



**INSTITUTE FOR DEVELOPMENT AND RESEARCH IN  
BANKING TECHNOLOGY (IDRBT)**

(Established by Reserve Bank of India)

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**TENDER**

for

**CONSTRUCTION OF ONE FLOOR ATOP THE EXISTING  
ACADEMIC BUILDING-CIVIL, ELECTRICAL, PLUMBING &  
SANITATION ETC.**

**PART - II**

(COMMERCIAL)

Bill of Quantities for Civil, Plumbing and Electrical Works

Name of the Tenderer: \_\_\_\_\_

Address: \_\_\_\_\_

**Due date and time for submission of Tender: 17.00 hours on 12.05.2016**

**CONSTRUCTION OF ONE FLOOR ATOP THE EXISTING ACADEMIC BUILDING-CIVIL, ELECTRICAL, PLUMBING & SANITATION**

ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
<b>PART - I CIVIL WORKS</b>						
	<b>CONCRETE (PLAIN &amp; REINFORCED)</b>					
<b>I-A</b>	<p><b>NOTES:</b></p> <p>1. All RCC work shall be control concrete from approved weigh batch system, unless otherwise specified and shall be carried out strictly in accordance with the drawings and specifications. All shuttering shall be only with plastic coated plywood and props only with steel and shall be approved by the CONSULTANT. The rate of concrete shall be including shuttering but excluding reinforcement. Rate for concreting and shuttering will be for all heights and levels.</p> <p>2. All coarse aggregate to be 20 mm max. size and uniformly graded unless otherwise mentioned.</p> <p>3. For all RCC items the rates quoted shall include fixing at correct level and in proper alignment, the inserts, pipe sleeves, pipe bends, other pipe specials etc. ( inserts will be measured and paid under relevant item)</p> <p>4. All the items of sub-structure includes dewatering wherever necessary during the progress of work.</p> <p>5. Bonding chemicals to be applied on all old and new concrete joints.</p> <p>6. Old Reinforcement to be treated before fixing the new reinforcement.</p> <p>7. Appropriate admixtrues to be used for concrete mix.</p>					
<b>I-A-1</b>	<p>Providing and laying Ready mix reinforced cement concrete of M- 30 grade (Minimum Cement content 360 Kg/m<sup>3</sup>) conforming to IS: 456 (latest revision) using graded stone aggregate of 20 mm maximum size including manufacturing in fully automatic batching plant and tranporting to site of work in transit mixer in all leads, pumping,in,mechanical consolidation, finishing, curing and finishing smooth all exposed faces for all insitu items, scaffolding etc. complete as per specifications and drawings including formwork in all shapes including circular etc , but excluding reinforcement.</p> <p><b>Above plinth level up to Terrace floor level</b> for: Columns, beams, lintels , slabs, walls, bed blocks, lift pardis, canopies, mullions, pillars and posts, shelves, window sills. rectangular staircases, Fins , facias Chajjas &amp; parapet, overhead water tank including any circular shape members etc.</p>	CUM	885.00			
<b>I-A-2</b>	<p>Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for all reinforced cement concrete work including pumping of concrete to site of laying but excluding the cost of centring, 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 380kg. of cement per cum of concrete.</p> <p><b>At all levels</b></p>	CUM	25.00			

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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
I-A-3	<p>Supply and fabrication of Reinforcement for RCC work at all levels including supplying, cutting, bending, fixing and binding in position with 16 gauge soft drawn annealed steel binding wire etc. complete as per drawing and specifications (cost of binding wire shall be borne by the contractor, and shall not be measured for payment) in all RCC works including providing spacer blocks in cement mortar 1:2, binding wires etc. complete all as per drawings and specifications.</p> <p>(i) High yield strength deformed bars - Fe 500D conforming to IS: 1786 (Latest Revision)</p>	KG	176000.00			
I-A-4	<p>Providing and laying Ready mix cement concrete conforming to IS: 456 (latest revision) using graded stone aggregate of 20 mm maximum size including manufacturing in fully automatic batching plant and transporting to site of work in transit mixer in all leads, pumping, placing at all lifts, mechanical consolidation, finishing, curing and finishing smooth all exposed faces for all insitu items like leveling course in foundations, pavement, trenches, under floors etc at all lifts with necessary scaffolding etc. complete as per specifications and drawings including formwork in all shapes including circular etc.</p> <p><b>M10 grade cement concrete using minimum of 220kg of cement per cum of concrete</b></p>	CUM	10.00			
I-A-5	<p>Providing and fixing GI Sleeve pipes - C-Class (the sleeve pipes shall be externally threaded at the outer end) of required diameter, having 5 mm thick galvanised MS puddle plate (welded on the sleeve pipe at location as per the drawings) having outer diameter three times that of the sleeve pipe (internal diameter), cutting and making good the RCC walls, slab etc. wherever required, all complete, as directed by the Engineer-in-Charge.</p>	KG	1000.00			
I-A-6.1	<p>Providing and fixing stainless steel expandable sleeve anchor fasteners - stud anchors of "HILTI" or FAZ anchor bolt of "FISCHER" make, for fixing frames, including drilling holes of required diameter and depth in masonry work / CC / R.C.C., fixing fasteners in location and torque tightening etc., as per the manufacturer's specifications and making good etc., all complete as specified and as per the directions of Engineer - in - Charge.</p> <p><b>10 MM dia</b></p>	EACH	25.00			

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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
I-A-6.2	Providing and fixing stainless steel expandable sleeve anchor fasteners - stud anchors of "HILTI" or FAZ anchor bolt of "FISCHER" make, for fixing frames, including drilling holes of required diameter and depth in masonry work / CC / R.C.C., fixing fasteners in location and torque tightening etc., as per the manufacturer's specifications and making good etc., all complete as specified and as per the directions of Engineer - in - Charge.  <b>12 MM dia</b>	EACH	25.00			
<b>MASONRY WORKS</b>						
I-B	<b>NOTES:</b> 1. The contractor shall get the samples of bricks/aac blocks ( confirming to IS 2185 part 3 - 1984 , Reaffirmed 2005 ) approved from the engineer-in-Charge before procurement on large scale and shall maintain the same for the entire work. 2. The rate of masonry work shall be inclusive of making pockets, silts and openings wherever required and called for and as shown in the drawings. The rate for masonry work in superstructure shall be for at all heights & levels.					
I-B-1	Providing and constructing brick masonry <b>230mm thick</b> , using AAC block masonry and approved size and strength, in cement mortar 1:4 in superstructure , incl striking joints on unexposed faces, racking of joints curing, scaffolding etc complete.	CUM	550.00			
I-B-2	Providing and constructing <b>115mm thick</b> brick masonry, using common burnt clay F.P.S. (non modular) brick / AAC block and approved size and strength, in cement mortar 1:4 in superstructure above plinth level including providing patli beam of 115 thick at every 1.0m with 2 Nos. 8 mm dia. tor bars and 6 mm dia link at 300mm c/c in cement concrete mix of M20 , incl striking joints on unexposed faces, racking out joints on exposed faces,curing scaffolding etc. complete	SQM	420.00			
<b>FLOORING, DADO &amp; SKIRTING</b>						

