BILL OF QUANTITIES FOR ELECTRICAL WORK OF CANARA BANK KHIRBI BRANCH, PALWAL, HARYANA.					
S.No.	**Particulars**	**Unit**	**Qty**	**Rate (Rs.)**	**Amount (Rs.)**
	ELECTRICAL WORKS				
	GENERAL NOTES				
1	All equipment and material shall be IS approved.				
2	All approvals shall be obtained from Client / Consultant				
3	All equipment and material shall be inspected at manufacturer's works as per relevant IS by the Client or his representative before despatch to site.				
4	All vendor drawings shall be approved by the Client /Consultant before fabrication work starts.				
5	All Testing and Commissioning shall be as per relevant IS for equipment and IS:732:1989 for the installation. All testing records are to be maintained and submitted for Client's representative.				
A.	**CIRCUIT CUM POINT WIRING**				
1	All wiring (P,N,E) shall be 1100 volts grade,FRLS PVC insulated stranded copper conductor wires, single or multi core as called for.				
2	All Switches & Sockets shall be of modular design complete with modular plate and suitable sized GI/ moulded boxes as called for and shall be suitable up to 250V, AC/DC supply or as specified.				
3	The rates for all point wiring items shall also include supplying and fixing of the following:				
4	The recessed Switches & Socket outlet boxes shall be of 16G GI and of the same make / manufacturer as of the switches & sockets. Local make boxes are not to be used.				
5	Flexible conduits, where ever required, shall be of heavy duty/G.I and complete with couplers.				
6	Approved GI saddles and grouting the same for exposed conduit work.				
7	All circuit & point wiring shall be colour coded & shall have ferruling on either end for circuit identification.				
8	All work necessary for wiring a point circuit of any length from the Final Distribution Board to connector via switch and shall include the circuit wiring also except where identified.				
9	The rates shall include material & labour for necessary length of circuit and point wiring, earth wiring, rigid and flexible conduiting, bends, junction boxes, pull boxes, screws, washers, check nuts, couplers, saddles, hangers supports, GI pull wire, civil work comprising chipping, cutting chases, fixing conduits & making good or surface clamping of conduit work as the case may be, modular switches, socket outlets, Electronic fan regulators surface or recessed outlet boxes as the case may be, ceiling rose, rigid and flexible conduit (PVC / GI/ MS) as may be required, connectors and terminal blocks of proper rating etc. & sleeves etc. including lugs/ thimbles for terminations.				
10	Switch, socket outlet and necessary blank plates wherever required.				
11	PVC insulated copper conductor stranded flexible wire of Green colour with yellow bands for earthing of fixtures, outlet boxes and third pin of socket outlet.				
12	All wires shall be PVC insulated FRLS copper conductor stranded flexible 1100 volts grade and shall be of approved make.				
13	All sockets shall be shuttered type and with earth terminal.				
14	Suitable rating of plugs top shall be provided for all splash proof industrial socket outlets.				
15	Separate neutral and earthing wire shall be provided for each circuit.				
16	Lighting and power circuit to be kept separate.				
17	Wiring shall include conduiting and wiring (Phase, Neutral, Earth) of light points/ fan points/ UPS and raw sockets outlets of any length from the distribution board via switch to the point.				

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A.	**POINT WIRING**				
	Note:-				
	Point wiring rates are inclusive of 2 x 2.5 mm2 FRLS PVC insulated stranded copper conductor wires for circuit and + 1 x 2.5 mm2 (Earth) mm FRLS PVC insulated copper conductor insulated earth wire, All wire shall be FRLS/FRZH only.				
