

BILL OF QUANTTITES FOR ELECTRICAL WORKS TO SBI LIFE, VIJAYAWADA.					
S No.	Description	QTY	Unit	Rate	Amount
1	a) Supply, installation, Testing and Commissioning of 3 phase and Neutral 415V 4 wire Free Standing Floor mounted MVpanel made out of 14 SWG MS sheet after seven tankprocess and painting with Epoxy powder coating. The panel shall consist of suitable rating TPN Aluminium busbar (at the rating of 0.8A/Sq.mm) supported with DMC/ SMC insulators and color coded with Heat shrinkable sleeves.TheMetering shall be provided as specified. The panel shall have Short circuit withstanding capacity of minimum 35KA and consist of the switchgear as mentioned below. The panel shall be got fabricated from manufacturers with CPRI Test certificate only. The PCC shall have atleast two spare cubicles of the maximum rating. The size of all PanelMounting Meters shall be 96X96mm. The Panels shall be mounted on U channels including supply and fixing of the same.	1	No		
	BUS BAR				
	TPN Alluminium busbar of 400A with 35KA fault level capacity, mounted on non-hygroscopic, glass fibre reinforced insulators- 1Set				
	INCOMER				
	315A, 35KA FP MCCB (Thermal release) - 1no				
	2A, control fuse - 3 Nos.				
	RYB indicating lamps - 1 Set				
	315/5A, CL-1, 15VA CT's with tape wound - 3 nos.				
	KWH Meter				
	Surge Protection Device L&T make Type 1+2 I _{max} -50kA, 3P+N cat no.AUSP123PN50 -1No.				
	Neutral failure relay, L&T make- 1 No.				
	OUTGOINGS				
	63A, 10KA FP MCBs - 6nos (PDBs - 4 Nos, Spare - 2 Nos)				
	40A, 10KA FP MCBs - 6nos (LDBs- 4 Nos, Spare- 2 Nos)				
	32A, 10KA FP MCBs - 12nos (Cassette AC units- 10 Nos, Spare- 2 Nos)				
	100A, 25KA FP MCCBs (Thermal release) - 2no (UPS Input and APFC)				
	APFC				
	. BUS BAR TPN Aluminium busbar of 125A with 25 KA fault level capacity, mounted on non-hygroscopic, glass fibre reinforced insulators-1Set Automatic Power factor controller with 6channel for controlling the capacitor bank Outgoings- 4nos 10 KVAR MD type Capacitor bank -2nos 5 KVAR MD type Capacitor bank, 40A TP MCB 10kA - 4 Nos, 25A TP MCB, 10kA - 2Nos 40 A FP contactor - 04nos and 25A FP contactor - 2 Nos.				
	Two numbers of earthing terminals - one on each side of the panel with earth strip run inside the panel				

S No.	Description	QTY	Unit	Rate	Amount
2	Supply and fixing of 315 A FP MCCB, 25KA in factory made sheet steel enclosure with all accessories etc., complete	1	No		
3	Supply, laying and commissioning of following size 1.1KVgrade XLPE insulated armoured aluminium conductor underground cable, in built up cable trench/ already laid RCChume pipe or on cable tray with all installation materials.When the cable is to be laid in ground, the same shall be laid at a depth of 750mm below ground level including excavation and refilling of earth after cables are laid,providing protection with sand and bricks at sides and top and cable route markers at 'every 15mtr. interval and also at the turnings. The cable shall conform to IS .				
	a) 3.5C X 240 Sq.mm in Ground	20	Rmt		
	b) 3.5C X 240 Sq.mm in existing trench / hume pipe/ on Surface	80	Rmt		
c	Supply, laying and commissioning of following size 1.1KVgrade XLPE insulated armoured aluminium/ copper conductor underground cable, in built up cable trench/ already laid RCChume pipe or on cable tray or on surface with saddles, screws etc., with all installation materials (for AC Outdoor Units)				
	a)4C X 6Sq.mm Copper	50	Rmt		
	b)4C X 10 Sq.mm Copper	100	Rmt		
4	Providing Indoor ordinary end terminations for the cable specified above with compression type steel gland,Bi-metallic lugs using crimping tool,Insulation tape,Identification tags etc., including end termination.				
i	a) 3.5C X240 Sq.mm	4	No		
ii	ii) Providing Indoor ordinary end terminations for the cable specified above with compression type steel gland,Bi-metallic lugs using crimping tool,Insulation tape,Identification tags etc., including end termination.				
	a)4C X 6 Sq.mm Copper	4	No		
	b)4C X 10 Sq.mm Copper	6	No		
5	a)Providing GI Earth station, with 40 mm Class B GI pipe at 2500mm depth including construction of brick pedestal, providing meshed funnel,CI cover and other civil Engineering works, spreading a homogenous mixture of salt,charcoal around the pipe etc,completely as per IS3043,1987 or latest revision.	2	Nos		
6	b) Supply and laying of following size strips including including all necessary inter connections with earth station and equipments.				
	i) 25 mm X 5mm Hot dip GI strip	40	Meter		