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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
<b>I-C</b>	<p><b>NOTES:</b></p> <p>1. Adjustment of levels in thickness of mortar bedding due to different types of flooring, if any, shall be done by the contractor without any extra cost.</p> <p>2. If flooring is required to be done in pattern / design with combination of different flooring materials, the respective areas will be paid under the relevant item of flooring pertaining to the material.No extra payment will be made for design/pattern.</p> <p>3. The rate shall include for final preparation of base / sub-floor including minor trimming of the base, cleaning and watering the surface immediately before laying the backing coat / bedding, providing and laying bedding / backing of cement mortar, cutting chases in concrete / masonry, rounding off corners / edges / junctions as directed, work in narrow widths and at all heights and locations, cutting, rubbing, polishing where applicable, cementitious grout ( with matching colours) of joints as required, curing, protection, cleaning with oxalic acid etc. as applicable.</p> <p>4. The rate shall also include cost of covering all the flooring with POP of required thickness to avoid any damage during construction after flooring work is completed.</p> <p>5. No extra payment will be made towards wastage due to material pattern and design. Payment shall be made on finished floor area only, No extra payment shall be paid towards additional thickness of bedding to match level of adjoining floors.</p> <p>6. In case the cost of tile/ granite/marble selected and approved is more/less than the basic cost, Wherever basic rate is mentioned, suitable cost adjustment shall be made for the cost difference plus contractors profit @ 15%.</p> <p>7. All the skirting and dado is to be flushed in line with plaster above, necessary chipping of wall is to be done. The rate is inclusive of this and nothing extra shall be paid.</p>					
<b>I-C-1</b>	<p>Providing and fixing in position Anti skid Ceramic glazed floor tiles 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS :15622 or other approved size, color and design, premium quality glazed ceramic tiles of Johnson / Somani Pilkington /RAK Ceramics/ kajaria make, over 20 mm thick cement mortar 1:4 base layer, pointing the joints neatly with matching cementitious grout, acid washing etc. complete for flooring, including machine cutting the tiles wherever required as per drawing.</p> <p><b>Note : The basic rate of ceramic tiles including taxes, duties etc as applicable shall be considered as Rs. 40 / sq.ft and the tiles will be selected by the engineer-in-charge accordingly.</b></p>	SQM	60.00			
<b>I-C-2</b>	<p>Providing and fixing in position 200x300/200x200 of minimum 5mm thick or other approved size, color and design, premium quality glazed ceramic tiles of Johnson / Somani Pilkington /RAK Ceramics/ kajaria make including inbuilt border tiles wherever specified, over 12 mm thick cement mortar 1:3 base layer, pointing the joints neatly with matching cementitious grout acid washing etc. complete for Dado / Skirting, including machine cutting the tiles wherever required as per drawing.</p> <p><b>Note : The basic rate of ceramic tiles including taxes, duties etc as applicable shall be considered as Rs. 50 / sq.ft and the tiles will be selected by the engineer-in-charge accordingly.</b></p>	SQM	260.00			

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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
I-C-3	<p>Providing &amp; fixing in position 597 x 597 x minimum 8.5 mm thick vitrified ceramic polished tiles of premium quality from Marbonite range of <b>H R &amp; Johnson (Lucia DC/SF)</b> or approved equivalent of approved color, shade and design over 20 mm thick cement mortar 1:4 (to be laid atleast 48 hours before laying of tiles), laid with cement slurry of 2.75 Kg/m<sup>2</sup> and pointing the joints neatly with cementitious grout of (Roff /Bal Endura) make to match the tiles, and patterns complete for flooring all as per specifications &amp; as recommended by the Manufacturers including protecting the tile surface by applying one layer of POP and removing the same after the completion of the building works.</p> <p><b>Note : With vitrified tiles of basic rate including taxes, duties etc as applicable of Rs. 95/ sq.ft and the tiles will be selected by the engineer-in-charge accordingly.</b></p>	SQM	790.00			
I-C-4	<p>Providing and fixing in position minimum 8.5 mm thick and width matching to flooring, vitrified ceramic polished tiles of premium quality, from Marbonite range of <b>H R &amp; Johnson(Lucia DC/SF)</b> or approved equivalent of approved color, shade and design over 12 mm thick cement mortar 1:3 (to be laid atleast 48 hours before laying of tiles), chipping of blockwork/ concrete surface wherever required &amp; keeping flush with plastered surface fixed with cement slurry of 2.75 Kg/m<sup>2</sup> and pointing the joints neatly with cementitious grout of (Roff /Bal) make to match the tiles, and patterns complete for skirting/ dado all as per specifications and drawings &amp; as recommended by the Manufacturers.</p> <p><b>In skirting with tile of size 597x100 (basic rate including taxes, duties etc as applicable of Rs. 95 / sq.ft and the tiles will be selected by the engineer-in-charge accordingly).</b></p>	SQM	40.00			
I-C-5.1	<p>Providing and laying approved quality Green Kota stone flooring using minimum 25mm thick machine cut / machine polished (after laying) stone slabs of approved size,colour and shade laid over 20 mm thick cement mortar, 1:4 bedding, close jointed and pointed with matching cement slurry finished to levels, slope or plumb as required and cured etc. complete.</p> <p><b>In flooring with stone slab of 575x575mm</b></p>	SQM	340.00			

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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
I-C-5.2	<p>Providing and laying approved quality Green Kota stone flooring using minimum 25mm thick machine cut / machine polished (after laying) stone slabs of approved size,colour and shade laid over 20 mm thick cement mortar, 1:4 bedding, close jointed and pointed with matching cement slurry finished to levels, slope or plumb as required and cured etc. complete.</p> <p><b>In treads with single piece of stone slab,with 3 nos grooves and pre finished nosing as per architectural drawing.</b></p>	SQM	20.00			
I-C-5.3	<p>Providing and fixing approved quality Green Kota stone in skirting and riser using stone of minimum 25 mm thick machine cut / machine polished with exposed edge machine cut and surfaces hand polished after laying, laid over 12 mm thick cement mortar, 1:3 bedding, close jointed and pointed with matching cement slurry finished to plumb as required and cured etc. complete.</p> <p><b>In skirting with stone slab of 575x100mm</b></p>	SQM	40.00			
I-C-5.4	<p>Providing and fixing approved quality Green Kota stone in skirting and riser using stone of minimum 25 mm thick machine cut / machine polished with exposed edge machine cut and surfaces hand polished after laying, laid over 12 mm thick cement mortar, 1:3 bedding, close jointed and pointed with matching cement slurry finished to plumb as required and cured etc. complete.</p> <p><b>In riser with single piece of stone slab as per architectural drawing.</b></p>	SQM	10.00			
I-C-6	<p>Providing &amp; fixing in position mirror polished granite of selected quality slabs of thickness 18mm (+/- 2mm tolerance) in approved shape, size &amp; colour and pattern in kitchen platforms, counter washbasins, vanity counters facias, drops and in similar locations with machine cut all exposed edges rounded &amp; other edges polished and making necessary opening for wash basins/sinks etc as per the drawings over cement, sand. backing coat plaster of 15mm / required thickness in CM 1:4 proportion, including pouring cement slurry of required consistency to avoid any possibility of hollowness behind the slabs, filling the joints with white cement and matching color pigments including hand polishing for removing any unevenness on the surface, curing, scaffolding etc. complete as per drawing, specifications and as directed by the Engineer-in-Charge. (Basic rate of Granite including taxes and duties etc as applicable shall be of Rs. 2000 / Sq.m.)</p>	SQM	10.00			

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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
I-C-7	Providing and fixing machine cut, 30mm thick Cuddappah Stone slab, for kitchen and wash basin platform as base/ support of required size, fixed using cement mortar 1:4 (1 cement : 4 coarse sand) etc. including making necessary chasis and finishing the same etc all complete at all levels, as directed by the Engineer-in-Charge.	SQM	10.00			
I-C-8	Providing and fixing of 12 mm thick frosted toughned glass for urinal partitions with necessary Stainless steel clamps minimum 3 nos ,as per the existing design etc complete.	SQM	10.00			
<b>PLASTER AND PAINTING WORKS</b>						
<b>NOTES:</b>						
I-D	<ol style="list-style-type: none"> <li>1. Before commencement of plastering,the area shall be cleaned, wetted and shall be marked with ' Thiyyas ' or Topanis and shall be got approved by the Engineer-in-Charge.</li> <li>2. Whenever the Electrical contractor/agency has to fix up switch boxes in walls, necessary' Thiyyas' or 'Dhadas' shall be arranged prior to plastering so that the electrical boxes are fixed properly in line with the finished plastered surfaces.</li> <li>3. Hacking of concrete surface is included in the rates of plaster work.</li> <li>4. Wherever wall putty has to be applied the surface has to be finished rough for receiving wall putty.</li> <li>5. Chickenmesh of 200 mm wide 24 guage shall be provided in all joints of columns / beams with block work on all flush joints (both externally and internally) before commencement of plaster and is included in the rates of plaster work.</li> <li>6. The rates for plastering and painting includes the cost of stell double scaffolding etc complete.</li> </ol>					
I-D-1	Providing & applying internal cement plaster 15 mm thick smooth plaster in cement mortar 1:4 for faces of blockwork / concrete at all elevations including hacking of concrete surfaces,double scaffolding, curing, forming grooves, wherever necessary all complete as per drawings and specifications.	SQM	2970.00			
I-D-2	Providing and applying sand faced cement plaster rendered in two coats (1:4 and 1:3 ) back coat 12 mm in CM 1:4 & finishing coat of 8 mm in CM 1:3, total 20 mm thick on concrete / block masonry / rubble surfaces including providing grooves, bands, drip moulds, in pattern separated by smooth finished bands and including double scaffolding, hacking of surfaces, supplying and mixing of waterproofing compound at 2% by weight of cement and fibre mesh (micro blocker 12 mm fibre) @ 125 gm / bag of 50 kg cement, used for both coats, curing etc. complete.	SQM	1580.00			
I-D-3	Providing and applying white cement based putty of average thickness 2 mm, of approved brand and manufacturer, in line and levels (with the thiyyas and thadas) to obtain a smooth perfect surface in true line and level at plastered walls at all heights.	SQM	2970.00			