1	Wiring for Light point / fan point/exhaust fan/ light socket switch with 3X1.5 sqmm copper conductor FRLS insulated 1100v grade multi strand wires (P+N+E) in concelled/ surface using 20/25/32 rigid PVC conduit 2mm thick with all bend, tees, saddle mounting box, cover plate ceiling rose, etc. whereever required etc.& cromium plate brass screw/rawl plug etc.The circuit wiring start from DB to point control box /switch box using 3x2.5 sqmm copper conductor FRLS insulated 1100V grade multistrand wire (P+N+E) identification ferrules at both end complete in all respect.The conduit must be fixed with saddle at every 80cm on surface and conduit to be laid in ceiling with proper clamps/wall floor filling the chese with cement mortar and finish the same in origional form/wooden partion above falceiling chessess filled with cement mortar as required at site Each circuit shall have separate earth wire.All switch socket must be for modular type with M.S. Boxes and plate etc. as required Note:-.Each circuit shall have independent earth wire each point shall be earthed. Circuit wiring is to be includeed in point rate wiring.**(PLEASE NOTE THAT Colour code - Red-Yellow-Blue wires for phases, Black wire for Neutral and Green wire for Earth must be used).**				
i)	Primary light controlled by one 6A modular one way switch.	Nos	5		
ii)	Two light points controlled by one 6A Switch	Nos	12		
iii)	Four light points controlled by one 6A Switch	Nos	NIL		
iv)	One wall fan/Ceiling fan controlled by one 6A modular switch, but switch at switch board level and 6A 5-pin socket has to provide near the wall fan at designated place for connections.	Nos	9		
v)	One exhaust fan controlled by 6A modular switch,but ceiling rose has to be provide near the exhaust fan for connection. **FOR PANTRY & TOILET**	Nos	1		
2	Wiring for 6 amps **Light plug** outlets with 3x1.5 sq.mm FRLS PVC insulated stranded copper conductor wires inPVC conduit 2mm thick in ceiling/walls/floor as directed including providing and fixing of 6 ampsmodular type 5 pin socket and 6 amps switch with cover plate, 5 sided G.I boxes for housing switches, sockets and earthing complete as required. (for general areas)	Nos.	9		
3	Wiring for **16 amps power outlet points** with 2x4+1x2.5 sq.mm FRLS PVC insulated stranded copper conductor wires in concealed/recessed PVC conduit 2mm thick as directed including providing and fixing of 16 amps flush type switch and 6 pin socket with cover plate 5 sided G.I. outlet boxes for switches and socket and earthing the third pin with 1x2.5 sq mm FRLS PVC stranded copper wire complete as required (Only one outlet shall be connected on each circuit) (including body earth for GI boxes) for	Nos.	6		
5	Wiring for **16 amps power outlet points** with 2x4+1x2.5 sq.mm FRLS PVC insulated stranded copper conductor wires for the first power outlet and 2x2.5+1x2.5 sq.mm FRLS PVC insu-lated stranded copper conductor wires for the second outlet, in concealed PVC conduit 2mm thick in F.ceiling/ walls/Ceiling/floor ducts as directed incl-uding providing 16 amps flush type switch and 6 pin socket with cover plate, 5 sided G.I. outlet boxes for housing switches and socket, and earthing the third pin with 1x2.5 sq.mm FRLS PVC insulated copper conductor wires complete as required (Two power out-lets shall be connected on each circuit)(including body earth for GI boxes)	Set of two	4		

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6	Wiring for **A.C. points** with 4 **x 2.5 mm2** FRLS PVC insulated stranded copper con-ductor wires in concealed G.I conduits in F.ceiling/ walls/ Ceiling as directed including providing 16 amps flush type switches 16 amps 3 pin socket near inline fan, 5 sided G.I. boxes for housing switches and 16 amps 3 pin socket outlet and earthing and complete as required.(including body earth for GI boxes) (3Nos to 4 Nos point in one circuit)				
7	AC POINTS				
i)	Do as above but using 2X4 sqmm copper conductor FRLS wires with1X2.5Sq.mm FRLS earth wire for AC point.The points shall starts from DB & shall finish at point including the supply & installation of modular type AC Box (combined socket, 25/32A C-series SP MCB, 3-pin Top, Metal box)including wiring for outdoor unit	Nos	4		
