA). For Spare only.				
Fully automatic Star Delta starters (for 15 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (17-25A for 15 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
15 HP - 1 Nos. Starter				
Spare N.O. - N.C. contacts for each starter - 3Set.				
G.I. strip 25 x 3 mm throughout the length of MCC.				
All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
Panel for GIRLS HOSTEL Building described as above	set	1		
Panel for Workshop				
Incoming:				
Supply, installation, testing and commissioning of front operated, front access, totally enclosed, free standing, dust and vermin proof Panel with IP65 ingress protection, fabricated from 2 mm thick CRCA sheets, with hinged, gasketed and lockable doors including the cost of interconnections, copper crimping lugs, brass glands, bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system with 25 MVA rupturing capacity at 415 volts complete as per specifications, as required and as below.				
One (1) No. 100A,4P MCCB (10kA)				
Metering & Indication:				
Combined digital Ammeter/Voltmeter with Selector Switch and 100/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Bus Bar:				
Electrolytic high conductivity Aluminium TPN+L busbars rated at 150 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing:				
Two (2) nos 63Amp 4P MCCB, 10 KA.				
One (1) nos 25Amp 4P MCB, 10 KA.				

One (1) nos 40Amp 4P MCB, 10 KA.				
One (1) nos 40Amp 4P MCB, 10 KA.. For Spare only.				
One (1) nos 25Amp DP MCB, 10 KA.. For Spare only.				
Panel for Workshop Building described as above	set	4		
Panel for Technical Staff				
Incoming:				
Supply, installation, testing and commissioning of front operated, front access, totally enclosed, free standing, dust and vermin proof Panel with IP65 ingress protection, fabricated from 2 mm thick CRCA sheets, with hinged, gasketed and lockable doors including the cost of interconnections, copper crimping lugs, brass glands, bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system with 25 MVA rupturing capacity at 415 volts complete as per specifications, as required and as below.				
(Suitable for 8 Nos. Single phase Dual source energy meter)				
Incoming				
One (1) No. 100A,4P MCCB (10kA)				
Metering & Indication:				
Combined digital Ammeter/Voltmeter with Selector Switch and 100/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Bus Bar:				
Electrolytic high conductivity Aluminium TPN+L busbars rated at 150 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing:				
8 Nos. meter chambers each of having 6mm thick bakelite sheet and sealing & locking arrangement, suitable for fixing of 10Amp to 63Amp single phase digital electronic KWH meter supplied by developer complete with internal wiring for the same. (Size of Meter chambers shall be as per norms of local electricity authority)				
Eight (8) nos 40Amp DP MCB, 10 KA.				
One (1) nos 25Amp DP MCB, 10 KA.				
One (1) No. (17-25A), TP MPCB (100kA).				
One (1) nos 40Amp 4P MCB, 10 KA.				
One (1) No. (17-25A), TP MPCB (100kA). For Spare only.				
One (1) nos 40Amp DP MCB, 10 KA. For Spare only.				
One (1) nos 25Amp DP MCB, 10 KA. For Spare only.				

Fully automatic Star Delta starters (for 15 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (17-25A for 15 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
15 HP - 1 Nos. Starter				
Spare N.O. - N.C. contacts for each starter - 3Set.				
G.I. strip 25 x 3 mm throughout the length of MCC.				
All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
Panel for Technical Staff Building described as above	set	1		
Panel for Lecturer Residence				
Incoming:				
Supply, installation, testing and commissioning of front operated, front access, totally enclosed, free standing, dust and vermin proof Panel with IP65 ingress protection, fabricated from 2 mm thick CRCA sheets, with hinged, gasketed and lockable doors including the cost of interconnections, copper crimping lugs, brass glands, bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system with 25 MVA rupturing capacity at 415 volts complete as per specifications, as required and as below.				
(Suitable for 10 Nos. Single phase Dual source energy meter)				
Incoming				
One (1) No. 160A,4P MCCB (10kA)				
Metering & Indication:				
Combined digital Ammeter/Voltmeter with Selector Switch and 160/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Bus Bar:				
Electrolytic high conductivity Aluminium TPN+L busbars rated at 200 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing:				

10 Nos. meter chambers each of having 6mm thick bakelite sheet and sealing & locking arrangement, suitable for fixing of 10Amp to 63Amp single phase digital electronic KWH meter supplied by developer complete with internal wiring for the same. (Size of Meter chambers shall be as per norms of local electricity authority)				
Ten (10) nos 25Amp DP MCB, 10 KA.				
One (1) nos 25Amp DP MCB, 10 KA.				
One (1) No. (17-25A), TP MPCB (100kA).				
One (1) nos 40Amp 4P MCB, 10 KA.				
One (1) No. (17-25A), TP MPCB (100kA). For Spare only.				
One (1) nos 25Amp DP MCB, 10 KA. For Spare only.				
Fully automatic Star Delta starters (for 15 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (17-25A for 15 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
15 HP - 1 Nos. Starter				
Spare N.O. - N.C. contacts for each starter - 3Set.				
G.I. strip 25 x 3 mm throughout the length of MCC.				
All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
Panel for Lecturer Residence Building described as above	set	2		
Panel for HOD Building				
Incoming:				
Supply, installation, testing and commissioning of front operated, front access, totally enclosed, free standing, dust and vermin proof Panel with IP65 ingress protection, fabricated from 2 mm thick CRCA sheets, with hinged, gasketed and lockable doors including the cost of interconnections, copper crimping lugs, brass glands, bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system with 25 MVA rupturing capacity at 415 volts complete as per specifications, as required and as below.				
(Suitable for 6 Nos. Single phase Dual source energy meter)				
One (1) No. 100A,4P MCCB (10kA)				
Metering & Indication:				

Combined digital Ammeter/Voltmeter with Selector Switch and 100/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Bus Bar:				
Electrolytic high conductivity Aluminium TPN+L busbars rated at 150 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing:				
Six (6) nos 40Amp DP MCB, 10 KA.				
One (1) nos 25Amp DP MCB, 10 KA.				
One (1) No. (17-25A), TP MPCB (100kA).				
One (1) nos 40Amp DP MCB, 10 KA.				
One (1) No. (17-25A), TP MPCB (100kA). For Spare only.				
One (1) nos 25Amp DP MCB, 10 KA. For Spare only.				
Fully automatic Star Delta starters (for 15 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (17-25A for 15 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
15 HP - 1 Nos. Starter				
Spare N.O. - N.C. contacts for each starter - 3Set.				
G.I. strip 25 x 3 mm throughout the length of MCC.				
All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
Panel for HOD Building described as above	set	3		
Panel for Postal Block and Loundry Building				
Incoming:				
Supply, installation, testing and commissioning of front operated, front access, totally enclosed, free standing, dust and vermin proof Panel with IP65 ingress protection, fabricated from 2 mm thick CRCA sheets, with hinged, gasketed and lockable doors including the cost of interconnections, copper crimping lugs, brass glands, bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system with 25 MVA rupturing capacity at 415 volts complete as per specifications, as required and as below.				
One (1) No. 160A,4P MCCB (10kA)				

Metering & Indication:				
Combined digital Ammeter/Voltmeter with Selector Switch and 160/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Bus Bar:				
Electrolytic high conductivity Aluminium TPN+L busbars rated at 200 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing:				
Six (6) nos 40Amp 4P MCB, 10 KA.				
One (1) nos 25Amp 4P MCB, 10 KA.				
One (1) No. (17-25A), TP MPCB (100kA).				
One (1) nos 40Amp DP MCB, 10 KA.				
One (1) No. (17-25A), TP MPCB (100kA). For Spare only.				
One (1) nos 25Amp DP MCB, 10 KA. For Spare only.				
Fully automatic Star Delta starters (for 15 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (17-25A for 15 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
15 HP - 1 Nos. Starter				
Spare N.O. - N.C. contacts for each starter - 3Set.				
G.I. strip 25 x 3 mm throughout the length of MCC.				
All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
Panel for Postal Block and Loandary Building described as above	set	1		
Plumbing Panel				
Incoming:				
One (1) No. 63A, 4P MCCB (16kA).				
Metering & Indication:				
Combined Ammeter/Voltmeter with Selector Switch and 60/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Bus Bar:				

Electrolytic high conductivity Aluminium three pole and neutral busbars rated at 100 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing:				
6 Nos. 40A(100KA)TPN MPCB .				
4 Nos. 25A(100KA) TPN MPCB .				
2 Nos. 40A(10KA)TPN MPCB Only for spare .2 Nos. 40A(10KA)TPN MPCB Only for spare .				
2 No. 25A(10KA) TPN MPCB Only for spare .2 No. 25A(10KA) TPN MPCB Only for spare .				
The Switchboard shall be complete with all interconnections, risers, internal wiring, labels etc complete as required.				
Fully automatic DOL starters (for 2 H.P. to 7 H.P. motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (0-40A for 2 to 7 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
3 HP -3 Nos.(Filter feed pump) Starter				
1.5 HP - 2 Nos.(Sump pump) Starter				
3.5 HP -4 Nos.(Domestic water transfer pumps) Starter				
7 HP -2 Nos. Bore well Starter				
Spare N.O. - N.C. contacts for each starter - 3Set.				
G.I. strip 25 x 3 mm throughout the length of MCC.				
All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
Plumbing Panel described as above	Set	1		
STP Panel				
Incoming:				
One (1) No. 63A, 4P MCCB (16kA).				
Metering & Indication:				
Combined Ammeter/Voltmeter with Selector Switch and 60/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Sets of ON/OFF/Trip indicating lamp with 2A control MCBs.				

Bus Bar:				
Electrolytic high conductivity Aluminium three pole and neutral busbars rated at 100 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing:				
Five (5) No. 10A, TPN MPCB (100kA).				
Three (3) No. 10A, TPN MPCB (100kA). For Spare only.Three (3) No. 10A, TPN MPCB (100kA). For Spare only.				
The Switchboard shall be complete with all interconnections, risers, internal wiring, labels etc complete as required.				
Fully automatic DOL starters (for 2 H.P motors) with push buttons and on/off indicating lights with MN type relay, contactors, direct type ammeter (0-10A for 2 HP), single phase preventors for all motors, with selector switch and fuses overload relay as required.				
2 HP - 5 Nos. Starter				
Spare N.O. - N.C. contacts for each starter - 3Set.				
G.I. strip 25 x 3 mm throughout the length of MCC.				
All internal wiring with colour coding from incoming mains to various switchgear, starter, meter, indicating lamp and bus bar.				
All starters shall be compatible for remote operation.All Switch gears offered must be compatible with the H.P. of the motors offered				
STP Panel described as above	Set	1		
External lighting panel				
Incoming:				
Supply, installation, testing and commissioning of front operated, front access, totally enclosed, free standing, dust and vermin proof Panel with IP65 ingress protection, fabricated from 2 mm thick CRCA sheets, with hinged, gasketed and lockable doors including the cost of interconnections, copper crimping lugs, brass glands, bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system with 25 MVA rupturing capacity at 415 volts complete as per specifications, as required and as below.				
Two (2) No. 63A,4P MCCB (16kA) and ON/OFF indicating lamps.One from normal supply & one from solar system.				
One (1) No. 63A,4P C.O.S.				

Three (3) No. 63A, 1 phase Timer Switch on each phase for automatic operation.				
Metering & Indication:				
Combined digital Ammeter/Voltmeter with Selector Switch and 60/5A, CL-1, 10VA CTs and 2A control MCB.				
Sets of phase indicating lamp with 2A control MCBs.				
Sets of ON/OFF/Trip indicating lamp with 2A control MCBs.				
Bus Bar:				
Electrolytic high conductivity Aluminium three pole and neutral busbars rated at 100 amps(after deration) having a maximum current density of 0.8 amp per sq mm insulated with heat shrinkable PVC sleeves.				
Outgoing:				
Eighteen(18) nos 10 Amp SP MCB, 10 KA.				
External Lighting Panel described as above	Set	1		
LIGHT FIXTURE SUPPLY ONLY				
1x28W T5 Lamp Luminaire surface/pendant mounting PVC body channel Make- bajaj, model no - BTIP 128 N - 539055	Each	21		
Supply of Ceiling Fan of 1200mm sweep complete erected in position with all accessories.(Make- Havels)	Each	4		
External Lighting:-				
Supply, instalation, Testing & commissioning of steel tubular swaged poles with bent on top along with reaquired accesseries to accomodate street light fitting complete with cast iron base plate, finial taper plug, bolts, nuts, junction box within the pole for incoming and outgoing cables (size up to 2 C x 6 Sqmm) and a 10 amps SP MCB and screws as specified in type 410 SP31 - 7.5 mtr. Long . Rate shall included the cost of inbuilt junction box (weather proof), MCB to fitting with 2.5 sq mm copper wires (2 Nos. 2.5 Sq.mm copper wire for phase & 1 No. 1.5 Sq.mm copper wire for earthing) complete with base plate made from concrete civil foundation works . The pole shall be painted with final PU Paint as required.				
7 m long pole .	Nos.	56		

<p>Supply, instalation, Testing & commissioning of steel tubular swaged poles with bent on top along with reaquired accesseries to accomodate street light fitting complete with cast iron base plate, finial taper plug, bolts, nuts, junction box within the pole for incoming and outgoing cables (size up to 2 C x 6 Sqmm) and a 10 amps SP MCB and screws as specified in type 410 SP62 - 12 mtr. Long. Rate shall included the cost of inbuilt junction box (weather proof), MCB to fitting with 2.5 sq mm copper wires (2 Nos. 2.5 Sq.mm copper wire for phase & 1 No. 1.5 Sq.mm copper wire for earthing) complete with base plate made from concrete civil foundation works . The pole shall be painted with final PU Paint as required. Including 4 supporting arms for luminaires with all accesseries.</p>	Nos.	8		
<p>Supply, Installation, testing & commissioning of weather proof pole mounting box made of 16 SWG sheet steel, hinged castle key cover of suitable size in recess / or on surface including terminal blocks for incoming and outgoing cables (size up to 4 C x 6 Sqmm) and a 6 amps SP MCB, mounting CI clamps, MS angle support structures etc as per drawings / specifications) painting the box with two coats of red oxide primer & 2 coats of Aluminium paint etc complete as required of the box shall be of following type :</p>	Nos.	56		
<p>Supply, Installation, testing & commissioning of the following street light/ area lighting fixture with lamps on pole including making proper connections and providing cement concrete pedestal/fixing MS angle frame work hard ware etc as per drawing as required.</p>				
<p>Post Top Gate Light luminaries suitable for 23 Watts CFL lamp, cast aluminium spigot & spun aluminium canopy duly pre-treated and powder coated , provided with polycarbonate diffusers duly gasketed, integral control gear comprising heavy duty copper ballast, lamp holder & 25W CFL lamp, connectors all duly wired , connection & wiring from junction box with 3# 2.5 sqmm copper wires, Mounted on existing gate column. Make: WIPRO Cat Ref: FPP21123 or equivalent.</p>	Nos.	4		
<p>IP 66 Bottom opening HPSV 70W HPSV lamp suitable for primary/secondary roads. all duly wired , connection & wiring from junction box with 3# 2.5 sqmm copper wires, Mounted on existing 7.5 mtr. Pole.</p>	Nos.	56		

	Supply, installation, testing and commissioning of 150 W Street luminaire with POT optics reflector and heat resistance toughened glass cover. including connection & wiring from junction box with 3# 2.5 sqmm copper wires, Mounted on Beam . Mounted on existing 12 mtr. pole	Nos.	48		
	150W metal halide light IP integral floodlight with symmetric wide beam distribution Make- Wipro, Model no.- 1x150 W MHL (DE) double ended.	Nos.	10		
	Supply of HT cable				
	Supplying of following sizes of XLPE aluminium conductor, corss linked polythylene, individual core screwed, flat steel strip armoured, PVC sheathed cable of 11KV grade (earthed) comforming to IS: 7098 (Part 2),with uptodate ammendment complete as required.				
	3 C x 240 Sq.mm XLPE HT cable (Earthed)	mtr	370		
	Supply of MV cable				
	Supply, following sizes of PVC sheathed PVC/XLPE insulated Aluminium conductor/copper conductor power/ multicore control armoured cable of 1.1 KV grade.				
	3 ½ C - 300 sq mm Aluminium	Metre	7861		
	3 ½ C - 240 sq mm Aluminium	Metre	1214		
	3 ½ C - 185 sq mm Aluminium	Metre	900		
	3 ½ C - 150 sq mm Aluminium	Metre	852		
	3 ½ C - 95 sq mm Aluminium	Metre	1172		
	3 ½ C - 70 sq mm Aluminium	Metre	20		
	3 ½ C - 50 sq mm Aluminium	Metre	80		
	4C- 25 sq mm Aluminium	Metre	280		
	4C- 16 sq mm Aluminium	Metre	130		
	3C- 10 sq mm Aluminium	Metre	45		
	2C- 6 sq mm Aluminium	Metre	600		
86.0	SOLAR PV SYSTEM:				
	Supply, instalation, testing & commissioning of PV solar plant for street lighting solar power backup.				
	10 KW solar PV plant				
	High efficiency solar modules 245Wp.				
	10 module mounting structure.				
	Arrat junction box 4 in one out.				