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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
I-D-4	Providing and Applying Wall painting with Plastic emulsion paint with two or more finishing coats over one coat of Cement Primer of Asian or Nerolac make of approved shade , including preparing the surfaces, filling cracks and crevices with putty sand papering, scaffolding and cleaning etc. complete on walls / ceilings.	SQM	2970.00			
I-D-5	External wall cladding with exterior SHON Mosaic white tiles ( 38x38mm ) to match the existing wall cladding . Thw work to be carried out as per manufacturers instructions as per manufacturers specification, curing, scaffolding, etc. complete. The finished surface to be cleaned and handed over as per architects/ PM instructions	SQM	1580.00			
I-D-6	Cleaning of existing Shon mosaic tile cladding such the the new surface & old surface appear to be in similar . The rate to include cost of scaffolding etc complete as per directions of the Architect / PM	SQM	3500.00			
I-E	<b>DOORS AND WINDOWS</b>					
	<p><b>NOTES:</b></p> <ol style="list-style-type: none"> <li>1. The items of door frames and window frames shall include sealing the joints all round the block work / concrete and doors or windows with approved mastic filler cement grout / epoxy compound / polysulphide compound or by any other means whatsoever by the contractor at his own cost as directed by the Engineer-in-Charge to make the joints water tight.</li> <li>2. The work contemplated under the item is for supplying and fixing the windows / doors shall be got done by the contractor by specialized agency in the field approved by the CONSULTANT.</li> <li>3. One sample of door frame shutters &amp; windows with all fittings and fixtures alongwith locking arrangement including glass panels etc. complete as per schedule of quantities and specifications should be submitted for preliminary inspection before procurement on large scale. The contractor shall submit six copies of shop drawing for windows, ventilators and steel door frames showing the dimension details of construction etc. for the approval of the Engineer-in-Charge. After the preliminary inspection the sample should be taken up only after rectification of defects etc. to the full satisfaction of the department and after obtaining formal approval.</li> <li>4. Door frames, shutters and the windows to be supplied and fixed in position should cater the dimensional tolerance of the openings to an extent of plus/Minus 2%. The rates quoted by the tenderer should hold good for such variation.</li> <li>5. Test shall be conducted for the flush doors as per IS: 2202-1983 Part-I from each consignment and the cost shall be borne by the contractor.</li> <li>6. For bonding the flush door, block boards, ply wood and all type of wood works phenol formaldehyde synthetic resin type adhesives conforming to IS: 848-1957 shall be used.</li> <li>7. All paints &amp; allied materials like primer, trowling compounds, thinner &amp; strainers etc. shall be of approved make of Goodlass Nerolac or Asian.</li> </ol>					

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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
I-E-1	<p>Providing, making and fixing Medium teak wood door frames made out 140x70mm approved quality teak wood, kiln-seasoned, anti-termite treated, shaped, grooved, mouldings, rebates (single / double), mitered joint arrangement including use of exterior quality approved water repellent adhesive, GI screws, pins, etc. Also to include melamine polish in approved shade, surfaces of frame in contact with masonry/concrete surfaces shall be painted with one coat of hot bitumen of approved quality, 3 nos. (minimum) GI holdfast (split end 225mm x 75mm x 2 mm thick) on each side of frame well-grouted with cement concrete mix in a ratio of 1:2:4 (1 Cement : 2 Sand : 4 Aggregate), etc.</p> <p>Door Shutter factory made 35mm thick Solid core flush door shutters conforming to IS 2202 Part I, shutter shall be manufactured with exterior quality synthetic adhesive forming marine ply surfaces, internally lipped as manufactured or equivalent approved make. Further shutter shall be finished with Veneer of approved make, shade and colour and design with hot pressed at factory on both sides, edges of shutters shall be provided with 6mm thick approved teak wood beading using exterior quality synthetic adhesive, headless GI nails, screws, beading finished with melamine polish, etc. (Beading kiln seasoned, anti-termite treated) including hardware as per schedule and drawings all complete to entire satisfaction of the PM.</p> <p>Ironmongery:            a) SS ball bearing butt Hinges size 4" x 3" x 3mm - 4 Nos.            b) SS Mortise dead lock/S S Cylindrical Lock with knob -1 no            c) SS Pull handle D type 200mm long - 1 Pair            d) SS Tower Bolt 200mm long - 1 No.            e) SS Door stopper with PVC rubber buffer - 1 No.</p>	SQM	120.00			
I-E-2	<p>Providing and fixing factory made panel PVC door shutter consisting of frame made out of M.S. tubes of 19 gauge thickness and size of 19mm x 19mm for styles and 15x15mm for top &amp; bottom rails. M.S. frame shall have a coat of steel primers of approved make and manufacture. M.S. frame covered with 5mm thick heat moulded PVC 'C' channel of size 30mm thickness, 70mm width out of which 50mm shall be flat and 20mm shall be tapered in 45 degree angle on both side forming styles; and 5mm thick, 95mm wide PVC sheet out of which 75mm shall be flat and 20mm shall be tapered in 45 degree on the inner side to form top and bottom rail and 115mm wide PVC sheet out of which 75mm shall be flat and 20mm shall be tapered on both sides to form lock rail.</p>	SQM	15.00			

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	<p>Top, bottom and lock rails shall be provided both side of the panel.10mm (5mm x 2 ) thick, 20mm wide cross PVC sheet be provided as gap insert for top rail &amp; bottom rail. paneling of 5mm thick both side PVC sheet to be fitted in the M.S. frame welded/ sealed to the styles &amp; rails with 7mm (5mm+2mm) thick x 15mm wide PVC sheet beading on inner side, and joined together with solvent cement adhesive. An additional 5mm thick PVC strip of20mm width is to be stuck on the interior side of the 'C' Channel using PVC solvent adhesive etc. complete as per direction of Engineer-in-charge. Manufacturer's specification &amp; drawing .</p> <p>30 mm thick plain PVC door shutters.</p>					
<b>I-E-3.1</b>	<p>Designing, providing, fabricating and fixing in position aluminium joinery and glazing as detailed; aluminium Anodised of 20 micron as detailed in drawing or directed by the Architect / Consultant, aluminium shall conform to IS 63400 WP and extruded section shall be ready to receive weather strips, EPDM gaskets anti rattling wool piles etc. and hardware. Designing of section shall account for designed loads as per IS 875 and IS 456-2000, Minimum thickness of aluminium to be 2 mm, joinery with factory made mechanical junctions, concealed fixing and sealing with sealant around periphery etc. as per approved shop drawing and sample. All items receiving fittings and fixtures shall be strengthened and lapped as required.</p> <p>Aluminium sections shall be of Jindal / Hindalco or equivalent approved. All fixing shall be concealed. EPDM beading purpose made shall be provided. Chromotised sub frame to be fixed prior to plaster. Fixing shall be with SS screws. All beading shall be snap on type. Glazing beading shall be from inside only. Minimum thickness of glass shall be 6mm clear annealed frosted glass when not specified. Supply and fixing of aluminium work shall be carried out from approved agency.Prior to start of work supplier shall submit detailed full scale shop drawings including plan, elevation and detail of fixing with structure for approval of the Architect / Consultant . Samples of each item on full scale or smaller scale as directed by the PM shall be submitted for approval.Work shall proceed only on approval of shop drawing, samples of each extruded section, beading, gaskets, wool pile, fittings and fixtures by the Architect / Consultant.</p> <p><b>Sliding Windows. (Factory fabricated):</b> Anti-lifting device. Bottom rail shall be with self cleaning gutter section. Stainless steel ball bearings rollers. Concealed locking arrangement. Concealed tower bolts.</p>	SQM	350.00			