S No.	Description	QTY	Unit	Rate	Amount
7	Providing and laying non-pressure NP2 class (light duty) R.C.C. 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 :				
	100 mm dia. R.C.C. pipe	10	Meter		
8	Supply, Installation, Testing & Commissioning (S.I.T.C) of all items described below should be Factory Manufactured & Tested & ISI marked. Proposed location & route should be as per the drawing. However, if any obstruction in encountered at site suitable modification may be made as per site condition. After completion of work the contractor must supply 3 copies of " As Built " drawing of actual route & location of items. All UPS & Raw Power points to be marked as U1,U2...& RP 1, RP2 etc., on each work station / Desk etc., Similarly load/ points connected on each MCB to be indicated with a chart pasted inside the cover of each distribution board. Insulation testing of wiring with megger & Testing of ELCB with Test lamp should be carried out before charging system & insulation test report as well as RCCB/RCBO test report to be submitted with the Bill. Load shall be equally Balanced on 3 phases. All DBs and UPS+Raw power points should have an earth wire connection in their socket earth terminal.				
	Distribution System				
	S.I.T.C of Factory Manufactured single / 3 phase & Neutral Double door distribution board made out of 16 SWG sheet steel enclosure with cutouts for operating MCB/ MCCB/RCCB etc knobs & consisting of Phase, Neutrl & Earth busbars with tapped holes, phase barriers & covers with removable plates on Top & Bottom for Incoming & Outgoing cables. DBs shall be flush mounting type for both single & three phase. All wires / cables should be terminated with Ring / PIN type copper lugs in each MCB in DB as well as in each of Neutral & earth link strips.				
	a) S.I.T.C of L.D.B				
	S.I.T.C of Three Phase 4 way Double door Horizontal D.B. with Four pole 30Milliamp 32 Amp RCBO as incomer - 1No. 6Amp S.P. Amp M.C.B. - 12Nos with all wiring connections	4	No		
	b) S.I.T.C of RPDB				
	S.I.T.C of Three Phase 12 way Double door Horizontal D.B. with Four pole 100 Milliamp 63 Amp RCBO as incomer - 36Nos. 6-25Amp S.P. Amp M.C.B. - 36Nos with all wiring connections	4	No		
	c) UPS DB (Input)				
	Supply and fixing of 80A FP MCB, 10KA in factory made sheet steel enclosure with all accessories etc., complete	1	No		

S No.	Description	QTY	Unit	Rate	Amount
	d) UPS DB (Output)				
	S.I.T.C of Three Phase 4 way Double door Vertical type D.B. with Four pole 80Amp MCB, 10KA as incomer - 1No. 40Amp S.P. Amp M.C.B. - 6Nos with all wiring connections	1	No		
	e) S.I.T.C of UPS SDB				
	S.I.T.C of Single Phase 12 way Double door Horizontal D.B. with Double pole 40 Amp MCB, 10KA as incomer - 1No. 6-16Amp S.P. Amp M.C.B. - 12Nos with all wiring connections	5	No		
	g)Supply, fixing testing and commissioning of factory made 16A Single phase socket with 16A SPMCB in MS box including all fixing accessories.(for 1.0Tr ACs)	9	No		
	g)Supply, fixing testing and commissioning of factory made 20A Single phase socket with 20A SPMCB in MS box including all fixing accessories.(for 1.5Tr ACs)	12	No		
	h)Supply, fixing testing and commissioning of factory made 25A Single phase socket with 25A DPMCB in MS box including all fixing accessories.(for 2Tr ACs)	7	No		
	i) Supply fixing, testing and commissioning of factory made 32 A 3p+N+e Metalclad socket with 32A 3P MCB in MS box including all fixing accessories.	10	No		
9	Sub - Mains Cabling & Wiring : For Lighting, Raw Power & U.P.S.DBs.				
	S. I. T.C of I.S.I marked 1.1KV grade multi-strand F.R.L.S Copper P.V.C wires in 19/25/32/40/50 mm Medium grade I.S.I marked PVC pipes to be laid in Underground trench / On wall / above false ceiling etc complete with all conduit accessories like bends, tees, junction boxes with necessary fixing hardware etc including re-surfacing of the floor/ wall etc. wherever necessary with Resurfacing material.				
	a) S.I.T.C of bunch of 4 X 16 Sqmm FRLS Copper wire with 2 X 10 sq mm FRLS Copper earth to be laid together in 50mm PVC conduit from UPS Input to UPS and UPS to UPS Output DB. And connection with check nuts etc., D.B. body to be earthed with double earth. End termination of above cable with suitable Copper lugs on both side of cable (pin type)	20	Meter		