	PCU 10KWp.				
	Earthing Kit/Lightning Arrestor.				
	SMF VRLA Battery bank 96V 550 Ah(with 12 hour battery backup).				
	Solar PV plant as described above.	Each	1		
87.0	TWO POLE STRUCTURE:				
	Supply, erection and commissioning of 2 pole structure for terminating 11 KV O.H. supply from State Electricity Boards as per specifications. The 2-pole structure shall comprise of:Supply, erection and commissioning of 2 pole structure for terminating 11 KV O.H. supply from State Electricity Boards as per specifications. The 2-pole structure shall comprise of:				
	MS tubular swaged pole 11 mtrs high (410 SP 24 as per latest IS), in cement concrete foundation 1:3:6 (1 cement : 3 coarse sand : 6 graded aggregate 40mm nominal size) including excavation and refilling etc. as required. The rate shall be inclusive of painting with 2 coats of aluminium paint (on red oxide). The portion of pole under the ground shall be provided with 2 coats of bituminous paint - 2 Nos.				
	Steel sections, channels angles, flats, clamps, GI nuts, bolts and required hardware etc of different sizes for cross arms, bracings, supports etc. for pole GOD etc. including anticlimbing barbed wires (conforming to latest IS) having 4 points barbs spaced 75 ±12mm apart. All steel structure shall be given 2 coats of red oxide primer and 2 finishing coats of aluminium paint as required as per drawings and direction of Engineer-in-Charge. - Lot				
	Supply,installation, testing and commissioning of 11 KV class disc/pin/support insulators complete with clamps and fixing hard wares etc. complete as required as per drawings and direction of Engineer-in-Charge-Lot				
	Supply,installation, testing and commissioning of 11 KV station class thyrite type lightning arrestors complete with mounting arrangement (on all phases) - 3 Nos.				
	Supply,installation, testing and commissioning of drop out - lock out (DOLO) fuse, gang operating device (Air Break Switch) with pad locking arrangement (operating rod to be supported properly), complete with operating handle and locking arrangement-1 Set				

	Supply, installation, testing and commissioning of GI stay set complete with 20mm dia 1.8 M long stay rod with 450 x 450 x 7.5 mm anchor plate with thimbles, stay clamps, 7/4.00 mm dia GI stay wire, turn buckle (20mm x 600mm) strain insulator bow tightner in cement concrete 1:3:6 foundation as excavation and refilling - 2 Set				
	Two pole structure as described above.				
	Note: The excavation and other civil works related to two pole structure are to be included in cost.	Each	1		
88.0	BOOM BARRIER:				
	Supply, installation, testing and commissioning of automatic boom barrier suitable for 4.0 m road width for intensive applications, high speed with 4.5 second opening time with Straight aluminium boom of minimum size 100mm x 70 mm, built in LED blinker indicator, pair of photo cell, flashing light, push button, receiving card, 433.92 MHz bi-channel multi-user transmitter. 4,096 combinations with self learning function. (Remote), single channel loop detector etc. complete as required as per specifications & at site of work.	Sets	1		
	Total of Non Schedule items				

INTERNAL ELECTRICAL BOA-NEPAL POLYTECHNIC					
Sr. No.	Description	Unit	Total Qty.	Rate	Amount
WIRING					
1.0	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	Point	4498		
2.0	Wiring for light/ power plug with 2X4 sq. mm FRLS PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit alongwith 1 No 4 sq. mm FRLS PVC insulated copper conductor single core cable for loop earthing as required. (We have considered 15 mtr. length for each socket).	Metre	14205		
3.0	Wiring for light/ power plug with 4X4 sq. mm FR PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit alongwith 2 Nos 4 sq. mm FR PVC insulated copper conductor single core cable for loop earthing as required. (We have considered 25 mtr. length for each socket).	Metre			
4.0	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FR PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required. (We have considered 25 mtr. Length from floor panel to DB)				
	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire (For 6A sockets and circuit wiring)	Metre	19857		
	2 X 6 sq. mm + 1 X 6 sq. mm earth wire	Metre	1120		
	2 X 10 sq. mm + 1 X 10 sq. mm earth wire	Metre	160		
	2 X 16 sq. mm + 1 X 16 sq. mm earth wire	Metre	200		
	4 X 6 sq. mm + 2 X 6 sq. mm earth wire	Metre	860		
	4 X 10 sq. mm + 2 X 10 sq. mm earth wire	Metre	300		
	4 X 16 sq. mm + 2 X 16 sq. mm earth wire	Metre	20		
5.0	Supplying and drawing following pair 0.5 sq mm FR PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC conduit as required. (We have considered 15 mtr. length for each socket)				
	2 Pair	Metre	3625		

6.0	Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required. (We have considered 20 mtr. length for each socket)	Metre	3640		
7.0	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
	25 mm (For telephone, data, tv and LV services)	Metre	7449		
	32 mm	Metre			
	Supplying and fixing following piano type switch/ socket on the existing switch box/ cover including connections etc. as required.				
	Telephone socket outlet	Each			
	TV antenna socket outlet	Each			
	Bell push	Each			
8.0	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.				
	Telephone socket outlet	Each	230		
	TV antenna socket outlet	Each	182		
	Bell push	Each	37		
9.0	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	Each	865		
10.0	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	Each	147		
11.0	Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.				
	1 or 2 Module (75mmX75mm)	Each	606		
12.0	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).	Each	1069		
13.0	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.	Each	946		

14.0	Supplying and fixing 3 pin, 5 amp ceiling rose on the existing junction box/ wooden block including connection etc as required.	Each	832		
15.0	Supplying and fixing call bell/ buzzer suitable for single phase, 230 volts, complete as required.	Each	39		
16.0	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable, including providing and fixing phenolic laminated sheet cover on the fan box etc. as required.	Each	827		
17.0	Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc. as required.				
	Upto 450 mm sweep	Each	163		
18.0	Extra for fixing the louvers/ shutters complete with frame for a exhaust fan of all sizes.	Each	163		
19.0	Supplying and drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed steel/ PVC conduit as required. (We have considered 15 mtr. length for each socket)	Metre	3240		
	MCCB, MCB & DB'S				
20.0	Supplying and fixing following way prewired SP&N MCB distribution board of steel sheet for 240 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FR PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required. (But without MCB/ RCCB/ Isolator). All distribution board should be with the space provision for ELCB.				
	2 + 4 way, Double door	Each	12		
	2 + 8 way, Double door	Each	11		
	2 +12 way, Double door	Each	55		
21.0	Supplying and fixing following way prewired TP&N MCB distribution board of steel sheet for 415 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FR PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required.(But without MCB/ RCCB/ Isolator) All distribution board should be with the space provision for ELCB.				
	4 way (4 + 12), Double door	Each	12		

	6 way (4 + 18), Double door	Each	39		
	8 way (4 + 24), Double door	Each	10		
	12 way (4 + 36), Double door	Each			
22.0	Supplying and fixing following way prewired vertical type TP&N MCB distribution board of steel sheet for 415 volts on surface/ recess complete with loose wire box of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's, terminal connectors for all incoming and outgoing circuits, duly prewired with adequate size of FR PVC insulated copper conductor upto the terminal connector/ neutral link, earthing etc as required (But without MCB/ RCCB/ Isolator). (Note : Prewired vertical type MCB TPDB is normally used where 3 phase outlets are required.) All distribution board should be with the space provision for ELCB.				
	4 way Double door	Each	9		
23.0	Supplying and fixing 5 amps to 32 amps rating, 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.				
	Single pole	Each	1720		
24.0	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	Each	138		
25.0	Supplying and fixing following rating, double pole, 240 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	40 amps	Each	86		
	63 amps	Each	10		
26.0	Supplying and fixing following rating, four pole, 415 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	40 amps	Each	36		
	63 amps	Each	28		
28.0	Supplying and fixing following rating, double pole, (single phase and neutral), 240 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	25 amps	Each	76		
	40 amps	Each	171		
	63 amps	Each	23		

27.0	Supplying and fixing 20 amps, 240 volts, SPN industrial type, socket outlet, with 2 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, SP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	21		
28.0	Supplying and fixing 20 amps, 415 volts, TPN industrial type, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	43		
29.0	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 enameled white on both sides, and with inscription in single red colour on front side as required.	Each	21		
	CABLE TRAYS				
30.0	Supplying and installing following size of perforated 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 & nuts, painting suspenders etc as required.				
	150 mm width X 50 mm depth X 1.6 mm thickness	Metre	80		

	EARTHING				
31.0	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing along with existing surface/ recessed conduit/ submain wiring/ cable as required.	Metre	660		
	Total of Schedule items				
	ELECTRICAL-NON SCHEDULE ITEMS				
38.0	Supplying, fixing, connecting & testing of Telephone Tag Block krone type in a suitable size 1.6 mm thick dust and vermin proof Sheet steel enclosure duly painted by synthetic enamel over anti corrosive primer, lockable and hinged cover with provision for cable through glands complete in all respects. (Make- Om Enterprises or Equivalent)				
	10 pair Krone	Each	21		
	20 pair Krone	Each	3		
39.0	Supplying, laying, testing and commissioning of following size anealed tinned copper conductor PVC insulated and sheathed armoured copper telephone cables with suitable clamps, saddles and including making terminal joints complete as required. (Make- Skytone or Equivalent).				
	10 pair	Mtrs	330		
	20 pair	Mtrs	60		
40.0	LIGHT FIXTURE(INCLUDING LAMP) SUPPLY				
	1X36W recess mounting LED 2x2 luminaire .Make - Bajaj Model no. BZRSQL 36W GIII WH -111552 or equivalent to wipro, Philips.	Each	192		
	1X11'w' type CFL surface mounted Mirror light Make Bajaj Model no BJC 111 - 161140 or equivalent to wipro, Philips.	Each	174		
	1X9W recess mounting LED downlighter .Make - Bajaj Model no. BCDLR 9W WH - 111525 or equivalent to wipro, Philips.	Each			
	2x11W CFL (TS-C) Surface mounted low glare mirror optic luminaire suitable for CFL lamps.Make-Wipro, Model No-WVP 41211 or equivalent to Bajaj, Philips.	Each	648		
	1X18W recess mounting Led downlighter. Make - Bajaj, Model no.- BZSLO 18W WH. or equivalent to wipro, Philips.	Each	75		
	1X150 W HPSV (T) IP 66 die cast aluminium top maintainable street light with curved toughened glass & top optics reflector. Make - Wipro, Model no- WST 41150. Equivalent to Bajaj, Philips.	Each	8		
	1x80W Turbo LED Flood light .Make -Bajaj, Model no.- BARFEP 80W LED 169640 or equivalent to wipro, Philips.	Each	6		

	1x28W T5 Lamp Luminaire surface/pendant mounting PVC body channel Make-bajaj, model no - BTIP 114 N - 539055	Each	6		
	1X15W recess mounting Led downlighter square. Make - Bajaj, Model no.- BZSLO 15W SQ WH. or equivalent to wipro, Philips.	Each	67		
	1x11W CFL(TC-S) surface mounted low glare mirror optic luminaire. (Make- Wipro, Model- WVP 41111) Equivalent to Bajaj, Philips.	Each	73		
	Exit signage light, double sided display for Exit (with two hours battery back up) Make - Bajaj Model no.BESL 03 LED DSD WBB Green- 220210	Each	12		
	1x36/40W patti fitting. Make- Wipro, Model- (WDF 9140), Equivalent to Bajaj, Philips.	Each	461		
	1x18W CFL (TC-DE) ceiling mounted light, Make -Wipro, Model no -(GCP 61118 SG). Equivalent to Bajaj, Philips.	Each	311		
	1X9W CFL Bulk head light (Make- Wipro, Cat no- WKP 14109) Equivalent to Bajaj, Philips.	Each	323		
	1x18W wall bracket light suitable for CFL Lamps. (Make- Wipro) Equivalent to Bajaj, Philips.	Each	278		
	2X36W recess surface mounted luminaire. Make -wipro, Modle no.-WVF 58236 . Equivalent to Bajaj, Philips.	Each	822		
	2x26W CFL(TC-DE) recess mounted downlighter with satin finish reflector and seprate control gear box. (Make- Wipro, Model- WVP 41111) Equivalent to Bajaj, Philips.	Each	44		
	70 W Track mounted CDM spot light with multiple beam angles Make -Philips Model no.MRS55 I C 1XCDM-TC70 EB 12 I C WH or equivalent to wipro, Philips.	Each	3		
	IP Integral LED steplight Make -wipro Model no.LT54-002-XXX-RD-XX or equivalent to BAJAJ, Philips.		41		
	1X200 W Chandelier.	Each	18		
	Supply of Ceiling Fan of 1200mm sweep complete erected in position with all accessories.(Make- Havels)	Nos.	811		
	Supply of Ceiling Fan of 900mm sweep complete erected in position with all accessories.(Make- Havels)	Nos.	21		
	Supplying of Exhaust Fan Heavy duty 230V A.C 50 cycles 375 mm 1400 RPM complete erected in position with all accessories.(Make- Havels)	Nos.	141		
	Supplying of Airboll High speed wall Fan complete erected in position with all accessories.(Make- Havels)	Nos.	57		
	Supplying of turbo force air circulator wall Fan (600 MM) complete erected in position with all accessories.(Make- Havels or equivalent)	Nos.	4		
41.0	DATA				