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I-E-3.2	<p>Designing, providing, fabricating and fixing in position aluminium joinery and glazing as detailed; aluminium Anodised of 20 micron as detailed in drawing or directed by the Architect / Consultant, aluminium shall conform to IS 63400 WP and extruded section shall be ready to receive weather strips, EPDM gaskets anti rattling wool piles etc. and hardware. Designing of section shall account for designed loads as per IS 875 and IS 456-2000, Minimum thickness of aluminium to be 2 mm, joinery with factory made mechanical junctions, concealed fixing and sealing with sealant around periphery etc. as per approved shop drawing and sample. All items receiving fittings and fixtures shall be strengthened and lapped as required.</p> <p>Aluminium sections shall be of Jindal / Hindalco or equivalent approved. All fixing shall be concealed. EPDM beading purpose made shall be provided. Chromotised sub frame to be fixed prior to plaster. Fixing shall be with SS screws. All beading shall be snap on type. Glazing beading shall be from inside only. Minimum thickness of glass shall be 6mm clear annealed frosted glass when not specified. Supply and fixing of aluminium work shall be carried out from approved agency. Prior to start of work supplier shall submit detailed full scale shop drawings including plan, elevation and detail of fixing with structure for approval of the Architect / Consultant. Samples of each item on full scale or smaller scale as directed by the PM shall be submitted for approval. Work shall proceed only on approval of shop drawing, samples of each extruded section, beading, gaskets, wool pile, fittings and fixtures by the Architect / Consultant.</p> <p>Casement Windows (Factory fabricated):</p> <p>Hinges shall be strong and with Stainless Steel pin and washers. Two way locking arrangement. Handles shall be strong / durable and finished as of aluminum. In fixed glazed, extruded snap-on type beading shall be provided. Friction stay or as approved shall be used of Stainless Steel. Where specified lever locks shall be provided.</p> <p><u>Casement Window with .ET260 C of Hindalco or equivalent make</u></p>	SQM	52.00			
<b>DEMOLISHION/DISMANTLING , STACKING &amp; DISPOSAL</b>						

**CONSTRUCTION OF ONE FLOOR ATOP THE EXISTING ACADEMIC BUILDING-CIVIL, ELECTRICAL, PLUMBING & SANITATION**

ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
<b>I-F</b>	<b>NOTES:</b> 1. Dismantling of RCC, Water proofing wok, masonry work etc should be done manually/ mechanically using concrete saw cutter/ pneumatic breaker etc. 2. Care shall be exercised not to induce vibrations and damage to structure and fininhes on the lower floors. 3. The dismantled material should be stacked at ground floor level and to be disposed at the approved municipal dumping ground at all leads. 4. The reinforcement got from the dismantled RCC is to be handed over to the client and shall be taken on credit basis.					
<b>I-F-1</b>	Demolishing R.C.C. work, including stacking of steel bars seperately and disposal of unserviceable material as directed by the Engineer in charge.	CUM	154.00			
<b>I-F-2</b>	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material as directed by the Engineer in charge.	CUM	50.00			
<b>I-F-3</b>	Demolishing water proofing treatment and other concrete work manually or by mechanical means including stacking of serviceable material and disposal of unserviceable material as directed by the Engineer in charge.	CUM	400.00			
<b>I-G</b>	<b>WATER-PROOFING WORKS</b>  <b>NOTES:</b> 1. The contractor shall get written approval from the engineer-in-Charge, of the waterproofing agency engaged before commencement of work. 2. The contractor shall test the surface where waterproofing treatment provided for bone dry condition by filling with water. No wet patches or leaks shall appear on the surrounding plastered walls or underside of the slab. 3. The Contractor shall furnish the guarantee bond on appropriate stamp paper in the proforma for the entire waterproofing treatment for maintaining the underside of the waterproofing surface in bone dry condition for 10 years. During this period the contractor shall attend all leakage's defects etc., if noticed, free of cost, starting the work of checking up and rectification within a week from the date of information about such leakage's, etc. by him. 4. In case the waterproofing treatment is got done through approved agency, the guarantee for waterproofing treatment submitted by the main contractor shall be supported by the guarantee from the waterproofing agency. 5. The contractor shall keep the water tank filled with water after the waterproofing work has been completed and shall clean before handing over. At any time the water tank shall not be kept empty. Testing for the bone dry condition for the waterproofing work carried out shall be tested before handing over if found necessary by the Engineer-in-Charge. 6. Before taking up waterproofing work the area to be waterproofed shall be tested with filling water for detecting any major lekages, & if found, shall be grouted with suitable method for arresting lekages. 7. The contractor shall get approved the waterproofing compound to be used in the work from the Engineer- in- Charge & shall use the same as per the manufacturers specifications / recommendations in all items of work or as directed. <b>8. The waterproofing treatment is to be guaranteed for bone dry condition for a period of 10 years.</b> <b>9. The measurement for payment shall be the flat area covered by the treatment.</b>					
	<b>O.H. Tank</b> The First part consist of all surface area should cleaned up to visible of hair cracks / aggregate texture. Cleaning of RCC member should be done by hacking tool, wire brush, wire grinder & air blower etc. Open cracks & construction joints should be sealed with cement mortar with additive. All clean & treated area should tested for water tighness by flooding water. All wet spots & water leakage area should mark for treatment.					

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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
I-G-1	<p>The Second part consisting of providing and applying Vandex BB 75 / Blue Dex waterproofing system in two coats by trowelling as per manufacturer's specifications. The 1st coat of Vandex BB 75 / Blue Dex shall be applied to the prepared surface. Whilst the 1st coat is still "green" a second coat comprising of Vandex BB 75 / Blue Dex. The slurry coatings shall be applied with a stiff masonry brush or stiff broom and worked into every irregularity on the surface shall be done by means of trowelling or by spray only. Treatment to floor slabs shall be carried out by trowel application using a steel trowel into hardened concrete slab surface including curing, cleaning etc complete.</p>	SQM	100.00			
I-G-2	<p><b>Toilet</b> The First part consist of all surface area should cleaned up to visible of hair cracks / aggregate texture. Cleaning of RCC member should be done by hacking tool, wire brush, wire grinder &amp; air blower etc. Open cracks &amp; construction joints should be sealed with cement mortar with additive. All clean &amp; treated area should tested for water tighness by flooding water. All wet spots &amp; water leakage area should mark for treatment.</p> <p>The Second part consist of providing and applying Blue HY Seal / Formdex Uni brush applied Cementitious elastomeric acrylic water proof coating , in 2 coats to form minimum 1mm thick membrane. The Waterproofing System is capable of forming a waterproof barrier around or inside the concrete, complete. The Waterproofing System shall form a waterproof barrier around or inside the concrete, complete.</p> <p>Third part consist of Laying of brick coba ( 200 - 250 mm thick )to necessary gradient and construction joints filled with CM 1:1 with waterproofing compound. Joint less waterproof plastering with CM 1:3 and waterproofing compound and Treatment to continue along the wallsfor 300mm height in shape of round wata, curing etc., Cost to include the treatment along the walls and no measurements will be accounted for this treatment.</p> <p>Finally the top surface of brick bat coba shall be laid over and joints finished with waterproofing layer with CM 1:4 and admixture finished smooth with cement slurry. The treated surface after 12 to 15 hrs. thereafter shall be kept ponded for continuous period of 7 days to detect any seepage/ leakage/ dampness if any, the surface then shall be cleaned to withstand weather and domestic use.</p>	SQM	100.00			

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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
I-G-3	<p><b>Terrace</b> Providing and Applying waterproofing for Terraces by following methods as per the specifications listed below with a minimum guarantee period of 10 years and Testing of treatment as per the requirements. The First part consist of all surface area should cleaned up to visible of hair cracks / aggregate texture. Cleaning of RCC member should be done by hacking tool, wire brush, wire grinder &amp; air blower etc. Open cracks &amp; construction joints should be sealed with cement mortar with additive. All clean &amp; treated area should tested for water tightness by flooding water. All wet spots &amp; water leakage area should mark for treatment.</p> <p>The Second part consisting of Providing and applying proprietary 100% water based elastomeric Polyisoprene membrane waterproofing with minimum elongation 500% UV Resistance with one coat of primer followed by two coats of polyisoprene Membrane Formak 629 / Blue Deck waterproofing membrane waterproofing system and should have following properties: i) Solid % Vol: (70 ± 3) ii) Tensile Strength &gt; 11.0 MPa (ASTM D412) iii) Elongation &gt; 550% (ASTM D412) iv) Shore A Hardness - 70 ± 5 (ASTM D2240) v) UV Resistance - Excellent (ASTM C-822) shall be applied as per manufacture specification.</p> <p>The Third Part consisting of Providing and filling brick bat coba waterproofing treatment to specified areas viz terrace, canopies, chajjas, exposed slabs etc. The slab shall be laid over with well burnt brick bats coba laid &amp; joints filled in with cement mortar 1:3 in true lines &amp; levels gradient with avg thickness of 110mm (for easy flow of water/rain water) Finally the top surface of brick bat coba shall be laid over and joints finished with waterproofing layer with CM 1:4 and admixture finished smooth with cement slurry.</p>	SQM	1790.00			
I-G-3	<p>Finally finish smooth with false lines at 300 x 300 mm or nearer convenient intervals as approved all as per waterproofing agencies specifications laid to the required slope, levels, lines including making vatas (coves) at junction of walls, parapets, curing etc. complete, testing the waterproofing treatment for watertightness and rectifications of defects if any to render the surface bone dry etc. complete. The treated surface after 12 to 15 hrs. thereafter shall be kept ponded for continuous period of 7 days to detect any seepage/ leakage/ dampness if any, the surface then shall be cleaned to withstand weather and domestic use.</p>					
I-H	<b>MISCELLANEOUS</b>					