S No.	Description	QTY	Unit	Rate	Amount
	b) S.I.T.C of bunch of 4 X 6 Sqmm FRLS Copper wire with 2 X 4 sq mm FRLS Copper earth to be laid together in 40mm PVC conduit from Main panel to PDBs and 32 A Socket. And connection with check nuts etc., D.B. body to be earthed with double earth. End termination of above cable with suitable Copper lugs on both side of cable (pin type)	520	Meter		
	c) S.I.T.C of bunch of 4 X 4 Sqmm. F.R.L.S Copper flexible wires with 2 X 2.5sq mm FRLS Copper earth to be laid together in 32mm PVC conduit from Main Panel to LDBs. (body to be earthed) End termination of above wires at both ends in DBs with pin type copper lugs.	120	Meter		
	d) S.I.T.C of bunch of 2 X 6 Sqmm. F.R.L.S Copper flexible wires with 1 X 4sq mm FRLS Copper earth to be laid together in 25mm PVC conduit from UPS Output DB to UPS SDB. (body to be earthed) End termination of above wires at both ends in DBs with pin type copper lugs.	150	Meter		
	e) S.I.T.C of bunch of 2 X 4 Sqmm. F.R.L.S Copper flexible wires with 1 X 2.5 sq mm FRLS Copper earth to be laid together in 25mm PVC conduit from RPDB to 16A socket/ 25A socket. (body to be earthed) End termination of above wires at both ends in DBs with pin type copper lugs.	1140	Meter		
	f) S.I.T.C of bunch of 2 X 2.5 Sqmm. F.R.L.S Copper flexible wires with 1 X 1.5 sq mm FRLS Copper earth to be laid together in 25mm PVC conduit from RPDB to 6A DP MCB/ 6A socket. (body to be earthed) End termination of above wires at both ends in DBs with pin type copper lugs.	475	Meter		
10	S.I.T.C of I.S.I marked 1.1KV grade multi- strand F.R.L.S Copper P.V.C wires in 19/25mm Medium grade I.S.I marked PVC pipes to be laid in Underground trench/ On wall / above false ceiling / Through Modular Furniture slots etc complete with all conduit accessories like bends, tees, Junction boxes with necessary fixing hardware etc., including resurfacing of the floor/ wall etc., wherever necessary with Resurfacing material. Point wiring for Lights fans, exhaust fans 6 Amps depedent socket outlets etc., using S & I of 3 X 1.5 Sq.mm, Flexible copper FRLS multi-strand PVC copper wires in PVC conduits as described above for all the following points. Point wiring to include cost of wiring in PVC conduits & switch, sockets, boxes, plates & fixing accessories.				
	a) Single light points/ Exhaust Fan controlled by 6 Amp switch	19	No		
	b) Two light points controlled by one 6 Amp switch	30	No		
	c) Three Light points controlled by one 6 Amp Switch	60	No		

S No.	Description	QTY	Unit	Rate	Amount
	d) Dependant 6 Amp 3/5 Pin combination type Universal socket with indicator mounted on switch-box (except toilets & passages)	50	No		
	e) Fan Points	14	No		
	f) S.I.T.C of Light point with Timer for Sign board	1	No		
11	Raw & UPS points				
	a) S.I.T.C of Recessed 6 Amp 5 Pin Universal Sockets controlled by one 6 Amp Indicator switch complete with Flush surface plate for Raw Power on Work stations. (Above work table area) etc, Wires to be drawn from Wire / Cable manager/ Channel inside the work station from underground metal box containing the conduits located below the work-station. No surface conduit to be seen below work station.	106	No		
	b) S.I.T.C of 3 Nos of 6 Amp Universal Sockets controlled by one 16Amp Indicator switch housed in a Modular PVC switch box with recessed surface plate for UPS Switch pts on Work stations. (3 Nos sockets in box with surface plate will be below table. Only 16Amp Control switch for these points with Recessed Surface Plate will be above table. All wires to be drawn through cable/ wire channel inside work station. No surface conduit/ casing to be seen below work station. Conduit junction boxess should below work station table & not below chair.	106	No		
	c) S.I.T.C of Raw power point with modular 16Amp Switch and socket on modular front plate on GI box	29	No		
	d) S.I.T.C of UPS point with 2Nos modular 16Amp Switch and socket on modular front plate on GI box in server room	3	No		
	CIRCUIT WIRING (Lighting Switch Boards) + UPS Pt. + R.P. Points.				
12	S.I.T.C of 3 X 2.5 Sq mm F.R.L.S copper flexible PVC wires lain in 19/20mm Middle gauge PVC conduits laid on wall / above false ceiling / Concealed as per requirement with all accessories etc., LDB to switch boards & From UPS OPDB to work station + From R.P.D.B to R.P. Pts on work station (Maximum 2 Nos of UPS & Raw power points to be connected on one circuit.)	2000	Meter		
13	LIGHTING FIXTURES				
	a) S.I.T.C of 6.7 W LED luminaire similar to CAT NO.DN191B LED6S-6500 PSU WH S1 PHILIPS Make	30	No		
	b) S.I.T.C of 12.3W LED Luminaire similar to CAT NO.DN193B LED12S-6500 PSU WH S1 PHILIPS Make	163	No		