	Providing and fixing of a computer data outlet grid plate mounted unit with 1 No. RJ-45 socket, moulded cover plate in recessed GI box complete as required for Data system.(Make- Legrand, Cat no- 6755 45)	Nos.	214		
42.0	FAN BOX				
	Supply, instalation, testing & Commissioning of power coated MS fan box with all required accessories.	Nos	832		
43.0	CIVIL WORK				
	MAN HOLE WITH COVER:				
	Constructing brick masonry manhole with 1st class bricks in cement mortar 1:5 (1 cement : 5 fine sand) RCC top slab with 1:2:4 mix (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) foundation concrete 1:4:8 mix (1 cement: 4 coarse sand: 8 graded stone aggregate 40 mm nominal size) inside and outside plastering 12 mm thick with cement mortar 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement inside and rough plaster on outside and making channels in cement concrete 1:2:4 mix (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) neatly finished including excavation, refilling, and disposal of surplus earth.				
	Inside size 450 x 450x 600 cms deep including light duty C.I. manhole cover and frame(38kg) complete in all respects.	Nos.	19		
	HDPE PIPE:				
	Providing ,laying and jointing of HDPE pipe for cable laying including testing of joints etc. complete.				
	100 mm dia	Metre	190		
44.0	Raceway (for Admin Building)				
	Supplying, instalation, testing & commissioning of GI openable top cover raceway made from 2mm thick pre-galvanized sheets for top, bottom and sides and complete with 2mm thick top cover complete with rubber gasketing. The junction box shall be suitable to accommodate GI raceways specified below. Necessary civil work to support/ clamp from RCC slab/floor need to be included here too.(Junction Box price not included in the item).				
	50 mm wide x40 mm deep	Metre			
	100 mm wide x40 mm deep	Metre	160		
	200 mm wide x40 mm deep	Metre	80		

	300 mm wide x40 mm deep	Metre			
	Junction Box				
	Supplying, instalation, testing & commissioning of floor/ceiling recessed junction boxes for GI raceway systems fabricated from 3 mm MS sheets finished with pre-galvanized sheets , including 2 nos. GI strip at side for earthing, with 1, 2 or 3 nos "+", "I", "L' shaped support in the centre in case required with 3 mm thick neoprene gasketted removable cover fixed by counter sunk cadmium plated screws including the cost of earth links at all joints to ensure earth continuity and including the cost of chasing and making good recess in floor etc complete as required and as below. (in ceiling / Floor)(Only junction box price included in the item.)				
	100X100 mm	Nos.			
	150X150mm	Nos.	18		
	250X250 mm	Nos.	8		
	350X350 mm	Nos.			
45.0	UPS (for Admin Building)				
	Supply,Installation,Testing & Commissioning of micro processor controlled True On line double conversion, Stand Alone mode 3 Phase input and 3 phase 415V output UPS & each UPS consisting of followings :				
	1 No. 100% Rectifier + Inverter, Integrated in UPS module				
	Battery Circuit breaker				
	Galvanic Isolation transformer at the inverter output of UPS Module				
	Inbuilt Static switch for bypass and inverter in UPS module				
	Manual Maintenace bypass				
	Sealed Maintenance free batteries for 30 minutes backup time with UPS & inerconnectors, Rack and accessories and UPS to battery DC cable upto 10 meters. (With SMF Batteries 12V/100Ah x 64 Nos. with Rack & Interlinks.)				
	Ratings of the UPS as follows :-				
	2x50 kVA parallel redundant UPS operating in parallel redundant configuration(N+1) (for Emergency Lighting,Work Stations, Fire Alarm and CCTV, Server).	Nos.	1		
46.0	UPS(for AUDITORIUM)				
	Supply,Installation,Testing & Commissioning of micro processor controlled True On line double conversion, Stand Alone mode 1 Phase input and 1 phase 230V output UPS & UPS consisting of followings :				
	1 No. 100% Rectifier + Inverter, Integrated in UPS module				

	Battery Circuit breaker				
	Galvanic Isolation transformer at the inverter output of UPS Module				
	Inbuilt Static switch for bypass and inverter in UPS module				
	Manual Maintenance bypass				
	Sealed Maintenance free batteries for 30 minutes backup time with UPS & interconnectors, Rack and accessories and UPS to battery DC cable upto 10 meters.				
	Ratings of the UPS as follows :-				
	5 kVA UPS (for Emergency Lighting, LV works).	Set	1		
47.0	Sound Reinforcement System(for AUDITORIUM)				
	Audio and Visual solution				
	Supply installation testing and commissioning of 8" 2-way ceiling speaker, 100v/20watt 16ohm/100w, white For Break out area complete as required.	Nos.	6		
	Supply installation testing and commissioning of 2-channel digital power amplifier 2 x 250Watts @ 4Ohms, bridgeable to 1 channel, convection cooled, Hypex inside, 1U 19" rackmount For Break out area complete as required.	Nos.	1		
	Supply installation testing and commissioning of 8" wooden design cabinet loudspeaker, 8ohm/300watt full range, wall bracket and pole mount tube included, black/ White For Auditorium complete as required.	Nos.	6		
	Supply installation testing and commissioning of 2-channel power amplifier 2 x 600Watts @ 4Ohms, convection cooled, 1U 19" rackmount For Auditorium complete as required.	Nos.	1		
	Supply installation testing and commissioning of Wireless Handheld Microphone For Auditorium complete as required.	Nos.	6		
	Supply installation testing and commissioning of Wireless Lavalier Microphone For Auditorium complete as required.	Nos.	2		
	Supply installation testing and commissioning of Gooseneck Microphone for Podium For Auditorium complete as required.	Nos.	1		
	Supply installation testing and commissioning of Active Local Input Panel For Auditorium complete as required.	Nos.	6		
	Supply installation testing and commissioning of An Audio mixing console shall have 12 mono input channels, two stereo input channels, an FX master control and a stereo mix master output For Auditorium complete as required.	Nos.	1		
	Supply installation testing and commissioning of HDMI Audio De-Embedder For Auditorium complete as required.	Nos.	1		
	Switching control system				

	Supply installation testing and commissioning Active Wall Plate – HDMI & Computer Graphics with Bidirectional RS–232 and Stereo Audio DGKat Twisted Pair Transmitter - For Podium complete as required.	Nos.	1		
	Supply installation testing and commissioning HDMI, Audio & Data over DGKat Twisted Pair Receiver complete as required.	Nos.	1		
	Supply installation testing and commissioning Wireless presentation device that allows a group of up to 64 users, to take turns in wirelessly presenting from their Win/Mac computer, Smartphone or Tablet complete as required.	Nos.	1		
	Supply installation testing and commissioning A wireless presenter—with a brilliant green laser and intuitive slideshow controls - visible on LCD's/Plasma complete as required.	Nos.	1		
	Installation Equipments				
	Supply installation testing and commissioning AV Cable & Connectors (HDMI/VGA/Audio/Patch Cords) complete as required.	LOT	1		
48.0	Video Conference (For Admin buiding Conference room)				
	Display Solution				
	Supply & receiving of 60" LED TV	Each	2		
	Supply & receiving of Wall mount kit for above mentioned Display.	Each	2		
	Video Conferencing Solution				
	Supply & receiving of Full High Definition Video Conferencing System with Support upto 3 Remote Site, Maximum Data Rate IP : 2 Mbps standard, 4 Mbps Line Rate option, Eagle Eye Full HD 1080p camera: 1920x1080 CMOS imager with 10x optical zoom with Camera, Polycorn Stereo Surround, Highest quality audio in 22 kHz stereo with Siren 22, Includes H.239 People+Content and People+Content IP data sharing for data (Word & Excel & Power point) Presentation sharing, second monitor output and one mike array.	Each	2		
	Supply & receiving of HDX MP Plus Multipoint Software Option License. Allows for 4 site MP video calls. Available for HDX systems (4000, 7000, 8000 and 9000 Series).	Each	2		
	Audio Solution				
	Supply & receiving of CEILING SPEAKER	Each	24		
	Supply & receiving of WALL SPEAKER	Each	12		
	Supply & receiving of AMPLIFIER	Each	2		

	Supply & receiving of AUDIO PROGRAMABLE DSP MIXER FOR VC.	Each	4		
	Supply & receiving of CORDLESS MIC.	Each	4		
	Supply & receiving of Table Mic	Each	20		
	Supply & receiving of CORDLESS MIC.	Each	4		
	SWITCHING				
	Supply & receiving of VGA Switcher.	Each	2		
	Supply & receiving of HDMI Switcher.	Each	2		
	Supply & receiving of HDMI, COMPONENT & COMPUTER GRAFICS VIDEO TO HDMI PRO SCALER	Each	2		
	Supply & receiving of Cable CUBBY having 1 VGA, 1 HDMI, 2 PowerPoint, 1 LAN, 1 EP Ports.	Each	20		
	Supply & receiving of Equipment rack for keeping quoted AV equipment only with Power socket & fan cooling.	Each	2		
	LIGHTING				
	Supply & receiving of 4 ZONE DIMMER FOR LIGHTING CONTROL.	Each	2		
	Automation				
	Supply & receiving of Crestron Three Series central processor presents a giant leap forward in control system design. Featuring the all new Core 3™ control engine, the three series control system forms the core of the modern networked home, unleashing more power than ever for integrating home entertainment, AV distribution, security and environmental systems. And, with built-in infiNET EX® wireless technology, on-screen display, native mobile and Web-based control, and onboard media rendering, the control system affords vast new, more affordable ways to control everything in the home through a streamlined hardware approach. In Crestron Three Series System provides Eight IR port with Three RS-232 port and Eight relay port.	Each	2		
	Supply & receiving of IR Probe: It is an IR (infrared) emitter probe designed to adhere directly over the IR sensor window of a television, DVD player, or any other IR controllable device. It connects to any control system with a 2-pin terminal block type IR port, providing a 1-way IR control interface to the device.	Each	16		
	Supply & Receiving of Crestron IR Splitter used to control five different devices from a single IR port of Crestron processor.	Each	6		
	Supply & reeiving I PAD DOCKING station	Each	2		
	CABLE & CONNECTOR				
	Supply & receiving of AV connector(Lump Sum).	Each	2		

	Supply & receiving of HDMI Cables(15 mtr.)	Each	8		
	Supply & receiving of Cables	Each	2		
49.0	FIRE ALARM SYSTEM :				
	Supply, instalation, testing & commissioning of Analogue Addressable Fire Alarm Control panel shall be with switch mode power supply, battery back up and charger .The panel shall have 4 loops as capacity with the option of using 1/2/3/4 loops and with 254 devices per loop in any combination. The panel shall consisting with 160 character LCD display, Touch keys. Shall be networkable by RS 485 or TCP/IP , repeater/Mimic connectivity. USB - 2.0 for PC Interface. Degraded redundancy operating mode when the main CPU fails.	Nos.	1		
	Supply, instalation, testing & commissioning of Loop Card which will have 254 devices of both detectors and modules in a single line circuit.	Nos.	2		
	Supply, instalation, testing & commissioning of Analogue Addressable repeater panel shall be with switch mode power supply, battery back up and charger. The panel shall consisting with 160 character LCD display, Touch keys. Shall be networkable by RS 485 or TCP/IP, repeater/Mimic connectivity. USB - 2.0 for PC Interface. Degraded redundancy operating mode when the main CPU fail.	Nos.			
	Supply, instalation, testing & commissioning of Addressable Multi Sensor - Heat Cum Smoke detector with base with Binary coded address setting. Dual LED's for 360° visibility. Sleek low-profile housing design. Regular 100mm base. IP Rating : IP - 42.	Nos.			
	Supply, instalation, testing & commissioning of Addressable Smoke detector with base with Binary coded address setting. Dual LED's for 360° visibility. Sleek lowprofile housing design. Regular 100mm base. IP Rating : IP - 42.	Nos.	204		
	Supply, instalation, testing & commissioning of Addressable Heat detector with base with Binary coded address setting. Dual LED's for 360° visibility. Sleek lowprofile housing design. Regular 100mm base. IP Rating : IP - 42.	Nos.	6		

	Supply, instalation, testing & commissioning of Addressable Relay Module.	Nos.	4		
	Supply, installation, testing and commissioning of Dual LED Response indicator for indicating the activation of the Remotely located Detector.	Nos.	16		
	Supply, installation, testing and commissioning of Fault isolator Module capable of monitoring shorted loop circuit and automatically restore communications when shorted conditions are corrected.	Nos.	4		
	Supply, installation, testing and commissioning of Addressable Manual Call Point - Resettable type - with back box with Binary coded address setting with Status LED for 360° visibility - IP:50 Rating.	Nos.	10		
	Supply, installation, testing and commissioning of Conventional type Horn wall mounted type rated at 90 dBA @ 1m for Audible annunciation. Note: Need to Connect with Addressable Control Module.	Nos.	10		
	Supply, installation, testing and commissioning of Addressable Control Module for monitoring the field devices. Binary Coding Setting.	Nos.	4		
	Supply, installation, testing and commissioning of 6 U, 12" Equipment Rack with power coated finish with front lockable Door with M. S. Framed translucent Acrylic material, 2 Nos of fans for heat exhaust, Top & Bottom entry knock outs, back side lockable Door , inbuilt MCB, Power Points, raceways and partitions, one no. sliding Tray etc. complete as required to house the PC and other Equipment.	Nos.	1		
	Cable/Wire				
	Supply & laying of 2 X 1.5 sqmm Flexible Copper Conductor FRLS Cable in existing conduit.	Mtr.	1224		

50.0	FIRE ALARM SYSTEM :				
	Supply, Installation, Testing & Commissioning of Main fire alarm panel of 2 Zone microcontroller based with its own fire detection zone interface card for initiating and indicating devices , power supply & Battery Charger. with LED for fault / isolate / fire alarm condition, short, open condition The batteries shall be sufficient for 30 Mins. in alarm Condition and 48 Mins in normal condition.	Nos.	2		
	Supply, installation, testing & commissioning of MANUAL CALL POINT complete with UPVC box duly painted in red colour including connections etc.	Nos.	2		
	Supply, Installation, testing & commissioning of Hooter Cum Speaker with 24 volt circuit complete as required	Nos.	2		
	Supply, Installation, testing & commissioning of Optical smoke detector with mounting base complete as required	Nos.	36		
	Cables & Conduits				
	Supply & laying of 2 X 1.5 sqmm Flexible Copper Conductor FRLS Cable in existing conduit.	Mtr.	840		
51.0	Public Address System				
	Supply installation, Testing & Commissioning of RMS 480w Power amplifier , battery voltage 24Vdc (max. 10% deviation) Frequency response 60Hz to 15kHz (+1/-3dB) Inputs XLR & Phone Jack, SIN >85dB, as per detailed technical specification etc as required.BOSCH LBD1935/00 or equivalent.	Nos.	2		
	Supply installation, Testing & Commissoing of RMS 480W Mixer Amplifier , battery voltage 24Vdc (max. 10% deviation) Frequency 50Hz to 18kHz (+1/-3dB), Inputs 4 balanced inputs / 3 stereo line, Sensitivity 1.0mV (mic. inputs), SIN >75dB, as per detailed technical specification as required.BOSCH PLE-1ME240 or equivalent.	Nos.	1		
	Supply installation, Testing & Commissoing of speaker 6W Ceiling Speaker complete with all accessories.LBD 0606/10 or equivalent.	Nos.	102		
	Supply installation, Testing & Commissoing of wall mounted speaker 12W wooden cabinet, factory fitted Speaker complete with all accessories.LBD 3903 or equivalent	Nos.	2		