9	**COMPUTER POINT**				
a)	Wiring with 3x2.5 sqmm PVC insulated ,1100V grade copper conductor FRLS wires in 2mm thick PVC conduit 2mm thick from UPS DB to computer points.Each point to have **3 nos. 6A 5 pin modular type socket** at below the top of table/counter and controlled by one 10/16A modular Switch and one 10A indicator at above the table top in wooden partion with all accessories. Inner / outer plates, metal box etc and to be fixed on wooden partion/ by grouting on wall etc as per site requirement.	Nos.	5		
b)	Same as above but looped from first point & from first point to second point in a circuit including first point.	Nos	5		
10	Dismantling of existing Electrical wiring/ups/computer wiring and making temporary arrangement for running of branch as per branch manager instruction	Nos	1		
	SUBTOTAL A				
B.	**CONDUITING FOR TELEPHONE , COMPUTER & CONDUITING , DATA CABLING**				
1	Providing and fixing/terminating and colour code identification on either ends in position on either ends 0.6 mm dia annealed tinned screen protected copper conductor pvc sheathed telephone cable with following suitable 1.6 mm thick G.I./ PVC outlet box for RJ- 45 computer/Telephone outlet with all fixing accessories as required.including **F**RLS 2 mm thick PVC heavy duty conduits including all accessories concealed/exposed in F.Ceiling/Wall complete as required including 1.6/2.0 mm thick PVC junction or pull boxes with 3mm thick perspex sheet cover plate complete with 1.6 mm dia G.I. pull wires in the length of conduit.				
a	Two pair	Nos.	3		
b.	Ten pair	RM	10		
2	Providing and fixing in position with all fixing accessories as required.including **FRLS 2 mm thick PVC heavy duty conduits** including all accessories concealed/exposed in F.Ceiling/Wall complete as required including 1.6/2.0 mm thick PVC junction or pull boxes with 3mm thick perspex sheet cover plate complete with 1.6 mm dia G.I. pull wires in the length of conduit.				
a.	25 mm dia conduit (2 mm wall thickness)	RM	10		
b.	32 mm dia conduit (2 mm wall thickness)	RM	NIL		
3	Providing and fixing of suitable 1.6 mm thick G.I./ PVC outlet box for RJ- 11computer/Telephone outlet with all fixing accessories as required.				
a	1 pair cord outlet	Nos.	3		
b	2 pair cord outlet	Nos.	1		
4	**COMPUTER NETWORKING**				
4.1	Wiring for computer networking from Jack Panel in data rack to computer workstation with Cat-6 computer cable in PVC conduits of size 20/ 25 mm including providing ferrules at both ends and termination at both ends including providing & fixing frame for Cat-6 with shutter, RJ 45 outlet, faceplate and mounting box complete of modular type, This work includes supply and laying of CAT-6 cable in PVC conduits throughout the lenght, from the I/O hub to the point.	Nos.	12.00		

S.No.	Particulars	Unit	Qty	Rate (Rs.)	Amount (Rs.)
4.2	Supplying and fixing 9 U (Rack with glass door, opening in the front power panel 1 (horizontal), cable manager 1 lock & key).	Nos.	1.00		
4.3	Supply, Installation, Testing & Commissioning of 16 port Jack Panel.	Nos.	1.00		
4.4	Supplying and fixing Patch Cord-2 Meter- (DBPS Mounting Cord)	Nos.	12.00		
4.5	Supplying and fixing Patch Cord-1 Meter-	Nos.	12.00		
	SUBTOTAL B				
C.	**CABLES ,MAINS & SUBMAINS**				
1	Wiring for sub main in PVC conduit 2mm thick with the following sizes of FRLS insulated, 1100V grade copper conductor wire in surface /recessed on wall/ floor/ ceiling as required.				
a	2x 4 sqmm + 1x 2.5 sqmm	RM	15		
b	2x 6 sqmm + 1x 4 sqmm	RM	3		
2	Supply and laying, effecting proper connec-tions, testing & commissioning of the following sizes of 1.1 KV armoured/ unarmoured PVC insulated PVC sheathed aluminium /copper conductor cables conforming to IS : 1554 Part I - 1976 with latest amendments laid over MS supports in existing RCC ducts/ laid in ground /laid on Cable Trays including clamping the cables to sup-ports in an approved manner as required complete with all accessories.				