S No.	Description	QTY	Unit	Rate	Amount
	c) S.I.T.C of 30 W LED Luminaire similar to CAT NO RC380B LED30S-6500 L60W60 PSU PHILIPS Make	66	No		
14	Security System:				
	a) S & I of 4" X 4" Red Danger Mark Stickers 230Volt / 440 Volt etc to be fixed on all the DBs. S&I of	15	No		
	b) S & I of 4.5K.G. CO2 Fire Extinguisher	10	No		
	c) 4.5 KG ABC Fire Extinguisher	10	No		
	Earthing System				
15	a)Providing Copper Earth station, with 600X600X3mm Copper plate at 2700mm depth including construction of brick pedestal, providing meshed funnel, CI cover and other civil Engineering works, spreading a homogenous mixture of salt, charcoal around the pipe etc, completely as per IS3043, 1987 or latest revision.	2	No		
16	b) Supply and laying of following size strips including including all necessary inter connections with earth station and equipments including excavation and back filling etc complete.				
	i) 25mm x 5mm Copper strip	40	Meter		
	DG Set Accessories				
17	4 pole 315 Amp Manual on load Changeover Switch in sheet steel enclosure mounted on suitable angle iron frame for Mains to D.G. supply switching (if D.G. Back up is provided) depending upon load.	1	No		
18	LAN & Telephone Accessories				
	a) 25mm PVC conduit pipe for laying Telephone Line from Tel. Tag block to each work station.	450	Meter		
19	Supply, fixing, testing and commissioning of Telephone outlet (RJ11) with anodised GI box with front plate and plug in type telephone socket .	69	Nos		
20	Supply, laying, testing and commissioning of 2pair 0.5mm dia PVC insulated Copper conductor Telephone wire conforming to DOT Specification	2800	Meter		
21	Supply, installation, testing and commissioning of 10 pair Krone connectors in junction box complete as required.				
	a)100 pair	1	Nos		
22	Supply, laying, testing and commissioning of 50pair 0.5mm dia jelly filled copper conductor armoured cables.	100	Meter		
23	Supply and Laying of 4Pair, UTP CAT 6 Lan Cable with all connections etc All Cable Numbers to be Provided at both ends. Both ends shall be with crimping	109	Pts		
24	Supply and fixing of RJ 45 , CAT 6 Information outlets	109	Nos		

S No.	Description	QTY	Unit	Rate	Amount
25	Supply of 7 feet Patch Cords Factory Crimping CAT 6	95	Nos		
26	Supply of 3 feet Patch Cords Factory Crimping CAT 6	108	Nos		
27	Supply and Fixing of 24 Port CAT 6 Jack Panel,	4	Nos		
28	Supply and fixing of 24 Port 10/100mbps D Link Switch	4	Nos		
29	Supply and fixing of 9U Rack with Acceries(Self, Power Manager, Cable Manager, Fan etc)	3	Nos		
30	Cutting/ Chasing of Floor of following sizes of laying of Conduits as per site conditions.				
	1. 12" X 12" Size	80	No		
	2. 8" X 8" Size	80	No		
	3. 6" X 6" Size	80	No		
	4. 4" X 4" Size	80	No		
31	S & I of Metallic Boxes with Steel Surface Plates fixed with Steel screws.				
	1. 12" X 12"	10	No		
	2. 8" X 8"	10	No		
	3. 6" X 6"	10	No		
	4. 4" X 4"	10	No		
32	S.I.T.C of U-PVC Trunking with cover plate & other accessories Legrad / Precision make				
	a) S.I.T.C. of 80X 50mm DLP U-PVC trunking system with all accessories.	80	Meter		
	b) S.I.T.C. of 32X 20mm DLP U-PVC trunking system with all accessories.	80	Meter		
	c) S.I.T.C. of 32X 12.5mm DLP U-PVC trunking system with all accessories.	80	Meter		
33	Ceiling / Exhaust Fan:				
	a) S.I.T.C of 6" Exhaust Fan as per size of Toilet/ UPS/ Server Room Windows.	8	No		
	b) S.I.T.C of High Breeze 48" Ceiling fans with 100W Electronic regulator.	1	No		
	c) S.I.T.C of High Breeze 36" Ceiling fans with 100W Electronic regulator.	1	No		
	d) S.I.T.C of High Breeze 24" Ceiling fans(UPS room) with 100W Electronic regulator.	1	No		