	Supply installation, Testing & Commissoing of Controller Voltage VAS 230VAC, ±15%, 50/60 Hz, power consumption 600 VA, Voltage 24 VDC, +15% / -15% Output power RMS 240 W/360W, Frequency response 60 Hz to 18 kHz (+1/-3 dB at -10 dB ref rated output), Connector XLR, 6.3 mm jack, Sensitivity 1 mV (mic), 1 V (line), 255 messages, format WAV-file, 16-bit PCM, mono, Memory capacity 16 MB Flash ROM, as per detailed technical specification as required.BOSCH LBB1990/00 or equivalent.	Nos.	1		
	Supply installation, Testing & Commissoing of Keypad station Voltage 18 to 24 VDC or VAC external power supply, Current consumption <30 mA (plus <15 mA per keypad) Input sound level (max) 110 dB, SPL Frequency response 100 Hz to 16 kHz, Speech filter -3dB at 315 Hz, high-pass, 6 dB/oct, Output impedance 200 ohm, expandable upto 8 units, as per detailed technical specification as required BOSCH LBD1956/00 or equivalent.	Nos.	1		
	Supply installation, Testing & Commissoing of Rated power 12w, Volume Control Attenuation step 5x3db+off, Frequency response 50Hz to 20kHz (-1 dB) as per detailed technical specification as required BOSCH LBC 1400/10 or equivalent.	Nos.	16		
	Supply installation, Testing & Commissoing of musical instrument named with Plena easy line SD tuner bgm source suitable for MP3 stored on SD card and USB memory stick with FM tunner, FM tunner with RDS, presets and digital control,seprate output for digital source and FM tunner, Power 115-230 VAC, 50/60 Hz, FM Range 87.5 to 108 MHz, Maximum storage capacity 32 GB, track 2000, Frequency response 50 Hz to 20kHz, as per detailed technical specification as required.	Nos.	1		
	Supply installation, Testing & Commissoing of MS Equipment Rack to place the Amplifiers, Player, and motioned all the above devises, having regulated power supply strip for all the devices, door lock and key, openable from front and rear, and required devises as per detailed technical specification as required.	Nos.			
	Supply installation, Testing & Commissoing of Protocol Integration Connectors with suitable shielded copper conductor cables as per detailed technical specification etc as per required.	Nos.	2		
	Cable/Wire				

	Supply & Laying of 2x1.5 sqmm unsheathed twin parallel PVC insulated FRLS Copper conductor, 1.1KV Grade along with all materials and wiring with soldered terminals on either ends in existing PVC conduits.	Mtr.	800		
52.0	ACCESS CONTROL SYSTEM:				
	Supply, Installation ,testing and commissioning of Micro processor based access control system engineered with 32 bit CPU to cater to the multiple Readers and Multiple locations , Expandable, TCP/IP protocol compatible disributed Intelligence, Supporting Two Readers, and having flash memeory , can be expandable card data base upto 55000 cards and transaction buffer of 45000 transection, 128 accesss level , 127 time zone Levels, 8 supervised inputs and 4 Nos of relay outputs for easy and reliable interface with the 3rd party systems. Complete with Digital Power supply etc as required. Model: Pro- 3000. (Access System Controller)	Nos.	1		
	Supply, Installation ,testing and commissioning of HID 34-bit Proximity Access Card. Standard HID proximity card with slot hole punch on the short side for badge clips (BC-1).	Nos.	20		
	Supply , installation ,testing and commissioning of access control software single users	No.	1		
	Supply , Installation ,testing and commissioning of Standard Range Proximity Reader suitable for Internal environment applications with a Read range of 4 to 5 Cms.	Nos.	5		
	Supply of Single Leaf Electromagnetic Lock with 600 LBS holding Force	Nos.	5		
	Supply , Installation ,testing and commissioningof Double Leaf Electromagnetic Lock with 600 LBS Holding Force	Nos.	5		
	Supply , Installation ,testing and commissioning of Mounting support and L brackets for installation of Lock	Nos.	5		
	Supply of Mounting support and U brackets for installation of Lock(FOR Glass door)	Nos.	5		
	Supply Installation ,testing and commissioning of emergency Break Glass Switch	Nos.	5		
	Supply, Installation ,testing and commissioning of 2x1.5 sq mm stranded Copper Conductor power Cable	RM	300		
	Supply supply, Installation ,testing and commissioning of PVC Cable 8Cx.5sqmm Multistand shielded .	RM	300		
	Supply , Installation ,testing and commissioningof CAT-6 Cable in Exiting PVC conduits with all accessories / on surface	RM	240		

53.0	CCTV SURVILLANCE SYSTEM				
	Supply, Installatin, Testing and Commissioning of 1/3" Super HAD - II CCD, PAL, Colour varifocal Dome Camera with High Resolution of 600 TVL, True Day Night operation, SNR More than 50 dB, Inbuilt surge protection, 360 degree flexible adjustment, haviving sensitivity of 0.1 Lux, Day Night operation feature,BMB, Digital wide Dynamic range, Auto white balance, BLC, Automatic Gain Control, 8 Zone privacy masking, motion Detection, Auto iris type varifocal Lens with focal length of 2.8 to 10 mm, OSd Support for remote camera finetunings, DC12V operating voltage compatibility etc. HDC-6605P(N) complete as required.	Nos.	5		
	Supply, Installation, testing and commissioning of 1/3" super HAD CCD high resolution IR C/CS Mount camera suitable for outdoor conditions with 540 TVL. 0 Lux sensitivity, (F1.2), internal sync, AWB / BLC / AGC with On-Off control, IR visible range of 40 to 50 mtrs., 9 to 22 mm VARifocal Lens, Equipped with latest Intelligent IR compensation technology, DC12V Operation Suitable for the Outdoor conditions with IP-66 rating.	Nos.	2		
	Supply, Installation, Testing and Commissioning of 8 channel inputs, live viewing and recording capability with full D1 resolution on all the Channels , IE browser supported, SATA HDD interface, Powerful DVCS to monitor, multi-units of DVR, fitted with 2 TB HDD expandable to 16 TB with out any external storage arrangement, The hard dusc s shall be hot swappable, High profile H.264 video compression,Multilevel image quality adjustments, 16 line in video correesponding to each channel, . Full Pentaplex (multi-operational, - Display, Recording, Playback,, Networking, ,Backup), 396 zones motion Detection feature, User-friendly operations via front, panel, IR remote, controller or, remote software, Live or recorded video access, via Ethernet or modem, Support USB upgrade, PTZ dome control, Remote access through,TCP/IP, UDP, DHCP, DNS, IP Filter, PPPOE, DDNS, FTP, VGA and HDMI interface supports to interface with the CCTV Monitor.The DVR must support comprehensive Video Management Software. The Unit shall be equipped with 2 nos. of RJ-45 inputs and 2 Nos. of USB ports.HD16-DVR-Dand complete asrequired.	Nos.	1		
	22" high resolution LCD Monitor.	Nos.	#REF!		

	Supply, Installation, Testing and Commissioning of Comprehensive CCTV Monitoring Software Palteform suitable to cater to multiple DVR management, The Software should be able to establish virtual matrix System to support the flexibility of the operator.The Software plateform must enable the user to play Live, Recorded images, Control of the PTZ cameras, Video switch through Drag & drop etc to make the system flexible & user friendly.	Nos.	#REF!		
	Supply, Installation, Testing and Commissioning of 12 V DC, Digital technology based Power Supply Units highly regulated and spikes free terminal voltage and heavy sourcing current for regulated terminal voltage complete as required.	Nos.	1		
	Cable/Wire				
	Supply & laying of 2 X 1.5 sqmm Flexible Copper Conductor FRLS Cable in existing conduit.	Mtr.	130		
	Supplying and drawing the following sizes of anealed tinned electrolytic copper conductor PVC insulated unshielded Co-axial cable RG-11.	Mtr.	130		
54.0	Supply, installation, testing, commissioning of Intel coreI- I-7(Ietest)Processor with EISA bus and with 3GHz minimum CPU speed, minimum of 8 GB RAM, 512 KB cache, 52X32X52X DVDRW+Blue ray RW Drive & 2TB HDD, optical Mouse, 106 keys keyboard, 10/100 Mbps Ethernet card, USB connection & internal modem, with for 32" LED HDTV over HDMI Port & Original Vista or Window 8 (Pro.) + M.S. Office (Pro.) loaded, & A4 Color Laser Jet printer.(For fire alarm, Access Control, PA & CCTV).	Nos.	1		
55.0	Supply, instalation, testing & Commissioning of 8(2X4) modules brushed brass/copper colour pop-up boxes.(Make-Legrand, model No.-0540 18)(All switch socket, DATA outlet, telephone etc are considered separately)	Nos.	2		
56.0	Supply, instalation, testing & Commissioning of 1 module Female BNC 75 jack(Make-Legrand, Model No.- 5722 76) for pop up box.	Nos.	2		
57.0	Supply, instalation, testing & Commissioning of 2 Module Female HD15(VGA)(Make-Legrand, Model No.- 5722 82) for pop up box.	Nos.	2		
58.0	Supply, instalation, testing & Commissioning of 2 ModuleHDMI socket (Make-Legrand, Model No.- 5722 81) for pop up box.	Nos.	2		

59.0	Supplying, instalation, testing, commissioning of wiring for a 3 Sets on one circuit each of 2 Nos 3 pin 240 volt 6 amp single phase and neutral socket outlet controlled by 1 No. 6Amp. Switch with 2.5 sq.mm PVC insulated FRLS copper conductor 1100 Volt grade wires in existing surface/concealed conduit/ raceway as required and providing and fixing of 3 sets of a combined 2 Nos 3 pin 240 volt 6 amp socket outlet with safety shutters controlled by 1No.6 amp 240 volt single pole grid plate mounted switch in each set with moulded cover plate in recessed zinc chromate passivated MS box and including earthing of the 3rd pin with 2.5 sq. mm PVC insulated copper earth wire conductor wires complete as required.	Nos.	25		
60.0	Supplying, instalation, testing, commissioning of wiring for a 2 Sets on one circuit each of 2 Nos 3 pin 240 volt 6 amp single phase and neutral socket outlet controlled by 1 No. 6Amp. Switch with 2.5 sq.mm PVC insulated FRLS copper conductor 1100 Volt grade wires in existing surface/concealed conduit/ raceway as required and providing and fixing of 2 sets of a combined 2 Nos 3 pin 240 volt 6 amp socket outlet with safety shutters controlled by 1No.6 amp 240 volt single pole grid plate mounted switch in each set with moulded cover plate in recessed zinc chromate passivated MS box and including earthing of the 3rd pin with 2.5 sq. mm PVC insulated copper earth wire conductor wires complete as required.	Nos.	#REF!		
58.0	DATA AND SERVER				
	SERVER & DATA NETWORKING				
	Supply, instalation, testin, commissioning of Data component as follow:-				
	Cat 6, 24 port loaded rack mountable UTP Patch Panel Tolless. Panel supplied with quick mounting. All enclosures or cabinets general assembly panels ensure automatic grounding of each connector fitted with rear cable guide to hold cables during maintenance. Fitted with 4 units of 6 LCS2 RJ45 connectors cat 5e with fast connection thanks to integrated crimping, with 568 A/B labelling. Supplied with colour labels numbered from 1 to 24 conform to standards ISO/IEC 11801, Ed.2.0, EN 50173-2 and EIA/TIA 568-C, 19"panel - 1U. Measurement of components & links, validated by independent 3P Third Party Testing & ETL, have highlighted its triple performance. All products are RoHS copliance. All products are UL approved.	No	6		

	<p>CAT6 UTP PATCH CORD 1M - Rack End. 1 Mtr Cat 6 patch cord with 23 AWG suitable for Gigabit connection, UTP, it should be suitable to maintain the bending radius as per relevant code, tender specification and direction of Engineer-in-charge. Blue RAL 5015. Measurement of components & links, validated by independent 3P Third Party Testing & ETL, have highlighted its triple performance. All products are RoHS compliance. All products are UL approved. ISO 11801 ED 2.0, amendemet 2, EN 50173-2.</p>	No	148		
	<p>CAT6 UTP PATCH CORD 2M - User End. 2 Mtr Cat 6 patch cord with 23 AWG suitable for Gigabit connection, UTP, it should be suitable to maintain the bending radius as per relevant code, tender specification and direction of Engineer-in-charge. Blue RAL 5015. Measurement of components & links, validated by independent 3P Third Party Testing & ETL, have highlighted its triple performance. All products are RoHS compliance. All products are UL approved. ISO 11801 ED 2.0, amendemet 2, EN 50173-2.</p>	No	148		

	<p>4 pair cat 6A, minimum 24 AWG, 100 ohms 500 Mhz STP cable that should confirm or exceed component specifications TIA/EIA-568-C standards for physical & electrical Specifications. LSZH sleeve : halogen - free, Yellow RAL 1018, Colour code EIA/TIA, Conform to standrads ISO/IEC 11801 ED 2.0, Amendment 2, EN 50173-2 and EIA/TIA 568 B.10 Performance 500MHZ. Measurement of components & links, validated by independent 3P Third Party Testing & ETL, have highlighted its triple performance. All products are RoHS copliance. All products are UL approved.</p>	Mtrs.			
	<p>Cat 6A, 24 port Unloaded rack mountable STP Patch Panel Tolless.</p>	No	6		
	<p>CAT 6A, Unit of 6 RJ45 connectors with fast connection thanks to integrated crimping, with 568 A/B labelling. Supplied with colour labels numbered from 1 to 6 conform to standards ISO/IEC 11801, Ed.2.0, EN 50173-2 and EIA/TIA 568-C.</p>	No	6		
	<p>Blanking Plate for Patch Panel</p>	No	1		
	<p>1 Mtr Cat 6A patch cord with 24 AWG suitable for 10 Gigabit connection, STP, it should be suitable to maintain the bending radius as per relevant code, tender specification and direction of Engineer-in-charge. Yellow RAL 1018. Measurement of components & links, validated by independent 3P Third Party Testing & ETL, have highlighted its triple performance. All products are RoHS copliance. All products are UL approved. ISO 11801 ED 2.0, amendemet 2, EN 50173-2.</p>	No	1		
	<p>Supply, instalation, testin, commissioning of Racks & other components as follow:-</p>				
	<p>12 U (1747.2 mm x 800 mm x 800 mm) Free standing cabinet with Reversable door made of Tinted glass, Reversal metal rear door, Ventillation grills on all sides, Cable entry at top and bottom, Reducing cable channels through the usable ht white RAL 9002. Approxmate Net wait is 120 KG. CRCA 'D' Grade thickness is 1.2 mm. Powder Colour for Cabinet : RAL 9002. Powder Colour for Front Metal Band : RAL 7014 - 'Legrand' name in White (screen printed). Glass : 4mm Toughened Tinted Glass Door. Cooling Fan (230V A/C 90 CFM) : 4. Cable Manager Metal : 3. Cable Channel 100mm wide 36U : 2. Mounting Hardware (20 sets of M6 screws,washer,cage nuts (nickel coated)) : 3. Door Lock : 1. Front Metal Band : 1. Packing : 5 ply cardboard & Inside 28 ply EP foam. Heavy Duty Stationary Shelf 600W x 475D : 1. Castor Wheels (with Brake) : 2. Castor Wheels (without Brake) : 2.</p>	No	1		