a	3.5 c x 50 sq.mm Al Ar. XLPE cable . **(MAIN INCOMER) with 2X 8 SWG GI Wires**	RM	NIL		
b	**4c x 25 sq.mm Al Ar. XLPE cable. (For AC with 2X12 SWG GI Earth wires for capacitor**	RM	10		
c	4 c x 10 sq.mm Al Ar. XLPE cable.**(For Light DB and power DB) with 2X 10 SWG GI earth wires.**	RM	17		
d	2c x 10 sq.mm Cu Ar. XLPE cable **(For UPS DB) with 2X 10 SWG GI earth wires.**	RM	5		
	SUBTOTAL C				
D.	**DISTRIBUTION BOARD**				
1	Supplying, installing, testing & commissiong of surface/recessed mountings, Double door 415 volts TPN MCB distribution board of steel steel, 1.6mm thick dust phosphatized and painted, inclusive of 100 amps, tinned copper busbars, earthbar, common neutral link, din bar for mounting of MCB's detachable gland / knock out plate & with built in loose wire boxl, and superior make terminal connectors for all incoming and outgoing circuits duly prewired with adequate size of PVC insulated copper wires between the bus bars and the MCB's as well as the incomer and upto the terminal connectors/ neutral link and ready for installation of following ways as required.				
	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.				
	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.				
	UPS DB's shall have a dedicated Earthing link fixed on insulated supports, which will be in addition to body earth link.				
	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.				
	Inside each DB, a DB chart is to be fixed.				
a	**4-way TPN DB (POWER DB/ACDB)**	No.	2		
	Incomer :-				

S.No.	Particulars	Unit	Qty	Rate (Rs.)	Amount (Rs.)
	1 No.40 Amp TPN (10 KA) MCB with 40A DP RCCB (100 MA) each phase				
	Outgoing :-				
	25 Nos.16/20Amp (10 KA) SP MCB,				
b	**4-way TPN DB (LIGHT DB)**	No.	1		
	Incomer :-				
	1 No.40 Amp TPN (10 KA) MCB with 40A DP RCCB (100 MA) each phase				
	Outgoing :-				
	18 Nos.10/16Amp (10 KA) SP MCB,				
c	**8-way SPN DB (UPS Output)**				
	6 - Nos. 10 Amp. SP MCBs as outgoing and 40 Amp DP MCB with as incomer.	Nos.	1		
d	**8-way SPN DB (LDB/CDB)**				
	1 - Nos. 40 Amp. DP MCBs as in coming	Nos.	NIL		
	6-NOS 6A SP MCB as outgoing				
	SUBTOTAL D				
E	**(LIGHT FITTINGS & ACCESSORIES) :- INSTALLATION**				
	Supplying and Fixing of light fixtures suitable for LED lamps with all components and accessories including but not restricted to reflectors, housings, lamp holders and including cost of ballasts and cost of lamps complete as required and as below.(Minimum 3 years onsite replacement waranty)				
1	Supplying and Fixing15 W RECCESS DOWN LED LIGHT FIXTURE AS PER (Philips: GreenLED, BBS 170, 1xDLED-5000 PSU WH,Cat-phillips luminaries or equivalent .(Philips,Wipro,) Commercial type fixture only.	Each	17		
2	Supplying and Fixing 600x600, LED 31W HPF > 0.9 SMART PANEL Fixture with wide input voltge range LED high efficiency driver CG - Cat. No. ORION LCTLR 36 FO CDL/Philips Cat. No. RC110V LED34/NW-4000 PSU W60L60 .(Philips,Wipro,)	Each	8		
3	Supplying and Fixing 15WATT Per Meter LED STRIP (For COVE LIGHT) with driver .(Philips,Wipro,)	Mtr	15		
4	Supplying and FixingTube Light 20Watt LED.(Philips,Wipro,)	Each	5		
5	Supplying and Fixing of wall fan /exhaust fan/Ceiling fan	Each	10		
	SUBTOTAL E				
F.	**EARTHING SYSTEM**				
1	i) Supply and installation of pipe-in - pipe technology ASHLOK or approved make by bank Earthing System, Model T-39 with outer diameter of 80mm, length 2000mm embedded in the soil with masonry inspection pit along with cover etc. Complete in all respect. Earth pit installation test certificate to be submitted after measurement of earth resistance as per the provision in IS3043.(UPS connection)	Set	1.00		
2	ii) Supply and installation of pipe-pipe technology ASHLOK or approved make by bank Earthing system, Model T-19 with outer diameter of 50 mm, length 2000 mm embedded in the soil with masonry inspection pit along with cover etc. complete in all respect. Each pit installation test certificate to be submitted after measurement of earth resistance as per the provision in IS3043. (Panel earthing)	Set	3.00		
3	Providing and fixing 1X10 SWG copper wire in recess or surface for loop earthing with sub-main conduit and L.T. cable from panel to DB 's as required.	Meter	30.00		
	SUBTOTAL F				

S.No.	Particulars	Unit	Qty	Rate (Rs.)	Amount (Rs.)