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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
<b>I-H-1</b>	Providing & fixing Teak wood Railing with M S supports over stair case steps / landings at 900 mm height from FFL comprising of 50mm wide & 125mm ht hand rails with Melamine polishing , etc all complete as per specification and the pattern as per existing one & as per direction of the engineer incharge. (the length shall be measured along the hand rail pipe in slope & no extra payment shall be mde for curved portions).	RMT	40.00			
<b>I-H-2</b>	Providing, fixing, fabricating MS Railing as per existing design in correct line and level, priming with two coats of approved compatible primer and painted with two under coats and one finished coat of approved PU paint in approved shade and make etc. all complete to the entire satisfaction of Architect / consultant.	KG	500.00			
<b>TOTAL OF PART - I CIVIL WORKS:</b>						
<b>PART - II PLUMBING AND SANITARY WORKS</b>						
<b>II-A</b>	<b>SANITARY FIXTURES</b>					
<b>II-A-1</b>	Supplying, installing, testing & commissioning of Ivory glazed Wall Hung constellation European water closet with 32mm dia closed flush valve with necessary bend, check nut, stopcock etc., colour solid seat & cover with polythene buffer & flap, CP flanges,CP bolts and nuts, a pair bracket with nuts and bolts, wall flanges etc., complete. <b>Parryware Elite</b>	EACH	8.00			
<b>II-A-2</b>	Supplying, installing, testing & commissioning of Ivory glazed wash basin below counter, 1 no. 15mm CP Pillar Cock, with waste coupling,32mm dia PP 'P' trap with extension pipe, supporting bracket with necessary steel to support basin 1 Nos.15mm CP angle valve with 450 mm long CP connection pipe & CP wall flanges all of approved make etc., complete. <b>Hindware Balmount Cat .No 10073 Jaquar Cat. NO. ALD-709,769,CON-021,059</b>	EACH	8.00			
<b>II-A-3</b>	Supplying, installing, testing and commissioning Ivory colour large flat back Urinals with inbuilt sensor with 40mm dia. CP waste coupling with dome type grating,40mm dia.CP bottle trap with extension pipe, urinal spreader,SS bolts & nuts to fix the urinal with all hangers and brackets complete with all flanges. <b>Hindware Riva , UT11-B,Jaquar Cat. NO. ALD-709,769.</b>	EACH	8.00			
<b>II-A-4</b>	Supplying, installing and testing 15mm CP <b>health faucet</b> of approved make with1 no. of 15mm CP angle valve necessary CP flexible hose 750mm long nozzle, CP wall flange complete. <b>Jaquar Cat. NO. ALD-573,CON-059</b>	EACH	8.00			
<b>II-A-5</b>	Supply,Fixing in position Soap Dispenser. <b>Jaquar Make as per instructions of EIC</b>	EACH	8.00			



**CONSTRUCTION OF ONE FLOOR ATOP THE EXISTING ACADEMIC BUILDING-CIVIL, ELECTRICAL, PLUMBING & SANITATION**

ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
II-A-6	Supply,Fixing in position C.P.Towel Ring Jaquar Make as per instructions of EIC	EACH	8.00			
II-A-7	Supply,Fixing in position C.P.Toilet Paper Holder Jaquar Make as per instructions of the EIC	EACH	8.00			
II-A-8	Supply,Fixing, testing and commissioning of approved make Electric Hand Drier twin blower integrated with timer (0-3 minutes) and infrared arrangement. The drier shall be fully automatic. <b>Utch Make</b>	EACH	4.00			
<b>II-B</b>	<b>INTERNAL WATER SUPPLY SYSTEM</b>					
II-B-1	Supplying, installing, testing & commissioning approved make medium quality (Class B') GI pipes and fittings conforming to IS1239 PI & II, Malleable Specials such as tees,elbows,checknuts, unions, flanges, nipples, etc including cutting, threading, fixing in/on walls,ceiling, under floor etc.,as per drawing.The quoted rate shall include U bolts, nuts , washers, chasing the walls, making bore in walls etc.,and making good the chased surfaces and bores in cement mortar etc.complete.					
II-B-1.1	20 MM Diameter	RMT	65.00			
II-B-1.2	25 MM Diameter	RMT	20.00			
II-B-1.3	32 MM Diameter	RMT	42.00			
II-B-1.4	40 MM Diameter	RMT	42.00			
II-B-2	Supplying and painting two coats of enamel paint over a coat of etch primer to the exposed GI pipes of approved make and colour etc.,complete.					
II-B-2.1	20 MM Diameter	RMT	12.00			
II-B-2.2	25 MM Diameter	RMT	20.00			
II-B-2.3	32 MM Diameter	RMT	10.00			
II-B-2.4	40 MM Diameter	RMT	15.00			
II-B-3	Supplying, installing and testing approved make GM ball valves conforming to IS 1703 with unions etc., complete.					
II-B-3.1	20 MM Diameter (Screwed Ends)	EACH	2.00			
II-B-3.2	25 MM Diameter (Screwed Ends)	EACH				
II-B-3.3	32 MM Diameter (Screwed Ends)	EACH				
II-B-3.4	40 MM Diameter (Screwed Ends)	EACH	4.00			
II-B-4	Providing, laying and jointing centrifugally spun cast iron soil and waste pipe conforming to IS 3989: 1984 including necessary fittings like (plain or door) tees, bends,collars,crosses reducers, Y, etc, of approved make, drip seal joint,suspended under ceiling / embedded in floor, including making connection with sanitary fittings, and testing of pipelines, painting with enamel paint of approved make etc. all complete .					
II-B-4.1	100 MM Diameter	RMT	46.00			
II-B-4.2	75 MM Diameter	RMT	42.00			
II-B-5	Providing & Fixing plain Cast Iron "P" Trap with integral maximum 50mm water seal and clean out with CP grating of approved sample or confirming to the IS 1729, including jointing, cutting, making good the walls, floors etc., complete and as directed by the Engineer - in - Charge.					
II-B-5.1	100 MM Diameter	EACH	8.00			
II-B-6	Providing & Fixing plain Cast Iron Flow Trap with including jointing, cutting, making good the walls, floors etc., complete and as directed by the Engineer - in - Charge.					

**CONSTRUCTION OF ONE FLOOR ATOP THE EXISTING ACADEMIC BUILDING-CIVIL, ELECTRICAL, PLUMBING & SANITATION**

ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
II-B-6.1	100 MM X 75 MM Diameter	EACH	12.00			
II-B-7	Supplying, installing, testing & commissioning approved make medium quality (Class B') GI pipes and fittings conforming to IS1239 PI & II, Malleable Specials such as tees, elbows, checknuts, unions, flanges, nipples, etc including cutting, threading, fixing in/on walls, ceiling, under floor etc., as per drawing. The quoted rate shall include U bolts, nuts, washers, chasing the walls, making bore in walls etc., and making good the chased surfaces and bores in cement mortar etc. complete. for Wash basin & Urinal Out lets.					
II-B-7.1	32 MM Diameter	RMT	12.00			
II-B-7.2	40 MM Diameter	RMT	12.00			

**TOTAL OF PART - II PLUMBING AND SANITARY WORKS:**
**PART - III EXTERNAL ELECTRICAL WORKS**
**ELECTRICAL PANELS**
**NOTES:**