61.0	DIGITAL EPABX SYSTEM (COMMUNICATION SERVER)				
	EPABX				
	Supply Installation, Testing and Commissioning of Server Based EPABX Fully Computerized IP System, SIP Compliant. Multi slot 10: U Rack Mountable 2U Rack Expandable upto 200 Ports Presently Configuration as Below CO Line 16 Nos. PRI (30 Channel) 1 Nos. Digital Extension Circuits 10 Nos. Analog Extension Circuits 150 Nos. 64 SIP VOIP Trunk 1 Nos. Integrated Viocemail System 1 Nos.	Nos.	2		
	Supply Installation, Testing and Commissioning of 4 Level IVR software with 6 different languages and 4 time schedule with Supply Installation, Testing and Commissioning of PC .	Nos.	2		
	Supply Installation, Testing and Commissioning of Digital Phone (32Key).	Nos.	10		
	Supply Installation, Testing and Commissioning of Digital Phone (12Key).	Nos.	10		
	Supply Installation, Testing and Commissioning of Cordless Phone with base dilling minimum 80-100 meters range.	Nos.	4		
	Supply Installation, Testing and Commissioning of Analog Speaker Phone with backlight and 4 memorable Key.	Nos.	200		
	TOTAL				

BOQ FOR EXTERNAL & FIRE PLANT ROOM FIREFIGHTING WORKS					
PROJECT - NEPAL POLYTECHNIC					
S. No.	Description of items	Unit	Total Qty.	Rate (in Rs.)	Amount (in Rs.)
1	FIRE PUMPS, ACCESSORIES & EXTERNAL				
	Supply,Installations, Testing & Commissioning of :				
1	Diesel Engine Driven Fire Pumping set suitable for automatic operation consisting of the following as per specifications:				
1.1	Horizontally mounted, centrifugal type single stage/multi-stage fire pump having cast iron body, bronze impeller, stainless steel shaft & capable of delivering 2280 lpm against a total head of 70 m complete with necessary 'Y' strainer on the suction side and pressure gauge with stop cocks etc, on the delivery side including bypass arrangement (with 50 mm dia G.M. stop valve and upto 5M G.I. Medium pipes) for periodical testing of the working of the pumping set as per TAC rules				
1.2	Water cooled TAC approved Diesel Engine suitable for developing at least 1500/1800 RPM) for above pump complete with automatic starting mechanism, batteries, automatic battery charger unit, flexible coupling with the pump, fuel tank, silencer, exhaust pipe & all standard accessories as required as per TAC rules including earthling, mandatory spares and tool kit.				
1.3	Common bed plate for mounting Pump and Engine fabricated of suitable M.S.Channel as per manufacturer's recommendations.				
1.4	Suitable Pump foundations as per manufacturer 's design and required numbers of Dunlop Anti-vibration (cushy foot) heavy duty mounting pads.	Each	1		
2	Electrical Motor Driven Fire Pumping set suitable for automatic operation consisting of the following as per the specifications.				
2.1	Horizontally mounted, centrifugal type single /Multi stage fire pump having cast iron body, bronze impeller, stainless steel shaft & capable of delivering 2280 LPM against a total head of 70 M complete with necessary 'Y' strainer on the suction side and pressure gauge with GM cocks on the delivery side including bypass arrangement (with 50 mm ball valve and upto 5M G.I. Medium pipes) for periodical testing of the working of the pumping set as per TAC rules.				
2.2	Squirrel cage induction motor totally enclosed fan cooled type suitable for 415 Volts \pm 15%, 3 phase, 50 HZ A.C. supply of suitable for the above pump coupled with flexible coupling including earthling as per relevant Indian Standard & specifications.				
2.3	Common bed plate for mounting Pump and Motor fabricated of Motor fabricated of suitable M.S. Channel as per manufacturer's recommendations.				
2.4	Suitable Pump-Foundations as per manufacturer's design and 4 nos. Dunlop (cushy foot) heavy duty Antivibration mounting pads.	Each	1		
3	Electrical Motor Driven Automatic pressurisation (Jockey) pumping set consisting of the following as per specifications. Horizontally mounted centrifugal type single/multi-stage fire pump for building pressure loss due to any leakage in the system and capable to deliver approx 180 LPM against a total head of 70 M having cast iron body, bronze impeller, stainless steel shaft and complete with Pressure Gauge with G.M. stop valve etc. on the delivery side including bypass arrangement (with 25 mm dia. G.M. Stop Valve and upto 5 M.G.I. medium pipe) for periodical testing of the working of the pumping set.				

3.1	Squirrel cage induction motor totally enclosed fan cooled type suitable for 415 Volts \pm 15% 3 phase. 50 hz A.C. supply of suitable for the above pump with synchronous speed of 1500/3000 RPM confirming to IS: 325 & duly coupled with above pump coupled with flexible coupling including earthing as per relevant Indian Standard and specifications.				
3.2	Common bed plate for mounting pump and motor fabricated of suitable M.S. channel as per manufacturer's recommendations.				
3.3	Pump foundations as per manufacturer 's design and required numbers of Dunlop Anti-vibration (cushy foot) heavy duty mounting pads.	Each	1		
4	Supply, installation, testing and commissioning of Adequate Pressure switch of approved make for Hydrant pump, jockey pump and Diesel Engine Driven pump including necessary wiring and cut off valve up to central panel & other material as described in specifications.(As per requirement).	No.	3.00		
5	Supply, installation, testing and commissioning of Fire authority approved suitable pressure vessel with air release valve (minimum 450 mm dia & 2000 mm height) with all fittings including one no. pressure gauge on the delivery side, 80 mm dia flanged inlet and 50 mm dia drain line with 50 mm dia G.M. gate valve.	No.	1.00		
6	Supply, fixing, testing and commissioning of Site Tube (of 3.0 - 5 M) with isolation valve at top and bottom demarcation on tube for making the installation of level indication on the RCC water tank complete.	Nos.	1		
7	Providing, fixing, testing and commissioning of heavy class MS pipe as per IS : 1239 marked with all necessary fittings like tees, elbows, flanges, reducers, gaskets, nuts and bolts etc. welded or screwed joints as required including fixing the pipe with necessary MS structural supports & clamping arrangement including painting of one primary coat of Zinc chromate with two coat of compatible synthetic paint give an even look (fire red, shade No. 536 as per IS:5) including all civil breakages and making good the same .GI pipe sleeves of suitable size shall be provided wherever the pipes are crossing the walls / floors / ceiling, the sleeves/ cutouts with fire sealent (equivalent to fire wall rating) compound at either end including cutting & making good the walls, floors, RCC work etc cutting chases & filling the same with cement concrete 1:3:6 (1 cement :3 coarse sand :6 graded stone aggregate 20 mm nominal size)				
7.1	65 mm dia (Nominal Bore)	RM	15		
7.2	80 mm dia (Nominal Bore)	RM	15		
7.3	100 mm dia (Nominal Bore)	RM	30		
7.4	150 mm dia (Nominal Bore)	RM	75		
8	Providing, fixing, testing & commissioning of heavy class MS pipe, IS : 3589 marked with all necessary fittings like tees, elbows, flanges, blind flanges, reducers, gaskets, nuts, bolts & washers etc. welded or screwed joints as required including fixing the pipe with necessary MS structural supports (for delivery/suction manifold relating to the pumps) including painting of one primary coat of Zinc chromate with two coat of compatible synthetic paint give an even look (fire red, shade No. 536 as per IS:5) including all civil breakages and making good the same [Location : Plant room].				
8.1	200 mm dia (6 mm thick) with necessary supports etc. as required.	RM	10		
8.2	250 mm dia with supports etc.	RM	10		

9	Providing and fixing C.I. Y type suction strainer with gunmetal or brass internal parts installed outside water tanks.				
9.1	150 mm dia	Each	3		
10	Providing, fixing, testing & commissioning of C.I. Butterfly valve conforming to IS : 13095 with flanges, gaskets, nuts, bolts and washers complete for following sizes :- [PN 1.6 rating].				
10.1	150 mm dia	Nos.	12		
10.2	100 mm dia	Nos.	2		
10.3	80 mm dia	Nos.	2		
10.4	65 mm dia	Nos.	2		
11	Providing, fixing, testing & commissioning of dual plate non-return valve complete with flange,gasket, nuts, bolts and washers etc. [PN 1.6 rating].				
11.1	100 mm dia	Nos.	6		
11.2	80 mm dia	Nos.	2		
11.3	65 mm dia	Nos.	1		
12	Providing, fixing, testing & commissioning of 100 mm dia Burden type, Stainless Steel dial type pressure gauge (in Pump Room) including brass isolation valve and pipe having caliberation of 0-16 Kg/cm ² .	Nos.	3		
13	Providing, fixing, testing & commissioning of resilient rubber lined single arch vibration eliminators suitable for raw water up to 45°C temperature, working pressure 8.8 Kg/cm ² and test pressure 14 Kg/cm ² .				
13.1	150 mm dia	Nos.	4		
13.2	100 mm dia	Nos.	3		
13.3	80 mm dia	Nos.	2		
13.4	65 mm dia	Nos.	1		
14	Providing and fixing exhaust, Diesel engine driven pump exhaust M. S. pipe class 'C' 150 mm dia including fitting like flanges, bends, reducers, etc. 50 mm thick fibre wool insulation aluminium cladding, 21 gauge, necessary excavation, fixing of silencer connections at engine exhaust, necessary supports, back filling, cutting and making good, bird proof and weather proof flap complete in all respect as directed.	RM	30		
15	Providing and fixing gunmetal collecting head with 63 mm dia instataneous type inlet and 150/100 mm dia flangfed outlet with built in check valcve for fire brigade connection to fire tank and fire risers (IS:904-1965) including 16 guage thick M.S. sheet enclosure stocve enameled with 8 mm thick glass				
	a)Two way	Each	1		
	b) Four way	Each	1		
16	Providing and fixing M.S. pipes to I.S.1239(C class)/I.S:3589 with two or more coats of synthetic enamel paint of approved quality and shade over a coat of approved priming including all fittings like anchor fastners, couplings, bends, elbows, tees, flanges and epoxy coated structural supports where required etc. welded or screwed joints as required, cutting holes and chases in brick or RCC walls and making good complete. (for external pipe)				
a)	150 mm dia	Meter	650		

17	Providing tar based corrosion protection tape complete as per specification by applying a coat of primer, wrapping tape spirally and thermosealing complete. (for two way & four way)				
a)	150 mm dia	Meter	650		
	TOTAL COST				0.00

**INTERNAL FIREFIGHTING WORKS
PROJECT - NEPAL POLYTECHNIC**

S. No.	Description of items	Unit	Total Qty.	Rate (in Rs.)	Amount (in Rs.)
I	FIRE SUPPRESSION SYSTEM				
1	Providing and fixing black steel pipes to IS:1239 (Heavy class) including all fittings like anchor fasteners, brick masonry supports, couplings, bends, elbows, tees and flanges etc. welded or screwed joints as required, cutting holes and chases in brick or RCC walls and making good complete.				
a)	25 mm dia	Metre	20		
b)	65 mm dia	Metre	50		
c)	80 mm dia	Metre	100		
d)	100mm dia	Metre	30		
e)	150 mm dia	Metre	290		
2	Providing and fixing first aid fire hose reel wall mounting swinging type fitted with 36.5 M x 20 mm dia high pressure RUBBER hose to IS: with 5 mm outlet gunmetal nozzle with shut off valve (IS:884-1969).	Each	10		
3	Providing and fixing 63 mm dia 15 M long rubberized fabric lined hose including gunmetal male and female instantaneous type coupling approved by fire authority, machine wound with G.I. wire complete in all respects hose to IS:636 type II and coupling to IS:903-1975 with ISI certification.	Each	20		
4	Providing and fixing standard short size gunmetal branch pipe with gunmetal nozzle 16 mm NB outlet with standard instantaneous type 63 mm dia coupling.	Each	10		
5	Providing and fixing standard fire man's axe with heavy duty insulated rubber handle.	Each	24		
6	Providing & fixing single acting air valve of 25 mm dia as per IS:14845 including 25 mm dia Ball valve and all fitting etc. as per the requirement.	Each	11		
7	Providing and fixing gunmetal fire hydrant valve 80 mm inlet, single outlet with control (IS:5290) and fitted with 63 mm dia instantaneous female coupling complete with blank cap and chain (IS:901).	Each	10		

8	Providing and fixing fire hose cabinet fabricated from 16 gauge M.S. Sheet with single or double glazed front door (with 4 mm thick glass) and locking arrangement, painted fire red with stove enamelled paint "FIRE HOSE" written on front including necessary supports approximate size.				
	a) 2100x1200x600 mm deep.	Each	24		
9	Painting M.S. pipes and fittings two or more coats of synthetic enamel paint of approved quality and shade over a coat of ready mixed red lead primer:				
a)	25 mm dia	Metre	20		
b)	65 mm dia	Metre	50		
c)	80 mm dia	Metre	100		
d)	100mm dia	Metre	30		
e)	150 mm dia	Metre	290		
10	Providing tar based corrosion protection tape complete as per specification by applying a coat of primer, wrapping tape spirally and thermosealing complete.				
	150mm dia	Metre	290		
11	Providing and fixing lever operated butterfly valve conforming to IS:13095-91 including necessary companion flanges, bolts and nuts complete.				
	a) 100 mm dia	Each			
	b) 150 mm dia	Each	31		
12	Providing and fixing cast iron double flanged horizontal type non-return valves including nuts, bolts, 3 mm thick insertion rubber gasket complete to IS:5312 (PIN 1.6).				
	a) 100 mm dia	Each			
	b) 150 mm dia	Each	10		
13	Providing and fixing dial type pressure gauge with isolation cock and pipe at hydrant station.				
	a) Dia diameter 100 mm calibration 0-8 Kg.	Each	10		