S No.	Description	QTY	Unit	Rate	Amount
	e) S.I.T.C of 16" Wall mounted Fans - 2 Nos for Server+ UPS rooms. Only Fan Points to be provided at other locations as stated in item no.3e (Branch will provide the fans as per their need at later date)	3	No		
34	Miscellaneous Items				
	a) S.I.T.C of Bell with Bell Point for BSM/ Area Manager	5	No		
	b) S.I.T.C of Timer with MCB control for Sign Board of Branch.	1	No		
	IMPORTANT Note : Successful / L1 contractor has to strictly use only Approved Make of materials. Final as built CAD drawings (3 sets) with Measurement Sheets (D.B. to Each Switch board + DB to each AC + DB to each UPS & Raw Points etc., and clearly showing conduit routes for Lighting, UPS & Raw + LAN cabling and indicating the points looped on one circuit + Marking of UPS and RAW Pts on each work station and Pasting of Chart in each D.B. Indicating the circuit have to be enclosed with Final bill. All above requirements are mandatory without which final bill will not be processed. Payment Will be made as per Actual Measurements for which Measurement sheet is essential. No Extra items to be executed without prior intimation / approval.				
	Electrical works Total				
35	IP Phones:				
a	Supply, installation, testing and commissioning of HTEK UC902 UC902 which delivers superior HD audio quality, rich and leading edge telephony features etc. with the following features	70	Nos		
	Phone Features <ul style="list-style-type: none"> • 2 SIP accounts • Call hold, mute, DND • One-touch speed dial, hotline • Call forward, call waiting, call transfer • Redial, call return, auto answer, direct IP call • 5-way conferencing • Group listening, SMS, emergency call • Ring tone selection/provisioning • Set date time automatically or manually • Dial plan per account • RTCP-XR (RFC3611), VQ-RTCPXR (RFC6035) • Action URL/URI 				

S No.	Description	QTY	Unit	Rate	Amount
	Voice Codecs Features <ul style="list-style-type: none"> • HD voice: HD handset, HD speaker • Codecs: iLBC, G.722, G.711(A/μ), • GSM_FR, G.723, G.729AB, G.726-32 • DTMF: In-band, RFC 2833, SIP INFO • Full-duplex hands-free speakerphone with AEC • VAD, AGC, CNG, AEC, PLC, AJB Directory <ul style="list-style-type: none"> • Local phonebook up to 1000 entries • XML/LDAP remote phonebook • Intelligent search method • Phonebook search/import/export • Call history: dialed/received/missed/forwarded • Black list 				
	Feature keys <ul style="list-style-type: none"> • 2 line keys with LED • 6 features keys: mute, headset, message, • 4 context-sensitive “soft” keys • transfer, redial, speaker • 6 navigation keys • Volume control keys Interface <ul style="list-style-type: none"> • Dual-port 10/100M Ethernet • Power over Ethernet (IEEE 802.3af), class 2 • 1xRJ9 (4P4C) handset port • 1xRJ9 (4P4C) headset port Physical Features <ul style="list-style-type: none"> • Stand with 2 adjustable angles • Wall mountable • AC adapter : 100~240V input and DC 5V/1.2A output • Power consumption (PSU): 1.6~2.6W • Power consumption (PoE): 2.0~3.2W • Operating humidity: 10~95% • Operating temperature: -10~50°C 				

S No.	Description	QTY	Unit	Rate	Amount
	Management <ul style="list-style-type: none"> • Configuration: browser/LCD-Menu/auto-provision • Auto provision via HTTP/HTTPS FTP/TFTP • Auto-provision with PnP • Reset to factory, restart, reboot • Local tracing log export, system log • Phone lock for personal privacy protection Network and Security <ul style="list-style-type: none"> • SIP v1 (RFC2543), v2 (RFC3261) • SIP server/proxy redundancy • NAT Traversal: STUN mode • DHCP/static/PPPoE/IEEE802.1X/open VPN • HTTP/HTTPS web server • Time and date synchronization by SNTP • DNS-NAPTR/DNS-SRV(RFC 3263) • QoS: 802.1p/Q tagging (VLAN), Layer 3 ToS DSCP • TLS(Transport Layer Security), SRTP • HTTPS certificate manager • AES encryption for configuration file • Digest authentication using MD5/MD5-sess 				
b	Supply, installation, testing and commissioning of HTEK UC903 UC903 with superior HD audio quality, rich and leading edge telephony features, all the functions of software with the following features	12	Nos		
	Phone Features <ul style="list-style-type: none"> • 3 SIP accounts • Call hold, mute, DND • One-touch speed dial, hotline • Call forward, call waiting, call transfer • Redial, call return, auto answer, direct IP call • 5-way conferencing • Group listening, SMS, emergency call • Ring tone selection/provisioning • Set date time automatically or manually • Dial plan per account • RTCP-XR (RFC3611), VQ-RTCPXR (RFC6035) • Action URL/URI Voice Codecs Features <ul style="list-style-type: none"> • HD voice: HD handset, HD speaker • Codecs: iLBC, G.722, G.711(A/μ), • GSM_FR, G.723, G.729AB, G.726-32 • DTMF: In-band, RFC 2833, SIP INFO • Full-duplex hands-free speakerphone with AEC • VAD, AGC, CNG, AEC, PLC, AJB 				