1. Design, Manufacture, Supplying, Transport to the site of the following Modular cubical type construction, Electrical Panels up to 450Volts  $\pm 10\%$ , 3Phase, 4Wire, 50Hz  $\pm 6\%$ , are housed in CRCA Sheet of 1.6mm for non-stress members & 2.0mm for all stress bearing members and 3.0mm for Removable Glad Plate & base Frame Material, unless specified otherwise, vermin proof hinged lockable doors & door earthed for each compartment provide bus bar interconnections for incoming and outgoing, fixed Type, Single front compartmentalized, totally enclosed, free standing, Floor / Wall mounted type, indoor (IP:54) / outdoor (IP:65), extendible type, dust and vermin Proof, duly wired up and ready for installation at site. The Bus bars will be electrolytic grade E91 Copper / Aluminium duly sleeved with heat shrinkable PVC sleeves. Panels will be painted with Powder coating (50-60micron as per IS:13871), include one size higher terminal block in cable alley and interconnecting wires between bus bars and terminals via MCB/MCCB. Entire panel shall have a common copper earth bar of size 25mm x 5mm at the rear with 2 Nos. earth stud at both Ends.
2. Also, refer to General Notes and Specifications for Panels/ Boards.
3. All Switchgear makes shall be from approved List of makes.
4. Contractor to submit manufacturer's selection charts for approval.
5. Only one make of switchgear to be used in a board / Panel.
6. All live accessible parts shall be shrouded and all equipment shall be finger touch proof. The busbars insulation shall be with heat shrinkable sleeves. SMC shrouds busbar supports shall be used. Padlocking facility shall be provided on all MCCB feeders doors and switch handles shall be lockable in OFF position.
7. Equipments will be offered for following routine test only:- i). Check of Bill of Materials as per approved drawing, ii). Visual and Dimensional Check, iii) Functional Check, iv) HV/Megger test as per relevant IS.
8. Minimum/Maximum Operating height-300/1800 respectively.

9. Sealing Arrangement:- PE Foam Rubber Gasket.

10. Bus Bars Supports-Non-Hygroscopic, Non Carbonising, Corrosion Resistant, SMC Supports.

11. Minimum Air Clearances between bus bars; P-P=25mm, P-N=20mm, P-E=20mm and N-E=20mm.

12. **Panel Wiring:**

AC voltage circuit-1.5 sqmm Red, Yellow, Blue & Black

Current circuit-1.5 sqmm Red, Yellow, Blue & Black

AC Control circuit-1.5 sqmm White for Phase & Black for Neutral

DC Control circuit-2.5 sqmm Grey

Power circuit- Red, Yellow, Blue for Phase & Black for Neutral

Labelling- Computerised Laminated Aluminium Name Plate with White letters on Blue/Black Background For Each Feeder and Panel Itself.

The treatment of Panel Shall be Fully automatic 9-tank process for metal treatment which consists of Solvent/ Alkaline Degreasing, Rinsing,

de-rusting, Phosphating and Passivation.

Bottom base channel of MS section not less than 75mm x 50mm x 5mm thick, fabrication shall be done in transportable sections.

**III-A**

**CONSTRUCTION OF ONE FLOOR ATOP THE EXISTING ACADEMIC BUILDING-CIVIL, ELECTRICAL, PLUMBING & SANITATION**

ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
	<p><b>13. GENERAL NOTES FOR MCCB's:</b>  MCCB's shall be of 3P with solid neutral link or 4P as called for in the BOQ.  Ics = Icu for the breakers.  MCCB's upto 400A shall be with thermal - magnetic releases and beyond 400A shall be with micro-processor based releases.  MCCB's upto 400A shall have adjustable over current with time setting and fixed short circuit setting and breaking capacity for 1 Sec.  MCCB's above 400A shall have adjustable over current with time setting and adjustable short circuit with time setting releases and breaking capacity for 1 Sec.  MCCB's shall be with extended rotary handle and Phase separators both sides.  MCCB's shall have auxiliary contacts wherever BMS compatibility is needed.  MCCB of required rating (Amps) as called for in the BOQ and of required breaking capacity for 1 Sec.</p> <p><b>14. GENERAL NOTES FOR MCB's:</b>  MCB's shall be of minimum 10kA breaking capacity for 1 sec.  Use 'B' curve MCB's for lighting &amp; small power circuits, 'C' curve for motor duty i.e. for pumps, AC motors, AHU motors, window and split AC's  etc. &amp; 'D' curve for UPS DB's i.e. for computers/ PC's circuit. Main Incomer &amp; outgoing circuit MCB's shall be selected accordingly i.e. type B,C &amp; D. as per the nature of the circuit/ load.  Exact MCB rating &amp; category is to be calculated by the electrical contractor based on the final load of the circuit, its nature and fault current.</p>					
<b>III-A-1</b>	<p><b>MAIN PANEL FOR 3RD FLOOR:</b>  <b>Incomer</b>  1 Nos. 400 Amps 4P MCCB 35 KA  <b>Metering &amp; indications for each incomer</b>  1 Set of R,Y,B phase indicating lights E-Series controlled with  control MCB's for each indicator.  1 Set of MFM Similar to Enersol make-VAFP 1710 with 3 Nos.  Class-I, 5VA burden cast resin CT's.</p> <p><b>Bus Bar</b>  500A TPN Al. bus bars with heat shrinkable insulated coloured  coded sleeves.</p> <p><b>Outgoings</b>  5Nos. 125 Amps TPN MCCB 25 KA  12 Nos. 63A, 10kA, 4P MCB  2 Nos. 32A, 10kA, 4P MCB</p>	SET	1.00			

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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
<b>III-A-2</b>	<b>UPS O/G PANEL (THIRD FLOOR):</b> <b>Incomer</b> 1 No. 100A 4P MCCB with Thermal Magnetic Based Release (O/C,S/C) Protection 25KA breaking capacity. <b>Metering &amp; indications</b> 1 Set of R,Y,B phase indicating lights E-Series controlled with control MCB's for each indicator. 1Set of MFM Similar to Enersol make-VAFP 1710 with 3 Nos. Class-I, 5VA burden cast resin CT's. <b>Bus Bars</b> 200A, 4P Cu. bus bars with heat shrinkable insulated coloured coded sleeves. <b>Outgoings</b> 6 Nos. 40A,10kA, 4P MCB 2 Nos. 32A,10kA, DP MCB 1 Nos. 25A,10kA, DP MCB	SET	1.00			
<b>III-B</b>	<b>LT CABLES</b>					
<b>III-B-1</b>	Supply, Unloading, shifting, Storing, Laying, Fixing, Testing & Commissioning of following sizes of 1.1kV grade LT XLPE insulated, HR PVC sheathed, stranded Aluminum/copper conductor, Armoured/ Unarmoured cables Solid copper conductor up to 10sqmm balance stranded conductor as per IS:1255/1983 on existing cable trays/ in existing hume / PVC / GI pipes / on surface of slabs, walls or masonry/ RCC trenches/ ducts including cables ties, GI saddles, clamps and necessary hard ware.					
<b>III-B-1.1</b>	3.5Cx240 sq.mm. Al Ar. XLPE cable	RMT	15.00			
<b>III-B-1.2</b>	3.5Cx95 sq.mm. AL Ar. XLPE cable	RMT	150.00			
<b>III-B-1.3</b>	4Cx25 sq.mm. CU Ar. XLPE cable	RMT	15.00			
<b>III-B-1.4</b>	4Cx6 sq.mm. Cu Ar. XLPE cable	RMT	120.00			
<b>III-B-1.5</b>	4Cx10 sq.mm. Cu Ar. XLPE cable	RMT	450.00			
<b>III-B-2</b>	Supplying and making indoor Cable end Termination of following sizes 1.1kV grade LT XLPE insulated, HR PVC sheathed, stranded Aluminum/copper conductor, Armoured/ Unarmoured cables as per IS:7098 part-I including cost of tinned copper / Aluminium heavy duty crimping lugs, Double compression medium duty glands, insulation tape, Name Plate at Both Ends and all necessary material to complete the termination.					
<b>III-B-2.1</b>	3.5Cx240 sq.mm. Al Ar. XLPE cable	EACH	2.00			
<b>III-B-2.2</b>	3.5Cx95 sq.mm. Al Ar. XLPE cable	EACH	6.00			
<b>III-B-2.3</b>	4Cx25 sq.mm. CU Ar. XLPE cable	EACH	2.00			
<b>III-B-2.4</b>	4Cx6 sq.mm. Cu Ar. XLPE cable	EACH	8.00			
<b>III-B-2.5</b>	4Cx10 sq.mm. Cu Ar. XLPE cable	EACH	22.00			
<b>III-C</b>	<b>EARTHING SYSTEM</b>					
<b>III-C-1</b>	Supply and fixing of following GI/COPPER wires & tapes on existing tray/ trench/ ground/ PVC pipe/ walls including all necessary fixing accessories and effecting connections with copper riveting / welding etc. as approved:					
<b>III-C-1.1</b>	40 mm x 6 mm thick GI tape	RMT	50.00			