14	Supply, Installations, Testing & Commissioning of horizontal/vertical monobloc centrifugal pumping set with mechanical seal, C.I. volute and bronze impeller connected to a TEFC induction motor suitable for 400/44 volts, 3 phase, 50 cycles A.C. supply with 150 mm dia pressure gauge with gunmetal isolation cock, vibration eliminating pads for fire pump at terrace level including motor control panel at terrace level and remote push button for OFF/ON operation in Fire Control Room. (Fire pump on terrace)				
	Capacity 450 lpm				
	Head 50 m				
	HP 15	Each	10		
II HAND APPLIANCES					
15	Providing and fixing CO ₂ type fire extinguishers with steel cylinder with a discharge valve and conforming to IS:15683. Extinguishers shall be painted with red enamel paint and fixed to wall with brackets capacity 4.5 Kg.	Each	32		
16	Providing and fixing water CO ₂ gas fire extinguishers with steel cylinder with a discharge valve and conforming to IS:15683. Extinguishers shall be painted with red enamel paint and fixed to wall with brackets capacity 9 litre.	Each	32		
17	Providing and fixing ABC powder type fire extinguisher suitable for inverted operation and fabricated from 1.6 mm M.S. sheet internally protected with anticorrosive treatment and hydraulically tested to a pressure of 25 Kg/Sqcm. Extinguishers externally painted with red enamel and fixed to wall with brackets complete with internal charge and spanner (Conforming to IS:15683 capacity 5 Kg.).	Each	32		
TOTAL COST					

PROJECT – NEPAL BHARAT MAITRY POLYTECHNIC HETAUDA, NEPAL					
ADMIN BLOCK & AUDITORIUM					
BILL OF QUNATITIES FOR HVAC WORK					
S.NO.	Description	Units	Qty.	Rate	Amount
GENERAL NOTES:					
	i) Refrigerant copper pipe shall be nitrile rubber insulated.				
	ii) Gas filling (one time) charges to be included in the outdoor part of the BOQ				
VRF / VRV AIR-CONDITIONING SYSTEM (VERSION - IV)					
	Supply, installation, testing & commissioning of AIR COOLED VARIABLE REFRIGERANT VOLUME MODULAR TYPE AIR CONDITIONING SYSTEM with R410A suitable for 415 ± 10% , 50 ± 3% Hz. The unit shall consist of indoor units and external condensing units including y-joints between indoor and outdoor units other accessories as listed below complete in all respects as under:				
1	Outdoor Condensing Units				
	Fully factory assembled, wired and tested Outdoor Condensing Units as per specifications and as required to make the system complete. Independent outdoor units for each floor.combination as per specification.				
a)	12 HP for Ground Floor	Nos.	1		
b)	18 HP for Ground Floor	Nos.	1		
c)	18 HP for 1 st Floor	Nos.	1		
d)	24 HP for 1 st Floor	Nos.	1		
e)	14 HP for 2nd Floor	Nos.	1		
f)	12 HP for 2 nd Floor	Nos.	1		
g)	42 HP for Auditorium	Nos.	1		
2	Indoor Units				
2.1	Ceiling Mount Ductable Type Unit with Heat Pump				
a)	8.0 TR	Nos.	2		
b)	4.6 TR	Nos.	1		
c)	4.0 TR	Nos.	6		
2.2	Ceiling Mounted Cassette Type Unit with Heat Pump				
a)	0.62 TR	Nos.	20		
b)	0.8 TR	Nos.	10		

c)	1.0 TR	Nos.	7		
d)	1.3 TR	Nos.	16		
e)	1.6 TR	Nos.	9		
2.3 Hi-Wall Type Unit with Heat Pump					
a)	0.62 TR	Nos.	35		
b)	1.0 TR	Nos.	4		
c)	1.3 TR	Nos.	8		
3 Thermostate Sensor					
	Supplying and fixing of automatic thermostate sensor as per standard specification.	Nos.	118		
4 Inline Fan					
	Supply, installation, testing and commissioning of normal Inline fan complete arrangement in all respect as per specifications				
b)	300 CFM, Toilet Exhaust + Pantry	Nos.	6		
5 Propeller Fan					
	Supply, installation, testing and commissioning of normal Propeller fan complete arrangement	Nos.	1		
	150 CFM				
6 COPPER REFRIGERANT PIPE (with insulation)					
	Supply, Installation, testing & commisioning of Interconnecting hard/soft drawn copper refrigerant pipe work with (19mm/13 mm thick) closed cell elastomeric nitrile rubber tubular insulation between each set of indoor & outdoor units as per specifications, and all piping inside the room shall be properly supported with MS hanger & clamps and all external piping with UV coating as per specifications.				
a)	34.9 mm O.D. (insulation : 19 mm)	Rmt	35		
b)	28.6 mm O.D. (insulation : 19 mm)	Rmt	80		
c)	22.2 mm O.D. (insulation : 19 mm)	Rmt	76		
d)	19.1 mm O.D. (insulation : 13 mm)	Rmt	64		
e)	15.9 mm O.D. (insulation : 13 mm)	Rmt	163		
f)	12.7 mm O.D. (insulation : 13 mm)	Rmt	178		
g)	9.5 mm O.D. (insulation : 13 mm)	Rmt	266		
h)	6.4 mm O.D. (insulation : 13 mm)	Rmt	245		
7 CONDENSATE DRAIN PIPING					

	Supplying, laying, fixing, testing & commissioning of uPVC pipes complete with all necessary fittings such as elbows, tees, reducers etc and supports such as clamps etc. complete as per specifications.				
a)	18 mm dia uPVC pipes	Rmt	57		
b)	25 mm dia uPVC pipes	Rmt	137		
c)	32 mm dia uPVC pipes	Rmt	155		
d)	40 mm dia uPVC pipes	Rmt	140		
e)	50 mm dia uPVC pipes	Rmt	98		
8	FRESH & EXHAUST AIR				
	Supplying, installing and testing of fresh air and exhaust air GI outlet louvers with bird screen complete as per specification.	Sqm.	2		
9	Jet Diffuser				
	Supplying, fixing testing commissioning of Round Jet diffusers of powder coated aluminium with aluminium volume control dampers with anti smudge ring & removable core.				
a)	250 Dia	Nos.	22		
	AMOUNT (NON SCHEDULE ITEM)				
10	GSS Sheet Metal Duct (Factory Fabricated)				
	Supply, installation, balancing and commissioning of site fabricated GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.				
a)	24 Gauge (0.63 mm thick)	Sqm.	155		
11	Volume Control Damper				
	Supplying, installing, testing & commissioning of GI volume control damper within ducts to be	Sqm.	4		
12	Return Air Grille				
	Supplying, installing and testing of exhaust air GI double louvered grilles without volume control dampers complete as per specifications.	Sqm.	4		
13	Acoustic Lining of Duct				
	Supply and fixing of acoustic lining of supply air duct and plenum with 25 mm thick resin bonded glass wool having density of 32 kg/m ³ , with 25 mm X 25 mm GI section of 1.25 mm thick, at 600 mm centre to centre covered with Reinforced Plastic tissue paper and 0.5 mm thick perforated aluminum sheet fixed to inside	Sqm.	55		

14	Insulation of Duct				
	Supplying and fixing of following thickness duly laminated aluminum foil of mat finish				
	19 mm thick	Sqm.	115		
	TOTAL AMOUNT				

BOQ EXTERNAL PLUMBING WORKS						
PROJECT - NEPAL POLYTECHNIC						
S. NO.	DESCRIPTION	UNIT	QTY.		RATE (IN RS.)	AMOUNT (IN RS.)
SUB HEAD-I (A)- WATER SUPPLY - EXTERNAL WORK						
1	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc. (external work)					
a)	20mm dia nominal bore	Metre	210			
b)	25mm dia nominal bore	Metre	75			
c)	32mm dia nominal bore	Metre	710			
d)	40mm dia nominal bore	Metre	350			
e)	50mm dia nominal bore	Metre	625			
f)	65mm dia nominal bore	Metre	195			
g)	80mm dia nominal bore	Metre	1125			
2	Painting G.I. pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality.					
a)	20mm dia nominal bore	Metre	210			
b)	25mm dia nominal bore	Metre	75			
c)	32mm dia nominal bore	Metre	710			
d)	40mm dia nominal bore	Metre	350			
e)	50mm dia nominal bore	Metre	625			
f)	65mm dia nominal bore	Metre	195			
g)	80mm dia nominal bore	Metre	1125			
3	Constructing brick masonry chamber 30x30x50cms inside with 1st class brick work in cement mortar 1:5 (1 cement : 5 fine sand) for stop cock with CI surface box 100x100x 75mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size)necessary excavation foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 cement 3 coarse sand) 12mm thick finished with a floating coat of neat cement complete as per standard design.					
a)	With FPS bricks	Each	20			
4	Providing and laying S&S centrifugally cast (spun) iron pipes (Class LA) conforming to IS-1536.					
a)	100 mm dia pipe	Metre	30			
5	Providing lead caulked joints to spun iron or C.I. pipes and specials including testing of joints but excluding the cost of pig lead.					
a)	100 mm dia pipe	each	4			
6	Supplying pig lead at site of work.	quintal	1			
7	Providing and filling sand of grading zone V or coarser grade all-round the G.I. pipes in external work.					
a)	20mm dia nominal bore	Metre	210			

b)	25mm dia nominal bore	Metre	75			
c)	32mm dia nominal bore	Metre	710			
d)	40mm dia nominal bore	Metre	350			
e)	50mm dia nominal bore	Metre	625			
f)	65mm dia nominal bore	Metre	195			
g)	80mm dia nominal bore	Metre	1125			
8	Providing and fixing enclosed type water meter (bulk type) conforming to IS : 2373 and tested by Municipal Board complete with bolts, nuts, rubber insertions etc. (The tail pieces if required will be paid separately) :					
8.1	100 mm dia nominal bore	Each	1	4654.40		
9	Providing and fixing C.I. dirt box strainer for bulk type water meter with nuts, bolts, rubber insertions etc. complete conforming to IS : 2373					
9.1	100 mm dia nominal bore	Each	1	5862.35		
10	Constructing masonry Chamber 60x45x50 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for water meter complete with C.I. double flap surface box 400x200x200 mm (inside) with locking arrangement and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) , i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand:10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design :					
10.1	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5	Each	1	6039.95		
	TOTAL C/F TO SUMMARY					
SUB HEAD-II (A)- GARDEN HYDRANT WORK (As per D.S.R - 14)						
11	Providing and fixing gunmetal gate valve with CI wheel of approved quality (screwed end).					
a)	25mm nominal bore	Each	35			
12	Providing and fixing CI sluice valves (with C.I. wheel) complete with bolts, nuts, rubber insertions etc.(the tail pieces if required will be paid separately):					
a)	100 mm dia (PIN 1.6)	Each	1			
13	Constructing brick masonry chamber 30x30x50cms inside with 1st class brick work in cement mortar 1:4 (1 cement : 4 fine sand) for stop cock with C.I. surface box 100x100x75mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12mm thick, finished with a floating coat of neat cement complete as per standard design:					
a)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	35			

14	Constructing masonry Chamber 90x90x100 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve,with C.I. surface box 100 mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominalsize) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design :	Each	1			
TOTAL C/F SUMMARY						
SUB HEAD-II (B)- GARDEN HYDRANT WORK (NON SCHEDULED ITEMS)						
15	Providing and laying uPVC pressure pipes as per IS:4985 of as specified pressure in Kg/Sqcm pressure rating including all fittings, solvent weld joints, testing and necessary earth work.					
a)	25mm (8kg/cm2)	Metre	815			-
b)	32mm (8kg/cm2)	Metre	245			
c)	40 mm (8 kg/cm2)	Metre	355			
d)	63 mm (8kg/cm2)	Metre	400			
e)	110 mm (8kg/cm2)	Metre	70			
TOTAL C/F TO SUMMARY						
SUBHEAD-III-(A) : SEWERAGE						
16	Excavating trenches of required width for pipes, cables etc. including excavation for sockets and dressing of sides, ramming of bottoms, depth upto 1.5m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20cm in depth including consolidating each deposited layer by ramming, watering etc. and disposing of surplus excavated soil as directed, within a lead of 50m.					
a)	All kinds of soil					
b)	Pipes, cables etc. exceeding 80mm dia but not exceeding 300mm dia.	Metre	2215			
17	Providing, laying and jointing glazed stoneware pipes class SP-1 with stiff mixture of cement mortar in the proportion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete :					
a)	150mm dia	Metre	1250			
b)	200mm dia	Metre	460			
c)	250mm dia	Metre	295			
d)	300mm dia	Metre	210			
e)	400mm dia	Metre	60			
18	Providing and laying cement concrete 1:5:10 (1 cement: 5 coarse sand : 10 graded stone aggregate 40mm nominal size) all round sw pipes including bed concrete as per standard design					
a)	150mm dia	Metre	1250			
b)	200mm dia	Metre	460			

c)	250mm dia	Metre	295			
19	Providing and laying cement concrete 1:5:10 (1 cement: 5 coarse sand : 10 graded stone aggregate 40mm nominal size) all round sw pipes including bed concrete as per standard design					
a)	300mm dia	Metre	210			
20	Constructing brick masonry manhole in cement mortar 1:4 (1 cement :4 coarse sand) RCC top slab with 1:2:4 mix (1 cement :2 coarse sand :4 graded stone aggregate 20mm nominal size), foundation concrete 1:4:8 mix (1 cement :4 coarse sand :8 graded stone aggregate 40mm nominal size) inside plastering 12mm thick with cement mortar 1:3 (1 cement :3 coarse sand) finished with floating coat fo neat cement and making channels in cement concrete 1:2:4 (1 cement :2 coarse sand :4 graded stone aggregate 20mm nmlinal size) finished with a floating coat of neat cement complete as per standard design.					
a)	Inside size 90x80cms and 45cms deep including CI cover with frame (light duty) 455x610mm internal dimensions total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15kg).					
b)	With FPS bricks of class designation 75 (i) For Sewer Line	Each	38			-
21	Inside size 120x90 cm and 90 cm deep including C.I. cover with frame (medium duty) 500 mm internal diameter, total weight of cover and frame to be not less than 1 16 kg (weight of cover 58 kg and weight of frame 58 kg) :					
a)	With FPS bricks of class designation 75 (i) For Sewer Line	Each	30			
22	Extra for depth for manholes:					
a)	Size 90x80cm with FPS bricks (class I).	Metre	15			
b)	Size 120x90cm with FPS bricks (class I).	Metre	10			
23	Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement :4 coarse sand), in side cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :					
a)	0.91 m deep with S.F .R.C. cover and frame (heavy duty , HD-20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately) :					
b)	With common burnt clay F .P .S. (non modular) bricks of class designation 7.5	Each	25			
24	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.67 m					

a)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Metre	8			
25	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement :4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :					
a)	1.68 m deep with SFRC Cover and frame (heavy duty HD-20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately) :					
b)	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	12			
26	Providing M.S. foot rests including fixing in manholes with 20x20x10 cm cement concrete blocks 1:3:6 (1 cement:3 coarse sand :6graded stone aggregate 20 mm nominal size) as per standard design					
a)	With 20x20 mm square bar	Each	250			
27	Providing and fixing square mouth SW gully trap grade 'A' complete with CI grating brick masonry chamber with water tight CI cover with frame of 300x300mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design.					
a)	100x100mm size P type with FPS 1st Class bricks.	Each	80			
TOTAL C/F TO SUMMARY						
SUBHEAD-IV-(A) : DRAINAGE						
28	Excavating trenches of required width for pipes, cables etc. including excavation for sockets and dressing of sides, ramming of bottoms, depth upto 1.5m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20cm in depth including consolidating each deposited layer by ramming, watering etc. and disposing of surplus excavated soil as directed, within a lead of 50m.					
	All kinds of Soil					
a)	Pipes, cables etc. exceeding 80mm dia but not exceeding 300mm dia.	Metre	2840			
b)	Pipes, cables etc. exceeding 300mm dia but not exceeding 600mm dia.	Metre	30			
29	Providing and laying non pressure NP ₂ class (light duty) RCC pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete.					
a)	150mm dia RCC pipe	Metre	2165			
b)	250mm dia RCC pipe	Metre	385			

c)	300mm dia RCC pipe	Metre	290			
d)	450mm dia RCC pipe	Metre	30			
30	Constructing brick masonry manhole in cement mortar 1:4 (1 cement :4 coarse sand) RCC top slab with 1:2:4 mix (1 cement :2 coarse sand :4 graded stone aggregate 20mm nominal size), foundation concrete 1:4:8 mix (1 cement :4 coarse sand :8 graded stone aggregate 40mm nominal size) inside plastering 12mm thick with cement mortar 1:3 (1 cement :3 coarse sand) finished with floating coat fo neat cement and making channels in cement concrete 1:2:4 (1 cement :2 coarse sand :4 graded stone aggregate 20mm nmnal size) finished with a floating coat of neat cement complete as per standard design.					
a)	Inside size 90x80cms and 45cms deep including CI cover with frame (light duty) 455x610mm internal dimensions total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15kg).					
b)	With FPS bricks of class designation 75 (i) For Sewer Line	Each	20			
31	Inside size 120x90 cm and 90 cm deep including C.I. cover with frame (medium duty) 500 mm internal diameter, total weight of cover and frame to be not less than 1 16 kg (weight of cover 58 kg and weight of frame 58 kg) :					
a)	With FPS bricks of class designation 75 (i) For Sewer Line	Each	10			
32	Extra for depth for manholes:					
a)	Size 90x80cm with FPS bricks (class I).	Metre	8			
33	Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement :4 coarse sand), in side cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :					
a)	0.91 m deep with S.F .R.C. cover and frame (heavy duty , HD-20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately) :					
b)	With common burnt clay F .P .S. (non modular) bricks of class designation 7.5	Each	30			
34	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.67 m					
a)	With common burnt clay F .P .S. (non modular) bricks of class designation 7.5	Metre	10			

35	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement :4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :					
a)	1.68 m deep with SFRC Cover and frame (heavy duty HD-20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately) :					
b)	With common burnt clay F .P .S. (non modular) bricks of class designation 7.5	Each	26			
36	Providing M.S. foot rests including fixing in manholes with 20x20x10 cm cement concrete blocks 1:3:6 (1 cement:3 coarse sand :6graded stone aggregate 20 mm nominal size) as per standard design.					
a)	With 20x20 mm square bar	Each	180			
37	Constructing brick masonry road gully chamber 50x45x60 cm with bricks of 1st class in cement mortar 1:5 (1 cement : 5 fine sand) including 500x450mm precast R.C.C. horizontal grating with frame complete as per standard design:					
a)	With FPS bricks (1st Class)	Each	145			
TOTAL C/F TO SUMMARY						
SUBHEAD-IV-(A) : DRAINAGE						
38	Providing and laying non pressure NP ₂ class (light duty) RCC pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete.					
a)	200mm dia RCC pipe	Metre	770			
b)	400mm dia RCC pipe	Metre	180			
TOTAL C/F TO SUMMARY						
SUBHEAD-V-(A) : RECHARGE PIT (NON-SCHEDULED ITEMS)						
39	Rain Water Harvesting					

39.1	Providing all material & constructing brick masonry recharge pit of 4.0m dia x 4.0 m depth (Eff. depth) with brick work in cement mortar 1:4 (1 cement : 4 coarse sand) with 100mm dia weep holes at side walls @ 500 mm vertically & horizontally center to center, 200 mm thick RCC top slab in cement concrete (1:2:4) along with periferial & two nos. of intermediate RCC beams of size 250 x 450mm R/ F of slab 12 mm tor steel at bottom and 10 mm at topwith a spacing of 125 mm c/c, 4 nos 16 mm tor steel bars at bottom & 2 nos. 12 mm tor steel bars at top for beams with 8 mm stirrups @ 150 mm c/c, 2 nos. heavy duty SFRC cover of 560 mm dia,poly propelene coated rungs @ 300 mm c/c embeded in CC (1 : 2 : 4) blocks of 200 x 200 x 200 mm, 150 mm thick PCC in 1: 4 : 8 below footing with 150 mm projection, internal & external plaster in CM 1 : 4, necessary excavation, backfilling & disposal of surplus earth upto a lead of 50m complete in all respect including drilling percolation Bore Hole of 300/250 mm dia upto 50 mgenerating the softening plant. The brine tank shall have overflow & drain, outlet fitting complete regeneration assembly comprising of power valve, ejector, brine suction valve and all associated pipe work. A density meter for brine shall be included. consumables and	each	13			
40	Desilting Chhamber					
40.1	Providing and constructing brick masonry desilting chamber of size 200x150xupto300 cms effective depth inside with 75 class designation brick work 345mm/230mm thick in cement mortar 1:4 (1cement:4 coarse sand) with weep holes all around , SFRC cover heavy duty 560mm dia and 150 mm thick R.C.C. top slab 1:2:4 mix(1 Cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including necessary excavation, back filling, disposal of surplus earth as directed, foundation concrete 1:5:10 mix (1 cement : 5 fine sand : 10 graded stone aggregate 40mm nominal size) below masonry walls with 150mm projection at either side including necessary baffle wall inside(as per std. drawing) , excavation,back filling and disposal of surplus earth upto a lead of 200 mtr., poly propelene coated rungs @ 300 mm c/c.	each	13			
TOTAL C/F TO SUMMARY						
SUBHEAD-VI(A) : BORE WELL (As per D.S.R - 14)						
41	Boring/drilling bore well of required dia for casing / strainer pipe, by suitable method prescribed in IS:2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer - in-charge, upto 90 metre depth below ground level.					
	Rocky strata including Boulders					
	300mm dia	Metre	180			
42	Boring/drilling bore well of required dia for casing / strainer pipe, by suitable method prescribed in IS:2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer - in-charge, beyound 90 metre & upto 150 metre depth below ground level.					
	Rocky strata including Boulders					
	300mm dia	Metre	180			

43	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.					
	100 mm nominal size dia	Metre	180			
44	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC medium well screen (RMS) pipes with ribs conforming to IS: 12818, including hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.					
	100 mm nominal size dia	Metre	180			
45	Gravel packing in tubewell construction in accordance with IS: 4097, including providing gravel fine/ medium/ coarse, in required grading & sizes as per actual requirement, all complete as per direction of Engineer- in -charge.	Cum.	50			
46	Development of tube well in accordance with IS:2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water samples & getting tested in approved laboratory, i/c disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-Charge.	Hour	40			
47	Providing and fixing suitable size threaded mild steel cap or spot welded plate to the top of bore well housing/ casing pipe, removable as per requirement, all complete for borewell of:					
	150 mm dia	each	2			
	TOTAL					
SUBHEAD-VI-(B) : BORE WELL						
48	Supply, installation testing & commissioning of submersible pumping set suitable to operate on 410 volts 3 phase 50 HZ A.C. power supply including water proof joint free cable, motor control panel, 50 mm dia, G.I. pipe (medium class) column with fittings, clamps etc. complete in all respect as per details given below : (For Borewell)					
	Discharge 115 LPM.					
	Head 50 m					
	HP/Load 2.0 (Approx)	Set	2			
	TOTAL					
SUBHEAD-VII-(A) : PUMPS & EQUIOMENT ITEMS						
49	Supplying, installing, testing and commissioning single stage, submersible centrifugal pumps of closed coupled construction with CI body & cast iron (C.I) impeller connected to a fully submersible water/oil cooled motor suitable to operate with 380-415 volts 3 phase 50 cycles AC power supply with class F insulation and built -in temperature protection, pump connector unit with rubber diaphragm & bend, vertical discharge pipe, guide pipe, stainless steel chain/rope, water -proof power cable and level controller complete in all respects for fixed installation.					

	For Sump Pump (1 set = 1 Working + 1 Standby)				
	Location - Basement (1 Nos.), Plumbing Plant Room (1 No.), STP (1 No.),				
	Discharge 180LPM.				
	Head 25 m				
	HP/Load 2.0 (Approx)	set	2	1,466.00	
50	Providing and fixing horizontal/vertical monobloc centrifugal pumping set with mechanical seal cast iron (C.I) volute and bronze impeller connected to a TEFC induction motor suitable for 400/440 volts, 3 phase, 50 cycles A.C. supply with 150 mm dia pressure gauge with gunmetal isolation cock, vibration eliminating for each pump including necessary structural supports, clamps, bolts, nuts washers and 1:2:4 plain cement concrete (PCC) foundations				
50.1	For Filter Feed For Domestic pump (1 Set = 2 working + 1 standby)	set	1	2,698.00	
	Location - Plumbing Plant Room				
	Capacity 200 lpm				
	Head 35 m				
50.2	For Domestic Water transfer pump (1 Set = 3 working + 1 standby)	set	1	3,445.00	
	Location - Plumbing Plant Room				
	Capacity 210 lpm				
	Head 45 m				
50.3	For Flushing Water transfer pump (1 Set = 1 working + 1 standby)	set	1	3,358.00	
	Location - STP Pump Room				
	Capacity 30 lpm				
	Head 45 m				
50.4	For Irrigation Water transfer pump (1 Set = 1 working + 1 standby)	set	1	6,147.00	
	Location - Plumbing Plant Room				
	Capacity 325 lpm				
	Head 60 m				
	HP/Load 2.0 (Approx)				
51	All piping work, Butterfly valves, non-return valves, cables , G.I. earthing, cable trays, level controller etc., complete job.	l - s	1	3,000.00	
52	MULTIGRADE PRESSURE SAND FILTER: (For Domestic Water)				
	Location - Plumbing Plant Room				
	Supply, installation, testing & commissioning of vertical self supporting multi grade pressure filter (MGF) (Dual media filter) fabricated from MS sheet as per IS Code, pressure gauges at inlet & outlet, sample cock, air vent valve with piping, GI face piping distribution pipe with diffuser on top, CI butterfly valves and all accessories, with initial charge of filter media for filter, painting inside with food grade epoxy paint and outside with two coat of red oxide primer and two or more coat of synthetic enamel paint complete with bypass arrangement including piping and valves (3 Nos.) of required size.				
	Capacity/Flow rate : 380 lpm				
	Filtration rate/velocity : 18-20 M ³ /M ² /hr				
	Max. operating pressure : 3.5 kg/Sq.cm				
	Test pressure : 5.5 kg/Sq.cm				

	Suggested diameter : 1500 mm	set	1	2,783.00		
53	ACTIVATED CARBON FILTER: (For Domestic Water)					
	Location - Plumbing Plant Room					
	Supply, installation, testing & commissioning vertical self supporting Activated Carbon Filter (ACF) fabricated from M.S. Sheet as per IS Code, pressure gauge at inlet & outlet, sample cock, GI face piping, C.I. Butterfly valve and all accessories, air vent valve with piping, with initial charge of filter media for activated carbon filter, painting inside with epoxy paint and outside with two coat of synthetic enamel paint complete with bypass arrangement including piping, CI Valves (3 Nos.) of required size.					
	Capacity/Flow rate : 380 lpm					
	Filtration rate/velocity : 18-20 M ³ /M ² /hr					
	Max. operating pressure : 3.5 kg/Sq.cm					
	Test pressure : 5.5 kg/Sq.cm					
	Suggested diameter : 1500 mm	set	1	3,280.00		
54	SOFTENER: (For Domestic Water)					
	Location - Plumbing Plant Room					
	Supplying, installing, testing and commissioning of softener of welded construction fabricated from 6mm thick mild steel plates, as per IS Code, lined internally with 3mm thick natural rubber (Shore hardness 60 ⁰ -80 and continuity test with electrical resistance testing to be done. The vender shall submitted the certificate of having tested the same and externally with approved paint over 2 coats of red oxide primer top and botom dished ends of 6 mm thickness with frontal piping (M.S. fabricated flange pipe work lined internally with rubber similar as for main vessel) and valves back wash fittings and filter media etc. Softener shall be suitable for flow rate and specifications given below with regeneration period of 10 hrs and shall include standard fittings like manhole cover pressure gauges. Sampling cock rinse drain bolts, nuts & rubber gasket etc. complete. The softener plant shall include brine tank of M.S. welded construction lined internally with rubber similar as main vessel and capable of regenerating the softening plant. The brine tank shall have overflow & drain, outlet fitting complete regeneration assembly comprising of power valve, ejector, brine suction valve and all associated					
	Salt Saturation Arrangement:					
	The brine tank shall be provided with salt saturation arrangement (with air agitation) comprising of GI. Perforated (Min. 1 inch.) pipe grid laid in the bottom of brine tank, one no. positive discharge air blower of required capacity, valve & NRV on blower and GI pipe interconnection from blower to grid complete.					
	Plant Sizes:					
	Capacity/Flow rate : 380 lpm					
	Raw Water Inlet Hardness* : 400 ppm (Approx.)					
	Output Water Hardness Desired : (< 50 ppm)					
	Regeneration Period : 8 Hours					
	Output between Regeneration (OBR) : 44.80 M ³					
	Operating Pressure Maximum : 3.5 Kg/Sq.cm					
	Test pressure : 5.5 Kg/Sq.cm					
	Suggested diameter : 1500 mm					
	Ion Exchange Resin - strongly acidic cationic resin Na - forms	set	1	3,882.00		

55	Supplying, installing, testing and commissioning electronic chlorine solution dosing system comprising of F.R.P/ chemical grade HDPE solution tank of 200 litres capacity electronic dosing pump of capacity 0-4 LPH against 4.5 Kg/Sq.cm dosing valves, flexible teflon tube pipes etc. complete for dosing of chlorine solution into water on line.	Set	2	1173		
56	Providing and fixing mild steel (MS) puddle flanges of required size with 5mm thick mild steel (MS) plate including necessary welding as per details shown on drawings and directions of Engineer-in-charge for water tanks.					
a)	32mm dia (4mm wall thickness)	each	2	119.00		
b)	40mm dia (4mm wall thickness)	each	2	119.00		
c)	50mm dia (4mm wall thickness)	each	8	119.00		
d)	65mm dia (4mm wall thickness)	each	5	136.00		
e)	80mm dia (4mm wall thickness)	each	5	156.00		
f)	100mm dia (4mm wall thickness)	each	10	180.00		
g)	150mm dia (6mm wall thickness)	each	10	229.00		
57	Supply, installation, testing & commissioning of Hot dipped galvanised 'Y' Strainer of following sizes as per specification:					
a)	100 mm dia	each	2	975.00		
b)	150 mm dia	each	1	1,487.00		
58	Supplying, assembly, erection, testing and commissioning of magnetic level sensors and controllers, Chlorinated Polyvinyl Chloride (CPVC) probe tube, PP actuating float and all other equipment required for the performance of the system to the satisfaction of the engineer in charge complete including providing and fixing wiring from control junction box near the Under Ground tank to probes of required length, interconnection wiring between level controller and the concerned contactor in the starter panel as required. Level of all tanks (Under Ground and overhead tank) will be included in this item. The level controller will perform the following functions	job	2	2,537.00		
	To switch on the pumps when the level of water in the supply water tank is low and to cut off the pump when the level in the receiving water tank is high and switch off the pumps when the level of water in the supply water tank is low .					
	To indicate 5 levels of water in all tanks through a control panel with LEDs					
	To start the pumps in a cyclic order.					
	The system shall be complete to ensure automatic quotation of pump in accordance to water level in respective tanks.					
59	Providing and fixing dial type pressure gauge with isolation cock. Dia diameter 100 mm calibration 0-8 Kg.	each	8	84.00		
TOTAL						