G.	**MAIN PANEL AND METER BOARD**				
	Designing, fabrication, supply, installation, testing and commissionings of front operated cubicle type compartmentalised, front access, free standing on 75MM "[" MS channel, dust and vermin proof (IP 42 degree protection) panel suitable for use at 415V, 3 phase, 4-wire 50Hz system suitable for fault level of required value symmetrical at 415V fabricated from 2mm thick CRCA MS sheets with hinged, gaskettted (Metal based neoprene) locable doors having structural reinforcement including 3mm thick gland plates on top and bottom, lifting hooks, GI earth strip of required size with 2 nos earth terminals, 2 nos 230V AC operated 250mm X 250mm size axial fans for exhaust of heat with On-Off toggle switches including 2 coated primer and 2 power coated paint fnish of approved shade over metal surface cleaned and treated with seven tank process complete with seven tank process complete with interconnections etc as per specifications as required.as per the following specifications, (Part IV - Sub-station) and IS: 8623				
	All switchgears shall have provision for entry of cables from the top or bottom through Cable Alley.				
	All live accessible parts shall be shrouded and all equipment shall be finger touch proof. The busbars insulation shall be withheat shrinkable sleeves SMC/DMC shrouds and busbar supports shall be used. Padlocking facility shall be provided on all outgoing feeders doors and switch handles shall be locable in OFF position.				
	Suitable arrangement shall be made for termination of multiple incoming cables.				
	All kA values indicated shall be Ics breaking capacity				
	GA drawings shall be got approved by SBI				
	MAIN PANEL				
a	Fabrication, supply, installation, testing and commissionings of cubicle type floor/wall mounted L.T. panel made out of 1.6mm thick CRCA sheet including connection,inter-connection alongwith 4 stsrip aluminium busbar as per CPWD specifications,(Part IV-Sub-station) etc. as required.**(Meter Board)**				
	INCOMER				
	1no. 100 Amp 4P On Load ACOS (Automatic Change over switch) with 1 No. 160 Amps,TPN MCCB (35 KA) with extendeble rotary handle each thermal over current, instantaneous, Short circuit realease,Earth fault.				
	Busbar :- 160Amps 4P aluminum conductor bus bar (BPTM type Heat-shrinkable busbar insulation) supported by SMC/DMC/FRP insulators.				
	LED- R-Y-B phase indicators				
	Digital equalisers or Multifunction meter for recording (Minm size 250mmX250MM) Voltage/Current/Frequency/KWH/KVAH etc with CT/PTs.				
	All MCB shall be min 10kA fault rating.				
	R-Y-B LED Indicating Lamps for I/C				
	OUT-GOING :-				
	3 Nos. 63 Amp TPN MCB,10KA for Capacitor Panel				
	2 Nos. 40 Amps, TPN, 10KA, MCB for LDB & PDB				
	1Nos. 40 Amps, DP, 10KA, MCB for UPS	Nos	1		
Note:-	All MCCB in UPS Distribution Panel Shall be TP + Neutral 200% of rated currrent with isolation link. There shall be one hole for each cable termination in the busbar link for both phase and neutral.				
	SUBTOTAL G				
	TOTAL PART(A+B+C+D+E+F+G)				