S No.	Description	QTY	Unit	Rate	Amount
	Directory <ul style="list-style-type: none"> • Local phonebook up to 1000 entries • XML/LDAP remote phonebook • Intelligent search method • Phonebook search/import/export • Call history: dialed/received/missed/forwarded • Black list IP-PBX Features <ul style="list-style-type: none"> • Busy Lamp Field (BLF), bridged Line Appearance(BLA) • Anonymous call, anonymous call rejection • Message Waiting Indicator (MWI) , voice mail • Intercom, paging • Call park, call pickup • Music on hold • Hot-desking Display and Indicator <ul style="list-style-type: none"> • 192x64 pixel graphical LCD with backlight • LED for call and message waiting indication • Illuminated LEDs for line status information • Intuitive user interface with icons and soft keys • National language selection • Caller ID with name, number 				
	Feature keys <ul style="list-style-type: none"> • 6 line keys with LED • Paperless DSS keys up to 20 various features • 8 features keys: voice mail, headset, mute, • 4 context-sensitive “soft” keys • speaker, conference, hold, transfer, redial, • 6 navigation keys • Volume control keys Interface <ul style="list-style-type: none"> • Dual-port 10/100M Ethernet • Power over Ethernet (IEEE 802.3af), class 2 • 1xRJ9 (4P4C) handset port • 1xRJ9 (4P4C) headset port Physical Features <ul style="list-style-type: none"> • Stand with 2 adjustable angles • Wall mountable • AC adapter : 100~240V input and DC 5V/1.2A output • Power consumption (PSU): 1.6~2.6W • Power consumption (PoE): 2.0~3.2W • Operating humidity: 10~95% • Operating temperature: -10~50°C 				

S No.	Description	QTY	Unit	Rate	Amount
	Management <ul style="list-style-type: none"> • Configuration: browser/LCD-Menu/auto-provision • Auto provision via HTTP/HTTPS FTP/TFTP • Auto-provision with PnP • Reset to factory, restart, reboot • Local tracing log export, system log • Phone lock for personal privacy protection Network and Security <ul style="list-style-type: none"> • SIP v1 (RFC2543), v2 (RFC3261) • SIP server/proxy redundancy • NAT Traversal: STUN mode • DHCP/static/PPPoE/IEEE802.1X/open VPN • HTTP/HTTPS web server • Time and date synchronization by SNTP • DNS-NAPTR/DNS-SRV(RFC 3263) • QoS: 802.1p/Q tagging (VLAN), Layer 3 ToS DSCP • TLS(Transport Layer Security), SRTP • HTTPS certificate manager • AES encryption for configuration file • Digest authentication using MD5/MD5-sess 				
c	Supply of IP PBX for Up to 200 Extensions Up to 60 Simultaneous Calls Up to 40 Simultaneous Conference Attendees Up to 36 Call Queues Up to 36 Conference Rooms Recording up to 150 hrs (WAV) Recording up to 1500 hrs (GSM) Automatic Recording/One Touch Recording CDR (Call Detailed Recording) Multi-layer IVR (Interactive Voice Response) TDM/SIP/IAX Extensions/trunks Flexible Inbound/Outbound Routing Time-based Routing Remote Extensions & Remote Offices Paging & Intercom Video Call Call Forward/Transfer Web Extension (WebRTC) Follow Me DND (Do Not Disturb) Ring Groups Pick-up Groups DISA (Direct Inward System Access) Virtual Fax Voicemail to Email/Fax to Email One Number Stations Smart DID Media	1	Nos		
	Audio Codecs: G.722/G.711-Ulaw/G.711-Alaw/G.726/G.729/GSM/SPEEX Video Codecs: H.261/H.263/H.263+/H.264 Fax: T.38 (pass through)				
	Network & Protocols IPv4, IPv6, VLAN, DHCP, PPPoE, DDNS, SNMPv2, NTP, SNTP, TFTP, SSH, HTTPS, SRTP, TLS, LDAP, TR069				
	Security HTTPS, Fail2Ban, Permit IP, Whitelist, Blacklist VPN Server (PPTP, L2TP, OpenVPN, IPSec) VPN Client (N2N, PPTP, L2TP, OpenVPN, IPSec)				
36	IP Cameras:				
a	Supply of IP Camera with 5MP with 30mtrs distance IP 360 rated water proof with reset button including cost and installation of all materials	5	Nos		
b	Supply of NVR 8-ch nvr 8 channel net video recorder	1	Nos		
c	Seagate Hard disk with all connectors	1	Nos		

S No.	Description	QTY	Unit	Rate	Amount
37	Motion Sensor:				
a	Supply of Motion detecting pir sensor	13	Nos		
	Installation charges including all labour, accessories and materials complete including testing and commissioning		LS		
	For IP phones & cameras				
38	Sound system with Mics				
a	Supply, fixing, tyesting & commissioning of Sound system with for Conference room and Training hall including cost of labour and installation of all materials etc., for complete work.				
	Sony VPL- CH 370 3 LCD projector (5000 ANSI LUMENS OF WUXGA, HD)	1	Nos		
	8'X5'6" Reverb Motorized screen 16:10	1	Nos		
	Beyer dynamic classis GM 305 Gooseneck micro phones	11	Nos		
	BEYER dynamic GM 33S BASE UNIT FOR GOOSE NECK MICS WITH ON/OFF	11	Nos		
	Biamp tesira forte AVB CI external codec conferencing	1	Nos		
	Biamp AMP -A 460H Amplifier	1	Nos		
	QSC AC-C6T in-ceiling speakers: System Details AC-C6T Effective frequency range1 65 Hz – 20 kHz Rated noise power / voltage2 30 watts / 15.5 volts (RMS) Broad-band sensitivity3 89 dB SPL Coverage angle (-6 dB) 110° (500 Hz - 5 kHz) Maximum continuous SPL4 104 dB Maximum peak SPL4 110 dB, Rated bypass impedance 8 ohms, Transformer taps 70 V: 30, 15, 7.5, 3.7, 1.9 watts 100 V: 30, 15, 7.5, 3.8 watts, 8 ohm bypass HF transducer 22 mm [.86 in] silk dome tweeter, coaxially mounted, LF transducer 152 mm [6 in] Polypropylene cone with butyl rubber surround, Input connector type Euro block connector with parallel output terminals, Baffle material Painted ABS polymer, Grille material Painted steel, Back can material Galvanized steel, Testing Listed UL1480, UL2043 safe for use in air handling space, Net weight 3.5 kg [7.6 lb], Product dimensions Ø260 x 213 mm [Ø10.24 x 8.4 in], Cut-out Dimensions Ø229 mm [Ø9 in], Ceiling Capture Thickness 6.35 - 38.1 mm [0.25 - 1.5 in], Included accessories Rails & C-ring for ceiling tile installation, 1 Half-space, -10 dB from on-axis sensitivity 2 IEC60268-1 noise signal for 2 Hrs, 3 On-Axis, half-space sensitivity, 2.83V, 1 m 4 Calculated from rated noise voltage and sensitivity	13	Nos		
	ATEN 4x2 HDMI SWITCHER VS482	1	Nos		
	ATEN 4x4 VGA/AUDIO SWITCHER VM0404	1	Nos		
	KRAMER PRESENTATION SCALER VP461	1	Nos		
	LOGIC CABLE CUBBIES	3	Nos		
	DAC SPEAKER CABLE SPK 16	50	MTRS		
	DAC HDMI CABLE 15MTRS	1	Nos		
	DAC HDMI CABLE 10MTRS	2	Nos		
	VGA CABLE 10MTRS	2	Nos		
	DAC HDMI CABLE 5MTRS	2	Nos		
	VGA CABLE 5MTRS	2	Nos		
	DAC HDMI CABLE 3MTRS	1	Nos		

S No.	Description	QTY	Unit	Rate	Amount
	VGA CABLE 3MTRS	1	Nos		
	NT AUDIO CABLE	110	MTRS		
	UNIVERSAL CEILING MOUNT KIT	1	Nos		
	INTERCONNECT CABLES AND CONNECTORS	1	SET		
	SUBTOTAL				
b	SECOND FLOOR TRAINING ROOM				
	SONY VPL- EW 578 3 LCD projector (4200 ANSI LUMENS OF WUXGA, HD)	1			
	10'X6'3" REVERB MOTORIZED SCREEN 16:10	1	NOS		
	SHURE PODIUM MIC	1	NOS		
	SHURE CORDLESS HAND MIC	2	NOS		
	SHURE CORDLESS COLLAR MIC	1	NOS		
	APART AUDIO MASK6T WALL MOUNTED SPEAKERS	8	NOS		
	APART AUDIO PA2240BPDUAL CHANNEL POWER AMPLIFIER	1	NOS		
	YAMAHA MG 16XU MIXER	1	NOS		
	DAC SPEAKER CABLE SPK 16	200	MTRS		
	DAC HDMI CABLE 20 MTRS	2	NOS		
	VGA CABLE 20 MTRS	2	NOS		
	NT AUDIO CABLE	110	MTRS		
	UNIVERSAL CEILING MOUNT KIT	1	NOS		
	INTERCONNECT CABLES AND CONNECTORS	1	SET		
	SUBTOTAL				
39	Supply, fixing, testing & commissioning of Security Access Control System including labour and installation of all materials etc., for complete work.				
	Finger print and EM Prox card based door controller with battery backup and charger (Entry door controller) optical finger print and EM proximity card based reader, Supports access control and time - attendance, IP 65 Rating (Water proof), 50,000 events and 9600 finger print template storage, Built in power over ethernet (POE), Built in door lock port, Door sense port, Exit reader, Exit switch port, RS-485 and Ethernet interfaces, Tri color LED and Buzzer, 12VDC Power supply through adapter or Battery backup.	3	Nos		
	Finger print and EM Prox card based door reader (Exit Reader) optical finger print and EM Proximity card based reader, Wiegand / Rs-232 Interface IP 65rating (Waterproof) Tamper detection, Tricolor LED Buzzer, 12VDC Power supply through adapter or Battery backup. Compatible with any COSEC Door controllers (Except COSEC DOOR FOT)	3	Nos		
	Matrix USB Dongle	1	Nos		
	Matrix cosec GE Platform with 100 Users and expandable upto 500 users	1	Nos		
	Matrix Cosec user 100	1	Nos		
	Matrix Cosec GE ATM - Time attendance management application	1	Nos		
	Matrix Cosec GE ACM - Access Control Management application	1	Nos		
	Single wood door EM Lock	1	Nos		

S No.	Description	QTY	Unit	Rate	Amount
	Total				
	GRAND TOTAL				
40	FIRE ALARM SYSTEM				
1	Supply, Testing and commissioning of the following number of Loops Microprocessor based addressable type (EN / UL approved) Fire alarm control panel with Zonal Indications, supervised inputs, supervised and non-supervised outputs, Zener barriers, two way media converter / Signal booster for in / out network connectivity with OF cable and with battery Power pack as per specifications.				
	a) 2 - Loop	1	Nos		
	MULTI SENSOR DETECTORS				
2	Supply installation, testing and commissioning of analog addressable type multi sensor (smoke / heat) photo electric detectors with LED indication lamp.	144	Nos		
	ELECTRONIC HOOTERS:				
3	Supply, Installation, Testing and commissioning of analog addressable sounders with all fixing accessories.	6	Nos		
	MANUAL CALL POINTS:				
4	Supply and Installation of analogue addressable type Pull type Manual call Stations with monitor module	4	Nos		
	FAULT ISOLATION MODULE:				
5	Supply and installation fault isolator modules along with all fixing accessories.	4	Each		
	CABLE:				
6	Supplying, testing and commissioning of 1100V grade FIRE RESISTANCE LOW SMOKE PVC copper conductor twisted pair cables.				
	a) 25mm dia Heavy gauge FRLS PVC conduit	500	Rmt		
	b) Supply, laying, testing and commissioning of 2C x 1.5 sq.mm cable of 1.1 KV Grade XLPE , insulated, sheathed steel armoured with Copper Conductor Power Cables (YWY) should conform to IS 1554 (Part I). The rates quoted for laying shall include laying of cables on surface with saddles, screws etc. including material and labour charges etc complete as per site requirement.	500	Rmt		
7	Supply and fixing of Escape signage boards in Rigid Photo luminescent based glow in Dark rigid sheet with high intensity luminous properties with specification.	10	Nos		
8	Supply and installation testing & commissioning of Input module. The rates quoted for laying shall include laying of cables on surface with saddles, screws including material and labour charges etc complete as per site requirement.	3	Nos		
9	Supply and installation of addressable Monitor module along with all fixing accessories.	11	Nos		

S No.	Description	QTY	Unit	Rate	Amount
10	Supply, installation, testing and commissioning of Response indicators with all required accessories etc., complete.	72	Nos		
	FIRE ALARM SYSTEM SUB TOTAL				
41	FIRE FIGHTING				
	SPRINKLER SYSTEM				
1	FLEXIBLE DROP CONNECTION				
	Supplying, installing, testing and commissioning flexible drop connections with 1.0 Mtr length to connect the pendent type Sprinkler	220	nos		
	FIRE FIGHTING SUB TOTAL				