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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
III-C-1.2	25 mm x 6 mm thick GI tape.	RMT	100.00			
III-C-1.3	8 SWG bare Copper wire.	RMT	500.00			
III-C-2	GI PLATE EARTHING - EARTH PIT: Providing and making earthing stations including testing at locations as called for, including providing and laying of 600 x 600 x 6.3mm thick GI plate electrode, 20mm dia medium class GI pipe, CI funnel with 18 gauge GI wire mesh, 2Nos. 50x6 G.I. Strip From Plate to chamber, masonry chamber with concrete base, heavy duty manhole cover, lockable cover with frame 300 x 300mm and bitumastic paint, packing of mixture of charcoal & common salt around plate electrode including test joint complete with digging earth and back filling required as per IS:3043 (Depth as per site conditions, however, not less than 4.5m)	EACH	2.00			
III-C-3	COPPER PLATE EARTHING - EARTH PIT: Providing & making earthing stations including testing at locations as called for, including providing and laying of 600 x 600 x 3.15mm thick copper plate electrode, 20mm dia medium class GI pipe, CI funnel with 18 gauge GI wire mesh, 2Nos. 50x6 Copper Strip From Plate to chamber, masonry chamber with concrete base, heavy duty manhole cover, lockable cover with frame 300 x 300mm and bitumastic paint, packing of mixture of charcoal & common salt around plate electrode including test joint complete with digging earth and back filling required as per IS:3043 (Depth as per site conditions, however, not less than 4.5m).	SET	2.00			
III-C-4	SLEEVES: Providing, fixing of heat shrinkable black colour PVC sleeves for neutral/ dedicated earthing complete as required.	RMT	100.00			
III-C-5	Supply, installation, testing & commissioning of dedicated earth boxes of complete with 14 SWG sheet steel enclosure of suitable size with 32x6 mm Cu. Strip of 300mm long on SMC insulator for incoming & outgoing cables for IT Rack and UPS earthing.	EACH	2.00			
<b>FINAL DISTRIBUTION BOARDS</b>						

**CONSTRUCTION OF ONE FLOOR ATOP THE EXISTING ACADEMIC BUILDING-CIVIL, ELECTRICAL, PLUMBING & SANITATION**

ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
<b>III-D</b>	<b>NOTES:</b> 1. MCB's shall be of minimum 10kA fault with stand capacity. 2. Use 'B' curve MCB's for lighting & small power circuits, 'C' curve for motor duty i.e. for pumps, AC motors, AHU motors, window and split AC's etc. & 'D' curve for UPS DB's i.e. for computers/ PC's circuit. Main incomer & outgoing circuit MCB's shall be selected accordingly i.e. type B,C & D. Contractor to select the MCB's accordingly as per the nature of the circuit/ load. 3. Each DB shall have separate neutral links of rating not less than 100A for each phase. The main incoming neutral link shall be in addition to three outgoing neutral links and shall be of 125A. 4. UPS DB's shall have a dedicated Earthing link fixed on insulated supports, which will be in addition to body earth link. 5. All internal inter connecting wiring with in the DB's shall be PVC insulated flexible copper conductor wires of adequate capacity as per the current rating. 6. Inside each DB, a DB chart is to be fixed.					
<b>III-D-1</b>	Design, fabrication, assembling, wiring, supply, installation, testing & commissioning of Final Distribution boards vertical Raw type, made out of pre-treated and powder coated 1.2mm sheet steel and glazed steel door in double door enclosure include MCB's- (10kA) / ELCB's-(100mA for Light & power circuits) as called, insulated prong bus bars rated for 150A and with separate neutral and earth terminals and 1,2,3 & 4 pole versions as asked for or as required include wire set, blanking Plates, cable ties & circuit identification lables as standard or Cup-board layout suggested by Architect/Consultant. <b>TPN, DB, Double door, 4 Horizontal Raws in 4 Vertical tiers For Light &amp;RawPower,UPS DB and LIFT Machine Room:</b>					
<b>III-D-1.1</b>	8 way (4 + 24Module), Double door, 4 Horizontal Raws in 4 Vertical tiers, include 1Nos 4P,32A MCB + 3Nos, DP, 32A, ELCB +18Nos, 6-32A, SP MCB	SET	4.00			
<b>III-D-1.2</b>	8 way (4 + 24Module), Double door, 4 Horizontal Raws in 4 Vertical tiers, 1Nos 4P, 40A MCB + 3Nos,DP, 40A, ELCB + 18Nos, 6-32A, SP MCB	SET	4.00			
<b>III-D-1.3</b>	8 way (4 + 24Module), Double door, 4 Horizontal Raws in 4 Vertical tiers, 1Nos 4P, 40A MCB + 3Nos,DP, 40A, MCB + 18Nos, 6-32A, SP MCB	SET	4.00			
<b>III-D-1.4</b>	6 way (4 + 18Module), Double door, 4 Horizontal Raws in 4 Vertical tiers, include 1Nos 4P,63A MCB + 3Nos, DP, 63A, ELCB +9Nos, 6-32A, SP MCB and 1No 63A TP MCB.	SET	3.00			
<b>TOTAL OF PART - III EXTERNAL ELECTRICAL WORKS:</b>						
<b>PART - IV INTERNAL ELECTRICAL WORKS</b>						
	<b>POINT WIRING</b>					

**CONSTRUCTION OF ONE FLOOR ATOP THE EXISTING ACADEMIC BUILDING-CIVIL, ELECTRICAL, PLUMBING & SANITATION**

ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
<b>IV-A</b>	<p><b>NOTES:</b></p> <p>1. The rates shall include material &amp; labour for necessary any length of circuit and point wiring, earth wiring, rigid and flexible conduiting, bends, junction boxes, pull boxes, screws, washers, check nuts, couplers, saddles, Batten Holder, hangers supports, GI pull wire, civil work comprising chipping, cutting chases, fixing conduits &amp; making good or surface clamping of conduit work as the case may be, modular type switches, socket outlets, Electronic fan regulators surface or recessed outlet boxes as the case may be, ceiling rose, rigid and flexible conduit as may be required, connectors and terminal blocks of proper rating etc. &amp; sleeves etc. including lugs / thimbles for terminations. Fan points wiring shall include switch as well as electronic speed regulator, and fan hook box with fan hook: if specifically called for in the BOQ.</p> <p>2. All the light fixtures, exhaust fans, third pin of 6A and 16A Socket outlets and outlet boxes shall be earthed.</p> <p>3. Each circuit will have a separate earth wire from the DB.</p> <p>4. Painting of junction boxes.</p> <p>5. Embedding conduits and allied fittings in walls / floors etc. during constructing and/ or in chases including cutting chases and making good as necessary in the case of concealed conduit work.</p> <p>6. All accessories necessary to complete the wiring as specified.</p> <p>7. All the wires shall be thimble at the end connections/terminations.</p> <p>8. The conduiting shall be of Rigid 1.6mm thick medium duty FRLS PVC as called for.</p> <p>9. The wires shall be of FRLS PVC insulated, unsheathed, flexible copper conductor single core wire - ISI certified make- comply to IS - 94/1990.</p>					
<b>IV-A-1</b>	Wiring for light first point (circuit from DB to Light via SB) with circuit with 2 x 2.5+ 1 x 1.5 sqmm PVC insulated copper conductor single core wire up to SB and 3 x 1.5 up to first light point in surface / recessed medium duty PVC conduit, with 6Amp. modular switch, modular plate, suitable G.I. box etc as required. Wiring from DB to Light Via Switch board. (Avg ckt. Length-8Mtr.)	EACH	220.00			
<b>IV-A-2</b>	Wiring for MCB Controlled light point with 2 x 2.5 sqmm PVC insulated copper conductor single core wire in surface / recessed medium duty PVC conduit and earthing the point with 1.5 sq.mm. PVC insulated copper conductor single core wire etc as required. (MCB cost not to be included here). (Avg ckt. Length-15Mtr.)	EACH	15.00			
<b>IV-A-3</b>	Wiring for extra loop points with 2 x 1.5sqmm PVC insulated copper conductor single core wire in surface / recessed medium duty PVC conduit and earthing the point with 1.5sq.mm. PVC insulated copper conductor single core wire etc as required. (Avg Length-4Mtr.)	EACH	425.00			
<b>IV-A-4</b>	Wiring for Twin control light point with 2 x 1.5 sqmm PVC insulated copper conductor single core wire in surface / recessed medium duty PVC conduit, 2 Sets of 2 way modular switch, interconnecting wires same size of phase wire, modular plate, suitable G.I. box and earthing the point with 1.5sq.mm. PVC insulated copper conductor single core wire etc as required. (Circuit cost shall not be included here)	EACH	10.00			