INTERNAL FIREFIGHTING WORKS

PROJECT - NEPAL POLYTECHNIC

S. No.	Description of items	Unit	Total Qty.	Rate (in Rs.)	Amount (in Rs.)
I	FIRE SUPPRESSION SYSTEM				
1	Providing and fixing black steel pipes to IS:1239 (Heavy class) including all fittings like anchor fasteners, brick masonry supports, couplings, bends, elbows, tees and flanges etc. welded or screwed joints as required, cutting holes and chases in brick or RCC walls and making good complete.				
a)	25 mm dia	Metre	20		
b)	65 mm dia	Metre	50		
c)	80 mm dia	Metre	100		
d)	100mm dia	Metre	30		
e)	150 mm dia	Metre	290		
2	Providing and fixing first aid fire hose reel wall mounting swinging type fitted with 36.5 M x 20 mm dia high pressure RUBBER hose to IS: with 5 mm outlet gunmetal nozzle with shut off valve (IS:884-1969).	Each	10		
3	Providing and fixing 63 mm dia 15 M long rubberized fabric lined hose including gunmetal male and female instantaneous type coupling approved by fire authority, machine wound with G.I. wire complete in all respects hose to IS:636 type II and coupling to IS:903-1975 with ISI certification.	Each	20		
4	Providing and fixing standard short size gunmetal branch pipe with gunmetal nozzle 16 mm NB outlet with standard instantaneous type 63 mm dia coupling.	Each	10		
5	Providing and fixing standard fire man's axe with heavy duty insulated rubber handle.	Each	24		
6	Providing & fixing single acting air valve of 25 mm dia as per IS:14845 including 25 mm dia Ball valve and all fitting etc. as per the requirement.	Each	11		
7	Providing and fixing gunmetal fire hydrant valve 80 mm inlet, single outlet with control (IS:5290) and fitted with 63 mm dia instantaneous female coupling complete with blank cap and chain (IS:901).	Each	10		
8	Providing and fixing fire hose cabinet fabricated from 16 gauge M.S. Sheet with single or double glazed front door (with 4 mm thick glass) and locking arrangement, painted fire red with stove enamelled paint "FIRE HOSE" written on front including necessary supports approximate size.				
	a) 2100x1200x600 mm deep.	Each	24		
9	Painting M.S. pipes and fittings two or more coats of synthetic enamel paint of approved quality and shade over a coat of ready mixed red lead primer:				

a)	25 mm dia	Metre	20		
b)	65 mm dia	Metre	50		
c)	80 mm dia	Metre	100		
d)	100mm dia	Metre	30		
e)	150 mm dia	Metre	290		
10	Providing tar based corrosion protection tape complete as per specification by applying a coat of primer, wrapping tape spirally and thermosealing complete.				
	150mm dia	Metre	290		
11	Providing and fixing lever operated butterfly valve conforming to IS:13095-91 including necessary companion flanges, bolts and nuts complete.				
	a) 100 mm dia	Each			
	b) 150 mm dia	Each	31		
12	Providing and fixing cast iron double flanged horizontal type non-return valves including nuts, bolts, 3 mm thick insertion rubber gasket complete to IS:5312 (PIN 1.6).				
	a) 100 mm dia	Each			
	b) 150 mm dia	Each	10		
13	Providing and fixing dial type pressure gauge with isolation cock and pipe at hydrant station.				
	a) Dia diameter 100 mm calibration 0-8 Kg.	Each	10		
14	Supply, Installations, Testing & Commissioning of horizontal/vertical monobloc centrifugal pumping set with mechanical seal, C.I. volute and bronze impeller connected to a TEFC induction motor suitable for 400/44 volts, 3 phase, 50 cycles A.C. supply with 150 mm dia pressure gauge with gunmetal isolation cock, vibration eliminating pads for fire pump at terrace level including motor control panel at terrace level and remote push button for OFF/ON operation in Fire Control Room. (Fire pump on terrace)				
	Capacity 450 lpm				
	Head 50 m				
	HP 15	Each	10		
II	HAND APPLIANCES				
15	Providing and fixing CO ₂ type fire extinguishers with steel cylinder with a discharge valve and conforming to IS:15683. Extinguishers shall be painted with rex enamel paint and fixed to wall with brackets capacity 4.5 Kg.	Each	32		
16	Providing and fixing water CO ₂ gas fire extinguishers with steel cylinder with a discharge valve and conforming to IS:15683. Extinguishers shall be painted with rex enamel paint and fixed to wall with brackets capacity 9 litre.	Each	32		

17	Providing and fixing ABC powder type fire extinguisher suitable for inverted operation and fabricated from 1.6 mm M.S. sheet internally protected with anticorrosive treatment and hydraulically tested to a pressure of 25 Kg/Sqcm. Extinguishers externally painted with red enamel and fixed to wall with brackets complete with internal charge and spanner (Conforming to IS:15683 capacity 5 Kg.).	Each	32		
TOTAL COST					

PROJECT : - NEPAL POLYTECHNIC

STP - CAPACITY = 275 KLD

BILL OF QUANTITIES

S.No	Description	Unit	Qty	Rate	Amount
A.	SEWAGE TREATMENT PLANT				
1	Design, supplying, installing, testing & commissioning of Sewage Treatment for Pre Treatment of waste (excluding all Civil & construction work) for the following duty:				
	Nature of Waste - Domestic Sewage/Kitchen waste Water/ Cleaning				
	Daily average flow - 275 cum/day including Waste				
	Anticipated effluent parameters before treatment:				
	PH - 6.5-8.5				
	BOD5 - 250-400 mg/ltr				
	COD - 600-800 mg/ltr.				
	SS - 200-450 mg/ltr.				
	Oil & Grease - upto 20 mg/ltr				
	Ecoli - >106				
	MPN				
	Desired Sewage discharge standard after treatment:				
	PH - 6.0 – 8.5				
	BOD5 - Less than 20Mg/L				
	S. Solids - Less than 10 Mg/L				
	COD - Less than 100 Mg/L				
	Oil & Grease - Less than 5 Mg/L				
	Ecoli - < 103				
	MPN				
	The STP shall consist of following units but not limited to these unit as may be				
	required by the manufacturer's design.PVC rungs in all tanks & Platform for				
	maintenance etc.complete as required.				
	Sewage treatment plant shall include the following items:				
	Bar Screen Chamber				
	Oil & Grease Chamber				
	Sewage equalization tank/sump				
	MBBR Tanks				
	Settling Tank				

	Chlorine Contact Tank				
	Sludge Holding Tank				
	Filtration through MGF & ACF				
	Treated Water Tank				
	Air Blowers, Pumps & equipment				
	Piping, valves etc				
	Electrical Panel & Cabling				
	Filter Press (Optional Item)				
1.1	Supply, installation, testing & commissioning of 2 Nos. Stainless Steel Perforated, Corrugated Bar Screen with suitable lifting arrangement. The bar shall be of SS 8mm dia with a spray of 20mm. (2 Nos.)	Nos	2		
1.2	Supply, installation, testing & commissioning of non clogging type pumps capable of handling solids upto 35mm having CI casing/impeller & SS shaft complete with mechanical seal & all accessories, motor of required capacity. Delivery header with isolation valve, pressure gauge on delivery line with isolation cock, controller with wiring to control the level of sump automatically. Pumps shall have following duty (All pumps are stationary type only):				
1.2.1	Equalization Transfer Pumps (for Sewage) (1 Set = 2 Nos. pump = 1 W + 1 S)				
	Flow rate of each pump = 15 m ³ / hr				
	Make: Wilo/KSB/Kirloskar				
	Head = 10.00 Mtr	Set	1		
1.2.2	Sludge Transfer / Recirculation pumps (1 Set = 2 Nos. pump = 1 W + 1 S)				
	Flow Rate of each pump = 17 m ³ / hr				
	Make: Kirloskar/M&P/Johanson				
	Head = 10-12 Mtr	Set	1		
1.3	Plant room sump pump with CI body/impeller SS shaft pump (1 Set = 2 Nos. pump = 1 W + 1 S). Plant Room CI/SS Construction sump pumps of centrifugal submersible type suitable for 415 + 10% voltage variation or 230 + 10% volts 50Hz AC supply. The pump shall be suitable for handling 10 to 12 mm solids. Make:				
	Wilo/KSB/Kirloskar				
	Flow rate of each pump = 27 m ³ / hr				

	Head = 14-15 Mts	Set	1		
	Cost shall be inclusive of GI (Medium duty) 80 mm dia piping for lifting and verify water from sump to outside				
	Provision of guide ropes to guide submersible pump from upper level to operational level in sump basin with channels/angle section of MSEP shall be made by the ETP contractor. (1 Set)				
1.4	Air diffusion system shall include the following:				
1.4.1	2 Nos. twin type rotary air blowers (1 Set = 2 Nos. pump = 1 W + 1 S) capable of delivering 300 cum/hr of free air at 0.5 kg/sq.cm driven through "V" belt or directly coupled through flexible coupling to a TEFC motor of suitable HP Suitable for 415 ± 10% volts, 3 phase, 50 cycles A/C supply. Make: Everest/Kay/Beta/Airvac/ABL	Set	1		
1.5	Air piping shall comprise of pipes droppers/ laterals with MS (Heavy Class) Header complete with all fittings such as tees, crosses, plugs, sockets, elbows, reducers, supports & clamps, puddle flanges etc cutting chases & making good. Contactor to submit detailed P & I indicating their proposal (Test pressure for piping to be 10 bar).	Lot	1		
1.6	Non-clog type air dispersion system capable of handling 3-5 cfm of air with oxygen transfer efficiency of 3-4% per/meter water depth. Air dispersion grid shall be assembled in modular form so that they can be replaced/repared easily. (Imported coarse & fine bubble membrane diffusers)	Lot	1		
	Note :				
	Air dispersion system shall be provided for Sewage Sump, Aerobic digester cum Thickner & MBBR Tanks				
1.7	Providing and fixing all interconnecting piping (as described below) and isolation control valves for making the system complete. The piping material shall be GI otherwise 10 bar pressure rating.				
	a) All piping non submerged will be in MS medium class & submerged in sewage waste/pumping sewage waste shall be uPVC/HDPE.				
	b) All piping for treatment plant & post treatment plant shall be in uPVC/MS. (Job)	Lot	1		

1.8	Supply, installation, testing & commissioning of Chlorine dosing system comprising of 75 ltrs HDPE/FRP tank with 0-6 lph electronic metering type pump Make: Pentair/Asia LMI/Edose	Set	1		
1.9	Supply, installation, testing and commissioning of MBBR biodeck media to be installed in MBBR Tanks and PVC tube deck settling media to be installed in Settling Tank alongwith suitable sludge removal arrangement by pumps. [MBBR to be in two reactors]. Make: Vasutech/Cooldeck/MM Aqua/PP Aqua	Job	1		
	Designing, supplying, providing, fixing, testing and commissioning of STP as mentioned above.				
2	Supplying, installing, testing and commissioning of UV Disinfection System in SS 304 which shall be suitable for plant capacity of 15m ³ / hr. comprises of uv lamps , electrical panel with cabling, necessary piping & fittings with monitor etc. (Min. UV doses should not be less than 600J/m ²). (1 Set) Make: Alfa/Sukrut/Creative/Eqv	Set	1		
3	Supplying, installing, testing and commissioning of online magnetic flow meter complete in all respect. Make: Magflow/Electronet/Eqv	No.	1		
4	Supplying, installing, testing and commissioning of panel mounted online pH Meter including wiring and all accessories required for its proper functioning. Make: Aster/Eqv	No	1		
5	Supplying, installing, testing & commissioning of centrifugal Filter feed pumps along with motor, pressure gauge with isolation cock, Isolation valve, NRV on delivery line. Isolation valve, stainer at suction. The pump shall be suitable for 415±10% volts 3 phase AC supply. Make: M&P/Kirloskar/Johnson/CRI				
5.1	Filter Feed Pumps: (1 Set = 2 Nos. pump = 1 W + 1 S)				
	Capacity : 20 Cum/hr.				
	Head : 30-35 Mtrs	Set	1		

6	Supplying, installing, testing and commissioning of MS vessel filter with frontal piping and associated valves and accessories. Filter shall be suitable for minimum working pressure of 5 kg/cm ² and shall include media, standard fittings like pressure gauges, sampling cock, rinse drain, vacuum breaker etc. The MS sheet thickness for tank shall be min. 6mm and for dishes shall 8mm. The internal surfaces of tank shall be treated with epoxy coating and external surface with primer and anticorrosive enamel paint (Min. 2 coats)				
6.1	Multigrade pressure sand filter				
	Flow rate : 20 Cum/hr				
	Filtration velocity : 12 cum/hr/sqm				
	Filter Diameter : 1200 mm (Approx.)	No.	1		
6.2	Activated Carbon Filter				
	Flow rate : 20 Cum/hr				
	Filtration velocity : 12 cum/hr/sqm				
	Filter Diameter : 1200 mm (Approx.)	No.	1		
7	Supply, installation, testing & commissioning of water softening plant comprising of brine ejector, HDPE brine tank as reqd. and plastic piping complete with fittings and brine filtering media and complete charge of cation exchange resin as per specification for the capacity as given below. The construction of softener shall be as per specifications. (1 Set)				
	Water Capacity : 20 m ³ /hr				
	Hardness (350 Approx)				
	Regeneration period 6 hrs.				
	Output between regeneration (OBR) : 60,000 ltrs.				
	Working pressure : 3.0 Kg / Sq.m				
	Test pressure : 5 kg/cm ²				
	Water Softening plant as described above	No.	RO		
	Note:				
	Contractor may alter the number of filters and pumps considering the space availability to meet the desired capacities.				
8	Supply, installation, testing and commissioning of filter press of Suitable Capacity with CI frame, PP plates complete with filter cloth complete with interconnecting piping and poly dosing system. (1 Batch/day) Make: Sachin/Pharmatech/Auro	Set	1		

9	Supply, installation, testing & commissioning of positive displacement type screw slurry pump with MS casing, SS-strator with internal rubber lining, gland packing seal, solid handling capacity upto 7 to 10% of the effective percentage of sludge and direct drive with motor. (2 Nos.)				
	Capacity : 1 m3/hr				
	Head : 40 mtrs. (1W+ 1S)	Nos.	2		
10	Contractor shall operate the plant for three months from the date of commissioning of the Complex including the cost of consumables. Contractor shall give the training to personnel of the employer for operation and maintenance of the plant.	Job	1		
TOTAL SUMMARY FOR SEWAGE TREATMENT PLANT					