**CONSTRUCTION OF ONE FLOOR ATOP THE EXISTING ACADEMIC BUILDING-CIVIL, ELECTRICAL, PLUMBING & SANITATION**

ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
IV-A-5	Wiring for Ceiling Fan point with 2 x 1.5 sqmm PVC insulated copper conductor single core wire in surface / recessed medium duty PVC conduit, with modular 6A switch and a 5 step electronic speed regulator-2Module, modular plate, suitable G.I. box and earthing the point with 1.5 sq.mm. PVC insulated copper conductor single core wire for earth etc as required. Including fan hook. (Circuit cost shall not be included here)	EACH	10.00			
IV-A-6	Wiring for Exhaust/Wall Fan point (Connected from nearest light point) with 3 x 1.5 sqmm PVC insulated copper conductor single core wire in surface / recessed medium duty PVC conduit include G.I. box with modular plate and cover in front on surface or in recess, including providing and fixing of 6A Socket near Fan and 6Amps modular switch away from fan on nearest Switch Board, connection etc. as required. (Circuit cost shall not be included here)	EACH	10.00			
IV-B	<b>CIRCUIT MAINS, POWER &amp; LIGHTING WIRING</b>					
	Supply and drawing of 1100V grade, FR insulated, copper wires by using 3 core 2.5 Sq.mm for circuit mains wiring for power socket and 2R of 2.5sqmm copper wire with 1R of 1.5sqmm copper wires drawn into 2 mm thick FRLS, rigid PVC conduit pipes in concealed / open conduit system with necessary conduit and fixing accessories like bends, collars, junction boxes, clamps, spacers, etc., complete. Wiring shall be as per specifications.					
IV-B-1	1 Run of 3 core 2.5 sqmm FR insulated copper conductor cable in Prelaid conduit/Raceway. (For UPS and Raw power circuit Mains).	RMT	1200.00			
IV-B-2	3 Runs of 1.5 sqmm multi strand FR insulated copper conductor wire in 20 mm dia PVC conduit (Emergency Lighting Mains)	RMT	500.00			
IV-B-3	2 Runs of 2.5 sqmm multi strand FR insulated copper conductor wire in suitable size of PVC conduit along with 1 Run of 1.5 sq.mm multi strand FR insulated copper earth wire.(Lighting Mains)	RMT	1250.00			
IV-B-4	2 Runs of 4.0 sqmm multi strand FR insulated copper conductor wire in suitable size of PVC conduit along with 1 Run of 2.5 sq.mm multi strand FR insulated copper earth wire.	RMT	750.00			
IV-B-5	Supply, laying and termination of RG-6, TV Coaxial cables.	RMT	300.00			
IV-C	<b>PVC PIPES</b>					
	Providing and fixing in position of Heavy duty rigid FRLS PVC conduit including bends, junction boxes, pull boxes, GI pull wire in surface/recess including cutting the wall and making good the same in case of recessed clamping on surface with saddles etc.					
IV-C-1	32 mm dia conduit	RMT	350.00			
IV-C-2	25 mm dia conduit	RMT	500.00			
IV-C-3	20 mm dia conduit	RMT	250.00			
IV-D	<b>ACCESS OUTLETS</b>					
	Supply & Installation of floor junction boxes with stainless steel top cover fabricated out of MS sheets fully powder coated with removable screwed cover plates on all four sides for blocking the entry.					
IV-D-1	150 x 150 mm	EACH	15.00			



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ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
IV-D-2	250 x 250 mm	EACH	20.00			
IV-D-3	350 x 350 mm	EACH	10.00			
IV-D-4	400 x 400 mm	EACH	6.00			
IV-E	<b>CABLE TRAYS</b>					
	Supply and providing MS Ladder type cable trays factory fabricated out of 14 G sheet steel, channel size 75 x 15 mm and rung size 30 x 6 mm, spaced at 250 mm interval, supporting angle frame at every 1.8 m, bottom angle fasteners, anchor grip bolts, synthetic enamelled painting, etc. The tray shall be suspended from ceiling using anchor bolt and angle iron supports or mounted from wall. The rate shall include all accessories like bends, elbows, tees, coupler plates, etc., which will be measured as linear measurement and fixing accessories.					
IV-E-1	150 mm wide 50 mm height	RMT	20.00			
IV-E-2	300 mm wide 50 mm height	RMT	35.00			
IV-E-3	450 mm wide 50 mm height	RMT	20.00			
IV-F	<b>RACEWAYS/WIREWAYS/FLOOR TRUNKING SYSTEM</b>					
	Supply and installation of extruded aluminium/GI/Pre-galvanised steel race ways for drawing wires for telephone/data/voice communications and power wiring. The race way shall be complete with base, front plate standards accessories like extension pieces, couplers, end plates, inside corner, etc. The race way shall be surface / flush mounted to brick wall with necessary fixing accessories, wherever necessary, they should be laid on ground flush with floor level.					
IV-F-1	Raceway of 50 x 25 x 1.6mm	RMT	25.00			
IV-F-2	Raceway of 80 x 38 x 1.6mm	RMT	50.00			
IV-F-3	Raceway of 100 x 38 x 1.6mm	RMT	110.00			
IV-F-4	Raceway of 125 x 38 x 1.6mm	RMT	40.00			
IV-G	<b>SWITCH AND SOCKETS</b>					
IV-G-1	Supply and installation of modular 6 Amps multi pin flush type socket outlets controlled by 6 Amps flush type SP switch. The assembly shall be housed in a metal box and flush mounted in the brick wall./partition.	EACH	246.00			
IV-G-2	Supply and installation of modular Single phase 6/16 Amps multi pin flush type socket outlets controlled by 16 Amps flush type SP switch. The assembly shall be housed in a metal box and flush mounted in the brick wall. (RP)	EACH	50.00			
IV-G-3	Supply and installation of modular 2 Nos Single phase 13 Amps universal pin shuttered type socket outlets controlled by one No 16 Amp flush type SP switch. If necessary The assembly shall be housed in a metal box and flush mounted in the brick wall/wooden partition (UPS)	EACH	16.00			
IV-G-4	Supply and installation of modular 2 Nos Single phase 13 Amps universal pin shuttered type socket outlets controlled by one No 16 Amp flush type SP switch. If necessary The assembly shall be housed in a metal box and flush mounted in the brick wall/wooden partition (UPS)	EACH	20.00			

**CONSTRUCTION OF ONE FLOOR ATOP THE EXISTING ACADEMIC BUILDING-CIVIL, ELECTRICAL, PLUMBING & SANITATION**

ITEM NO.	ITEM DESCRIPTION	UOM	QUANTITY	UNIT RATE (IN RS.)	RATE IN WORDS	AMOUNT
<b>IV-H</b>	<b>LUMINARIES</b>					
	Supply, erection, testing and Commissioning of luminaires complete with fixture, lamps, ballast, starter, condenser, connecting cord, etc.,. The rate shall include all necessary fixing accessories like MS hooks, MS supports, fasteners, chain link etc.					
<b>IV-H-1</b>	Supply & Fixing of 40W LED Recess mounted light fixture fixed to the ceiling, etc., complete as required by the engineer in charge. Wipro / Philips / Bajaj / EQUIVALENT (RC24OB LED 36-4000PSEOD WH)	EACH	120.00			
<b>IV-H-2</b>	Supply & Fixing of 16W LED high efficiency circular light fixture fixed to the ceiling, etc., complete as required by the engineer in charge. Wipro / Philips / Bajaj / EQUIVALENT (DN393BLE12S)	EACH	185.00			
<b>TOTAL OF PART - IV INTERNAL ELECTRICAL WORKS:</b>						
<b>SUB TOTAL OF PART - I, PART- II, PART-III, PART-IV:</b>						
<b>ADDITIONAL DISCOUNT IF ANY: (-)</b>						
<b>GRAND TOTAL:</b>						

Amount in Words: