

Item No-3 Networking : Supply, installation and commissioning of following equipment:

A	Active Components
B	Passive Components
C	Integration Components Supply
D	Installation & Integration Services
E	CCTV Components
F	EPABX Components
G	Bio Metric Components

* All Components should carry warranty.

** Onsite Technical support should be extended for one year.

A-Active Components

S. No.	Item	Unit	Qty
1	24 port Gigabit switch with 4 x 1G SFP As per Detailed Specifications Listed under Section A.1	Nos.	12
1 a	8 x 5 x NBD Hardware replacement warranty for 1 Year Directly provided by the principal manufacturer	Nos	12
2	24 port Gigabit PoE 370W switch, 4 x 1G SFP As per Detailed Specifications Listed under Section A.2	Nos.	2
2 a	8 x 5 x NBD Hardware replacement warranty for 1 Year Directly provided by the principal manufacturer		
3	8 Port Gigabit Ethernet switch with 2 x 1G copper or 2 x 1G SFP with Rack mounting KIT . As per Detailed Specifications Listed under Section A.3	Nos.	4
3a	8 x 5 x NBD Hardware replacement warranty for 1 Year Directly provided by the principal manufacturer		
4	1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM As per Detailed Specifications Listed under Section A.4	Nos.	8

** All Active Components should cover one year warranty

A - Technical specification:

(The Technical compliance Statements need to be duly filled against each line item and should be attached along with the Technical Bid duly signed and stamped failing which the tender is liable to be rejected)

A - Active Components

A.1. – Specifications for Access Switches

Make :

Model :

Serial No.1 (24 x10/100/1000 Mbps L2 Switch	Compliance	Remarks
The switch should support a minimum of 24 nos. 10/100/1000 Ethernet Ports		
The switch should support a minimum of 4*1G SFP uplinks		
The switch should support a total of 28 Ports		
The switch should support flexibility to configure hardware resource (TCAM) allocation for different features.		
The switch should support Forwarding bandwidth of 108 Gbps		
The switch should support Full-duplex Switching bandwidth of 216 Gbps		
The switch should support 64-Byte Packet Forwarding Rate of 71.4 Mpps		
The switch should support a Dual Core CPU		
The switch should support 128 MB of Flash memory		
The switch should support 512 MB of DRAM		
The switch should support 1023 Active VLANs		
The switch should support 4096 VLAN IDs		
The switch should support Jumbo frames of 9216 bytes		
The switch should support Maximum transmission unit (MTU) of 9198 bytes		
The switch should support up to 16000 Unicast MAC addresses		
The switch should be 1 RU.		
The switch shall support Stacking		
Stacking should enable all switches to function as a single virtual switch		
The switch shall have dedicated Stacking Port		
Stacking module should be Hot-swappable		
Stacking should support a minimum of 8 Switches		
Stacking should support 80 Gbps of bi-directional throughput		
Stack should support automatic upgrade when the master switch receives a new software version		
The switch should support configurable egress buffer allocation for different queues on the stack ports		
The switch should be stackable with older switch models that use similar stacking technology		

The switch should support an auto-ranging power supply with input voltages between 100 and 240V AC		
The switch should support an External Redundant Power Supply in future		
The switch should support variable speed fan		
The switch should support IEEE 802.1D, 802.1p,802.1Q,802.1S and 802.1w		
The switch should support IEEE 802.1x		
The switch should support IEEE 802.1ab (LLDP)		
The switch should support IEEE 802.3ad Link Aggregation Control Protocol (LACP)		
The switch should support RMON I and II standards		
The switch should support SNMP v1, v2c, and v3		
The switch should be IPv6 Certified		
The switch should support RFC 951 - Bootstrap Protocol (BOOTP)		
The switch should support RFC 1112 - IP Multicast and IGMP		
The switch should support RFC 1305 - NTP for accurate and consistent timestamp		
The switch should support RFC 1757 - RMON (history, statistics, alarms, and events)		
The switch should support RFC 1981 - Maximum Transmission Unit (MTU) Path Discovery IPv6		
The switch should support RFC 2461 - IPv6 Neighbor Discovery		
The switch should support RFC 2462 - IPv6 Auto configuration		
The switch should support RFC 2474 - Differentiated Services (DiffServ) Precedence		
The switch should support RFC 3376 - IGMP v3		
The switch should support RFC 3580 - 802.1X RADIUS		
The switch should support Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors		
The switch should support Centralized VLAN Management. VLANs created on the Core Switches should be propagated automatically		
The switch should support UplinkFast & BackboneFast technologies to help ensure quick failover recovery, enhancing overall network stability and reliability		
The switch should support Spanning-tree root guard to prevent other edge switches becoming the root bridge.		
The switch should support IGMP filtering		
The switch should support Per-port multicast storm control to prevent faulty end stations from degrading overall systems performance		

The switch should support Voice VLAN to simplify IP telephony installations by keeping voice traffic on a separate VLAN		
The switch should support Local Proxy Address Resolution Protocol (ARP) working in conjunction with Private VLAN Edge to minimize broadcasts and maximize available bandwidth.		
The switch should support IGMP v1, v2 and v3 Snooping		
The switch should support IGMP v1, v2 Filtering		
The switch should support MVR (Multicast VLAN Registration)		
The switch should support IGMP v1, v2 and v3 Snooping		
The switch should support IGMP v1, v2 Filtering		
The switch should support MVR (Multicast VLAN Registration)		
The switch should support Software image update and switch configuration without user intervention		
The switch should support automatic configuration of switch port as devices connects		
The switch should support real-time alerts and remediation advice when an issue is detected.		
The switch should prevent booting any counterfeit images		
The Switch should support signed images		
The switch should support 4 or 8 configurable egress queues per port to enable differentiated management		
The switch should support class map based traffic differentiation with in the same queue		
The switch should support shared egress buffers for all the ports		
The switch should support dedicated egress buffers reserved for each ports		
The switch should support scheduling techniques for QoS		
The switch should support Weighted tail drop (WTD) to provide congestion avoidance		
The switch should support CoS/dscp remarking		
The switch should support Standard 802.1p CoS field classification		
The switch should support Differentiated services code point (DSCP) field classification		
The switch should support Control- and Data-plane QoS ACLs		
The switch should support Strict priority queuing mechanisms		
The switch should support Rate Limiting function to guarantee bandwidth		
The switch should support rate limiting based on source and destination IP address		

The switch should support rate limiting based on source and destination MAC address		
The switch should support rate limiting based on Layer 4 TCP and UDP information		
The switch should support availability of up to 256 aggregate or individual polices per port.		
The switch should support QoS on the stack ports		
The switch should support QoS configuration across the entire stack		
The switch should support queue level statistics of dropped and enqueued frames for each port		
The switch should support Command Line Interface (CLI) support for configuration & troubleshooting purposes.		
The switch should support four RMON groups (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis		
The switch should support Telnet interface support for comprehensive in-band management of-band management.		
The switch should support SSH for secure access		
The switch should support SCP for secure file transfer		
The switch should support 2 USB ports for external storage		
The switch should support solutions that monitors and conserves energy with customized policies		
The switch should support reduction of greenhouse gas (GhG) emissions		
The switch should support an increase in energy Cost savings		
The switch should support Intelligent power management		
The switch should support measuring of energy between itself and endpoints		
The switch should support control of energy between itself and endpoints		
The switch should support discovery of manageable devices for Energy measurement		
The switch should support support monitoring of power consumption of endpoints		
The switch should support hibernation mode to save power when switch is idle		
The switch should support IEEE 802.1x authentication for dynamic port-based security.		
The switch should support MAB based authentication (MAB)		
The switch should support Web based authentication (Web-auth)		

The switch should support Port-based ACLs for Layer 2 interfaces to allow application of security policies on individual switch ports.		
The switch should support downloading user level ACL polices (dACL) defined on the RADIUS server during authentication		
The switch should support precise access controls based on role, device, location or a combination of all		
The switch should support SSHv2 and SNMPv3 to provide network security by encrypting administrator traffic during Telnet and SNMP sessions.		
The switch should support TACACS+ and RADIUS authentication enable centralized control of the switch and restrict unauthorized users from altering the configuration.		
The switch should support MAC address notification to allow administrators to be notified of users added to or removed from the network.		
The switch should support Port security to secure the access to an access or trunk port based on MAC address.		
The switch should support Multilevel security on console access to prevent unauthorized users from altering the switch configuration.		
The switch should support Private VLAN		
The switch should support faster authentication by triggering all the supported authentication methods simultaneously		
The switch should support implementation of 802.1x without affecting user traffic to confirm network readiness for 802.1x transition		
The switch should support 8021.X monitor mode, facilitate smoother transition to 802.1X deployment.		
The switch should support MAC based VLAN assignment which allows per user VLAN assignment on Multi-auth port.		
The switch should support DHCP Interface Tracker (Option 82) feature to augment a host IP address request with the switch port ID.		
The switch should support DHCP Option 82 - Configurable Remote ID and Circuit ID		
The switch should support DHCP Snooping Statistics and SYSLOG		
The switch should support IPv4 Static routes		
The switch should be on the approved list of IPv6 Ready Logo phase II - Host		
The switch should support IPv6 unicast Static Routing		
The switch should support IPv6 Static routes		
The switch should support IPv6 MLDv1 & v2 Snooping		

The switch should support IPv6 QoS		
The switch should support SCP/SSH over IPv6		
The switch should support Radius over IPv6		
The switch should support TACACS+ over IPv6		
The switch should support NTPv4 over IPv6		

A.2. – Specifications for PoE Switches

Make:

Model :

Serial No. 2 (24x10/100/1000 Mbps L2 PoE Switch	Compliance	Remarks
The switch should support a minimum of 24 nos. 10/100/1000 POE Ethernet Ports		
The switch should support a minimum of 4*1G SFP Uplinks		
The switch should support a total of 28 Ports		
The switch should support flexibility to configure hardware resource (TCAM) allocation for different features.		
The switch should support Forwarding bandwidth of 108 Gbps		
The switch should support Full-duplex Switching bandwidth of 216 Gbps		
The switch should support 64-Byte Packet Forwarding Rate of 71.4 Mpps		
The switch should support a Dual Core CPU		
The switch should support 128 MB of Flash memory		
The switch should support 512 MB of DRAM		
The switch should support 1023 Active VLANs		
The switch should support 4096 VLAN IDs		
The switch should support Jumbo frames of 9216 bytes		
The switch should support Maximum transmission unit (MTU) of 9198 bytes		
The switch should support up to 16000 Unicast MAC addresses		
The Switch Should have a POE budget of 370W		
The switch should support IEEE 802.3af Power over Ethernet from day one		
The switch should support IEEE 802.3af Power Classification from day one		

The switch should support IEEE 802.3at Power over Ethernet + from day one		
The switch should be 1 RU.		
The switch shall support Stacking		
Stacking should enable all switches to function as a single virtual switch		
The switch shall have dedicated Stacking Port		
Stacking module should be Hot-swappable		
Stacking should support a minimum of 8 Switches		
Stacking should support 80 Gbps of bi-directional throughput		
Stack should support automatic upgrade when the master switch receives a new software version		
The switch should support configurable egress buffer allocation for different queues on the stack ports		
The switch should be stackable with older switch models that use similar stacking technology		
The switch should support an auto-ranging power supply with input voltages between 100 and 240V AC		
The switch should support an External Redundant Power Supply in future		
The switch should support variable speed fan		
The switch should support IEEE 802.1D, 802.1p,802.1Q,802.1S and 802.1w		
The switch should support IEEE 802.1x		
The switch should support IEEE 802.1ab (LLDP)		
The switch should support IEEE 802.3ad Link Aggregation Control Protocol (LACP)		
The switch should support RMON I and II standards		
The switch should support SNMP v1, v2c, and v3		
The switch should be IPv6 Certified		
The switch should support RFC 951 - Bootstrap Protocol (BOOTP)		
The switch should support RFC 1112 - IP Multicast and IGMP		
The switch should support RFC 1305 - NTP for accurate and consistent timestamp		
The switch should support RFC 1757 - RMON (history, statistics, alarms, and events)		
The switch should support RFC 1981 - Maximum Transmission Unit (MTU) Path Discovery IPv6		

The switch should support RFC 2461 - IPv6 Neighbor Discovery		
The switch should support RFC 2462 - IPv6 Auto configuration		
The switch should support RFC 2474 - Differentiated Services (DiffServ) Precedence		
The switch should support RFC 3376 - IGMP v3		
The switch should support RFC 3580 - 802.1X RADIUS		
The switch should support Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors		
The switch should support Centralized VLAN Management. VLANs created on the Core Switches should be propagated automatically		
The switch should support UplinkFast & BackboneFast technologies to help ensure quick failover recovery, enhancing overall network stability and reliability		
The switch should support Spanning-tree root guard to prevent other edge switches becoming the root bridge.		
The switch should support IGMP filtering		
The switch should support Per-port multicast storm control to prevent faulty end stations from degrading overall systems performance		
The switch should support Voice VLAN to simplify IP telephony installations by keeping voice traffic on a separate VLAN		
The switch should support Local Proxy Address Resolution Protocol (ARP) working in conjunction with Private VLAN Edge to minimize broadcasts and maximize available bandwidth.		
The switch should support IGMP v1, v2 and v3 Snooping		
The switch should support IGMP v1, v2 Filtering		
The switch should support MVR (Multicast VLAN Registration)		
The switch should support IGMP v1, v2 and v3 Snooping		
The switch should support IGMP v1, v2 Filtering		
The switch should support MVR (Multicast VLAN Registration)		
The switch should support Software image update and switch configuration without user intervention		
The switch should support automatic configuration of switch port as devices connects		

The switch should support real-time alerts and remediation advice when an issue is detected.		
The switch should prevent booting any counterfeit images		
The Switch should support signed images		
The switch should support 4 or 8 configurable egress queues per port to enable differentiated management		
The switch should support class map based traffic differentiation with in the same queue		
The switch should support shared egress buffers for all the ports		
The switch should support dedicated egress buffers reserved for each ports		
The switch should support scheduling techniques for QoS		
The switch should support Weighted tail drop (WTD) to provide congestion avoidance		
The switch should support CoS/dscp remarking		
The switch should support Standard 802.1p CoS field classification		
The switch should support Differentiated services code point (DSCP) field classification		
The switch should support Control- and Data-plane QoS ACLs		
The switch should support Strict priority queuing mechanisms		
The switch should support Rate Limiting function to guarantee bandwidth		
The switch should support rate limiting based on source and destination IP address		
The switch should support rate limiting based on source and destination MAC address		
The switch should support rate limiting based on Layer 4 TCP and UDP information		
The switch should support availability of up to 256 aggregate or individual polices per port.		
The switch should support QoS on the stack ports		
The switch should support QoS configuration across the entire stack		
The switch should support queue level statistics of dropped and enqueued frames for each port		
The switch should support Command Line Interface (CLI) support for configuration & troubleshooting purposes.		

The switch should support four RMON groups (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis		
The switch should support Telnet interface support for comprehensive in-band management of-band management.		
The switch should support SSH for secure access		
The switch should support SCP for secure file transfer		
The switch should support 2 USB ports for external storage		
The switch should support solutions that monitors and conserves energy with customized policies		
The switch should support reduction of greenhouse gas (GhG) emissions		
The switch should support an increase in energy Cost savings		
The switch should support Intelligent power management		
The switch should support measuring of energy between itself and endpoints		
The switch should support control of energy between itself and endpoints		
The switch should support discovery of manageable devices for Energy measurement		
The switch should support support monitoring of power consumption of endpoints		
The switch should support hibernation mode to save power when switch is idle		
The switch should support IEEE 802.1x authentication for dynamic port-based security.		
The switch should support MAB based authentication (MAB)		
The switch should support Web based authentication (Web-auth)		
The switch should support Port-based ACLs for Layer 2 interfaces to allow application of security policies on individual switch ports.		
The switch should support downloading user level ACL polices (dACL) defined on the RADIUS server during authentication		
The switch should support precise access controls based on role, device, location or a combination of all		

The switch should support SSHv2 and SNMPv3 to provide network security by encrypting administrator traffic during Telnet and SNMP sessions.		
The switch should support TACACS+ and RADIUS authentication enable centralized control of the switch and restrict unauthorized users from altering the configuration.		
The switch should support MAC address notification to allow administrators to be notified of users added to or removed from the network.		
The switch should support Port security to secure the access to an access or trunk port based on MAC address.		
The switch should support Multilevel security on console access to prevent unauthorized users from altering the switch configuration.		
The switch should support Private VLAN		
The switch should support faster authentication by triggering all the supported authentication methods simultaneously		
The switch should support implementation of 802.1x without affecting user traffic to confirm network readiness for 802.1x transition		
The switch should support 802.1X monitor mode, facilitate smoother transition to 802.1X deployment.		
The switch should support MAC based VLAN assignment which allows per user VLAN assignment on Multi-auth port.		
The switch should support DHCP Interface Tracker (Option 82) feature to augment a host IP address request with the switch port ID.		
The switch should support DHCP Option 82 - Configurable Remote ID and Circuit ID		
The switch should support DHCP Snooping Statistics and SYSLOG		
The switch should support IPv4 Static routes		
The switch should be on the approved list of IPv6 Ready Logo phase II - Host		
The switch should support IPv6 unicast Static Routing		
The switch should support IPv6 Static routes		
The switch should support IPv6 MLDv1 & v2 Snooping		
The switch should support IPv6 QoS		
The switch should support SCP/SSH over IPv6		
The switch should support Radius over IPv6		

The switch should support TACACS+ over IPv6		
The switch should support NTPv4 over IPv6		

A.3. – Specifications for Access Switches

Make:

Model :

Serial No. 3 (8x10/100/1000 Mbps L2 Switch				
SN	Technical Specification		Compliance	Remarks
1	General Features	Switch should have 8 no's 10/100/1000 Etherne Access Ports and 2x1Gbps SFP &2x10/100/1000 Mbps Uplink Ports		
2	Performance and Scalability	should support 24Gbps Switching bandwidth with line rate performance		
		Should support Forwarding Rate of 17 Mpps		
		128 MB of Flash memory & 512 MB DRAM		
		Support 255 VLANs & 4K VLAN IDs		
		16000 Unicast MAC addresses		
		Shall be 19 inch Rack mountable		
3	Standards	Should support Static routes and full IPv6		
		IEEE 802.1D Spanning Tree Protocol, 802.1p, 802.1Q , 802.1s, 802.1W, 802.1x, 802.1AB		
		RMON I and II standards		
4	Layer-2 Features	SNMP v1, v2c, and v3		
		Should support following L2 features		
		IEEE 802.1Q VLAN encapsulation		
		UplinkFast & BackboneFast technologies to help ensure quick failover recovery, enhancing overall network stability and reliability		
		Spanning-tree root guard to prevent other edge swicthes becoming the root bridge.		
		IGMP filtering		
4	Layer-2 Features	Discovery of the neighboring device of the same vendor giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems.		
		Per-port Multicast & broadcaststorm control to prevent faulty end stations from degrading overall systems performance		

		Voice VLAN to simplify IP telephony installations by keeping voice traffic on a separate VLAN		
		Auto-negotiation on all ports to automatically selects half- or full-duplex transmission mode to optimize bandwidth		
		Unidirectional Link Detection Protocol (UDLD) and Aggressive UDLD to allow for unidirectional links caused by incorrect fiber-optic wiring or port faults to be detected and disabled on fiber-optic interfaces.		
		Local Proxy Address Resolution Protocol (ARP) working in conjunction with Private VLAN Edge to minimize broadcasts and maximize available bandwidth.		
		MVR (Multicast VLAN Registration)		
5	Quality of Service (QoS) & Control	Switch should support following quality of features		
		4 egress queues per port to enable differentiated management		
		scheduling techniques for Qos		
		Weighted tail drop (WTD) to provide congestion avoidance		
		Standard 802.1p CoS field classification		
		Differentiated services code point (DSCP) field classification		
		Strict priority queuing mechanisms		
6	Network security features	IEEE 802.1x to allow dynamic, port-based security, providing user authentication.		
		Port-based ACLs for Layer 2 interfaces to allow application of security policies on individual switch ports.		
		SSHv2 and SNMPv3 to provide network security by encrypting administrator traffic during Telnet and SNMP sessions.		
		TACACS+ and RADIUS authentication enable centralized control of the switch and restrict unauthorized users from altering the configuration.		
		MAC address notification to allow administrators to be notified of users added to or removed from the network.		
		Port security to secure the access to an access or trunk port based on MAC address.		
7	L3 features	Switch should support IPv4 & IPv6 Static		

		routes		
8	DHCP Features	DHCP snooping to allow administrators to ensure consistent mapping of IP to MAC addressesDHCP binding database, and to rate-limit the amount of DHCP traffic that enters a switch port.		
		DHCP Interface Tracker (Option 82) feature to augment a host IP address request with the switch port ID.		
9	IPv6 Security	Should support IPv6 First-Hop Security		
		IPv6 First Hop Security: RA Guard		
		IPv6 First Hop Security: DHCP Guard		
10	Management	IPv6 First Hop Security: IPv6 Binding Integrity Guard		
		CLI, console, Telnet, SSH and Web Management		
		SNMP v1, v2c, and v3		

A.4. – Specifications for SFP Module

Serial No. 4 (SFP Modules)		
Specification	Compliance	Remarks
The proposed module shall be 1000BASE-LX/LH SFP, Module supports a link length of 10 kilometers on standard single-mode fiber (SMF, G.652). The Network switches & modules should be from the same OEM.		

B - Passive Components

Sr. No.	Item	Unit	Qty
A	Fiber		
1	12 Core Fiber Cable - Single Mode As per Detailed Specifications Listed under Section B1.1	mtrs.	800
2	24 Port LIU - Shelf fully loaded As per Detailed Specifications Listed under Section B1.2	nos.	2
3	Pigtails - LC Style – SM As per Detailed Specifications Listed under Section B1.3	nos.	24
4	LC-LC Patch Cords – SM As per Detailed Specifications Listed under Section B1.4	nos.	8

B UTP

Sr. No.	Item	Unit	Qty
1	CAT6 UTP cable box As per Detailed Specifications Listed under Section B1.5	NO	16
2	CAT6 UTP Patch Panel -24 Port Fully Loaded As per Detailed Specifications Listed under Section B1.6	NO	14
3	CAT6 IO As per Detailed Specifications Listed under Section B1.7	NO	277
4	Face Plate-Single	NO	277
5	Back Box	NO	277
6	CAT6 UTP PATCH CORD:3 Feet As per Detailed Specifications Listed under Section B1.8	NO	277
7	CAT6 UTP PATCH CORD:7 feet As per Detailed Specifications Listed under Section B1.9	NO	300

B1-Specifications for Passive Components

B1.1- - Fiber Optic Cable Outdoor for Backbone

Make :

Specification	Compliance Yes / No	Remarks
Physical Specifications		
Fiber Count 12 Core		
Core Diameter – 8.3 microns		
Cladding Diameter -125.0 m (0.7) microns		
Core/Cladd Offset – 5 microns		
Cladding Non Circularity – 1%		

Coated Fiber Diameter- 245 (10) microns		
Cladding/Coating Offset - 12 microns		
Colored Fiber Diameter 254 (7) microns		
Proof Test - 0.7 Gpa		
Fiber Curl - > 4 microns		
Dynamic Fatigue Parameter □ 18		
Macrobend (100 turns, 50 mm mandrel) 0.10dB @ 1310nm, 0.10dB @ 1550nm		
Macrobend (1 turn on a 32mm mandrel) 0.50 db @ 1310 nm and @ 1550 nm		
Outer Diameter Inches. (mm) – 0.51(13.1)		
Weight lbs/ft (Kg/km) - 103 (177)		
<i>Minimum Bend Radius Inch(cm)</i>		
Loaded 10.3(26.2)		
Unloaded 5.1 (13.1)		
<i>Max. Tensile Load lbs(Newtons)</i>		
Short Term 607(2700)		
Long Term 180(800)		
Maximum Vertical Raise Feet(Meters) 1754(535)		
Optical Specifications		
Mode Field Diameter 9.2 Micron (0.3) @ 1310 nm 10.4 (nominal) @ 1550 nm		
Group Index of Refraction 0.92 @ 1310nm 1383(3)nm,1467 @1550nm		

Attenuation	0.35 db/km @ 1310nm 0.24 db/km @ 1550nm		
Maximum Dispersion	2.8 ps/nm-km 1285 tp 1330 nm		
Zero Dispersion Wavelength	1300-1322 nm		
Zero Dispersion Slope ps/((nm) ² km)	0.092		
Polarization Mode Dispersion LDV ps/(km) ^{1/2}	0.08		

Specification	Compliance Yes / No	Remarks
Environmental & Mechanical Specifications		
Operating Temperature	40 ⁰ to +70 ⁰ C	
Installation Temperature	-30 ⁰ to +60 ⁰ C	
Storage Temperature	-40 ⁰ to +75 ⁰ C	
Crush Resistance	44 N / Min	
Standards & Other Specifications		
The cables shall be designed for point to point applications as well as mid-span access, and provide a high-level of protection for fiber installed in the outside plant Environment		
The cable shall armored with a corrugated polymer coated steel tape		
The singlemode fiber shall be dispersion-unshifted, fiber which meets the ITU-T G.652c requirements		
Shall be fully capable of handling existing and legacy singlemode applications which traditionally		

operate in the 1310nm and 1550nm regions.		
The fiber cable shall be designed to handle the new and emerging applications that utilize the "Extended" E-band, 1360-nm to 1460nm.		
The cable shall satisfy the requirements of ICEA S-640-1999, "Optical Fiber Outside Plant Communications Cable" and Telcordia Generic requirements for Fiber-Optic Cable (GH-20-CORE), Section 6.		
The fiber cable shall also be designed to provide optimum performance from 1265nm to 1625nm making it suitable for 16-channel Course Wavelength Division Multiplexing (CDDM) applications.		
The Fiber cable shall be constructed with industry standard 3mm buffer tubes, stranded around a central strength member.		
The buffer tubes shall be compatible with standard hardware, cable routing and fan-out kits.		
The cable core shall be water blocked with dry water-blocking materials, making access and handling of individual tubes easier and craft-friendly.		

B1.2 :- Light Interface Unit 24/12 Port

Make :

Specification & Requirement	Compliance Yes / No	Remarks
The combination shall have a sliding tray with two 3-inch (7.7 cm) storage drums and two openings with liquid-tight cable fasteners. The sliding tray allows front access and installation of fibers.		
The rack mount combination shelf shall be applicable for use in LANs, premises distribution systems, and small-count splice and termination applications		
The rack mount shelf shall be one-unit-high and be capable of housing 24 ST, 24 SC or 48 LC terminations.		
The shelf shall be capable of 24 fibers (48 with LCs) or to accommodate 48 mechanical splices, 64 fusion splices or 12 ribbon (mass fusion splices using optional splice trays.		
The sliding tray shall ride on two self-locking nylon slides used for pulling the shelf away from the frame for front access to fibers		
An Optional door and cable manager shall be available for use when two shelves are stacked for an aesthetic appearance. This optional accessory shall be a 1U high (1.75") with a 3U door (5.25"). A top cover shall be available to protect from dust and falling debris.		
Shelf dimensions : 1.72" (4.37cm) H x 17.19" (43.7 cm) W x 11.20" (28.5 cm) D.		
The LIU Should be made of Aluminum		
The combination shall have a sliding tray with two 3-inch (7.7 cm) storage drums and two openings with liquid-tight cable fasteners. The sliding tray allows front access and installation of fibers.		
The rack mount combination shelf shall be applicable for use in LANs, premises distribution systems, and small-count splice and termination applications		
The rack mount shelf shall be one-unit-high and be capable of housing 24 ST, 24 SC or 48 LC terminations.		

The shelf shall be capable of 24 fibers (48 with LCs) or to accommodate 48 mechanical splices, 64 fusion splices or 12 ribbon (mass fusion splices using optional splice trays.		
The sliding tray shall ride on two self-locking nylon slides used for pulling the shelf away from the frame for front access to fibers		
An Optional door and cable manager shall be available for use when two shelves are stacked for an aesthetic appearance. This optional accessory shall be a 1U high (1.75") with a 3U door (5.25"). A top cover shall be available to protect from dust and falling debris.		
Shelf dimensions : 1.72" (4.37cm) H x 17.19" (43.7 cm) W x 11.20" (28.5 cm) D.		
The LIU Should be made of Aluminum		

B1.3:- Fiber –Connectors / Pigtails

Make :

Specification & Requirement	Compliance Yes / No	Remarks
Connector Type – SC Single Mode		
The connector shall Utilize a Zirconia Ferrule for fiber alignment		
The connector shall have push pull hardware for easier connections, as well as high optical stability		
The connector shall be crimped to the outer hardware, to prevent momentary disconnect when axial load is placed on the cable		
The connectors shall meet the following specification		
Length - 2 in (5.08 cm)		
Operating Temperature - 40 to 85 ^o C		
Average Loss 0.2 db (tuned), 0.3 db (untuned)		

B1-4 :- Fiber Patch Cord (LC-LC)

Make :

Specification & Requirement	Compliance Yes / No	Remarks
Cable → Duplex Cordage Single Mode		
Length → 3.0 Mtr		
Insertion Loss → Less than 0.2 db		
Return Loss → -50db for Single Mode		
Cable outside Dia → 3.0 mm		
Tip Metal → Ceramic		

Operating Temperature	-20 to 60° C		
UL Type	CMR & CMG		

*Typical worst pair swept margin.

**Guaranteed margin is valid at any frequency from 1-250 MHz for the single manufacturer's certified

The high performance Category 6 cable shall be specified to 550 MHz and shall meet the guaranteed swept margin as follows:			
	High Performance Cable	High Performance Channel (4 Connections)	Premium Performance Channel
	Typical Worst Pair Margin*	Guaranteed Margin **	Guaranteed Margin**
Insertion Loss	3.0 %	5.0%	7.5%
NEXT	6.0 Db	6.0 dB	7.0 dB
PSNEXT	6.0 Db	7.5 dB	8.5 dB
ELFEXT	5.0 dB	6.0 dB	8.0 dB
PSELFEXT	5.0 Db	8.0 dB	10.0 dB
Return Loss	4.0 dB	4.0 dB	4.0 dB
Frequency Range	1-550 MHz	1-250 MHz	1-250 MHz

channel comprising the single manufacturer's Category 6 apparatus and the single manufacturer's High Performance series cable or Premium Performance series. Values represent margin over the TIA/EIA Category 6/Class E channel specifications

B1.6. :- CAT 6 Patchmax/Jack Panel

Make :

Specification & Requirement	Compliance Yes / No	Remarks
24 port patch panels with 110 IDC connector terminations on rear – 1 U Size		
The patch shall have electrical performance guaranteed to meet or exceed TIA/EIA 568-B.2-1 Category 6 and ISO/IEC Category 6/Class E specifications.		
The panel shall have vertical and horizontal cord organizers available as to improve patch cord management.		
The panel shall be available in 24-port configurations with universal A/B labeling and 110 connector		

terminations on rear of panel allowing for quick and easy installation of 22 to 24 AWG cable.		
The Panel shall have a black powder finish over high-strength steel.		
The panel shall be UL listed, UL-C certified and ACA approved.		
The panel shall support network line speeds in excess of 1 gigabit per second and be backward compatible with Category 5e, 5 and 3 cords and cables.		
The Category 6 modular jack panels shall meet or exceed the Category 6/Class E standards requirements in ISO/IEC 11801, CENLEC EN 50173 and TIA/EIA and shall be UL Listed.		
The panels shall be either wall or 19-inch rack mountable		

The panels shall meet the following specifications			
	Category 6 Patch panel	HighPerformance Channel	Premium Performance Channel
		(Category 6 Channel) (4 Connections)	
	Typical Worst Pair Margin*	Guaranteed Margin **	Guaranteed Margin**
Insertion Loss	64.3 %	5.0%	7.5%
NEXT	6.6 dB	6.0 dB	7.0 dB
PSNEXT	7.3 dB	7.5 dB	8.5 dB
ELFEXT	6.4 dB	6.0 dB	8.0 dB
PSELFEXT	6.1 dB	8.0 dB	10.0 dB
Return Loss	6.6 dB	4.0 dB	4.0 dB
Frequency Range	1-250 MHz	1-250 MHz	1-250 MHz

* Typical worst pair swept margin when measured with same manufacture's Category 6 modular patch cord.

**Guaranteed margin is valid at any frequency from 1-250 MHz for the single manufacturer's certified channel comprising the single manufacturer's Category 6 apparatus and the single manufacturer's High Performance series cable or Premium Performance series. Values represent margin over the draft Category 6/Class E channel specifications.

Specification & Requirement	Compliance Yes / No	Remarks
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<i>Physical Specifications</i>		
<i>Dimensions</i> 19.0 x 1.75 x 1.60 in (48.26 x 4.38 x 4.06 cm) – Universal A/B labeling		
<i>Intra-bay organizer</i> 20.0 x 3.50 x 4.50 in (50.8 x 8.89 x 11.43 cm) – (Front Horizontal / Vertical Routing)		
<i>Inter-bay organizer</i> 19.0 x 3.50 x 3.75 in (48.26 x 8.89 x 9.53 cm) – Front Horizontal routing		
<i>Intra-bay organizer</i> 19.0 x 1.72 x 4.60 in (48.30 x 4.38 x 11.70 cm)- Front & back routing		
<i>1U Wall Mount Bracket</i> 19.0 x 3.50 x 3.59 in (48.30 x 8.89 x 12.70 cm)		
<i>Operational Specifications:</i>		
<i>Operating Temperature Range:</i> 14°F to 140°F (-10°C to 60°C)		
<i>Storage Temperature Range:</i> -40°F to 158°F (-40°C to 70°C)		
<i>Humidity:</i> 95% (noncondensing)		
<i>Nominal Solid Conductor Diameter:</i> 0.025 to 0.020 in (0.64 to 0.51 mm) (22 to 24 AWG)		
<i>Nominal Stranded Conductor Diameter:</i> 0.025 to 0.020 in (0.64 to 0.51 mm) (22 to 24 AWG)		

<i>Insulation Size:</i> 0.042 in (1.08 mm) (22 to 24 AWG) Maximum DOD		
<i>Insulation Types:</i> All plastic insulates (including PVC, irradiated PVC, Polyethylene, Polypropylene, PTF Polyurethane, Nylon, and FEP)		
<i>Insertion Life :</i> 750 minimum insertions of an FCC 8-Position Telecommunications Plug		
<i>Front Panel:</i> Black powder painted steel.		
<i>Plastic:</i> High-impact, flameretardant, UL-rated 94V-0 thermoplastic		

B1.7 :- CAT 6 Information Outlets

Make :

Specification & Requirement	Compliance Yes / No	Remarks
All Category 6 outlets shall meet or exceed Category 6 transmission requirements for connecting hardware, as specified in TIA/EIA 568-B.2-1 Commercial Building Telecommunications Cabling Standard and ISO/IEC 11801:2002 Second Edition.		
The Category 6 outlets shall be backward compatible with Category 5E, 5 and 3 cords and cables.		
The Category 6 outlets shall be of a universal design supporting T568 A & B wiring.		
The Category 6 outlets shall be capable of being in a modular patching situation or as a modular telecommunication outlet (TO) supporting current 10BASE-T, Token Ring, 100 Mbps TP-PMD, 155		

Mbps ATM, 622 Mbps ATM using parallel transmission schemes and evolving high-speed, high-bandwidth applications, including Ethernet, 1000BASE-T and 1.2 Gbps ATM.		
The Category 6 outlets shall be capable of being installed at either a 45° or a 90° angle in any M-series modular faceplate, frame, or surface-mounted box avoiding the need for special faceplates.		
The Category 6 outlets shall have improved pair splitters and wider channel for enhanced conductor placement. The outlet shall also have a low-profile wire cap, which protects against contamination and secures the connection. Multicolored identification labels shall be available to assure accurate installation.		
Meets or exceeds the mechanical, electrical, and clearance specifications in FCC Rules and Regulations, Part 68, Subpart F		
Meet or exceed the Category 6 requirements in ISO/IEC 11801, CENELEC EN 50173, and TIA/EIA568B		
Certifications: UL Listed, CSA Certified and AUSTEL approved.		

The Category 6 outlets shall meet the following Guaranteed Margin Performance and Physical Specifications:			
	Category 6 Outlet	High Performance Channel	Premium Performance Channel
		(4 Connections)	
	Typical Worst Pair Margin*	Guaranteed Margin **	Guaranteed Margin**
Insertion Loss	26.9 %	5.0%	7.5%
NEXT	5.4 dB	6.0 dB	7.0 dB
PSNEXT	4.7 dB	7.5 dB	8.5 dB
ELFEXT	10.5 dB	6.0 dB	8.0 dB
PSELFEXT	10.8 dB	8.0 dB	10.0 dB
Return Loss	8.0 dB	4.0 dB	4.0 dB
Frequency Range	1-250 MHz	1-250 MHz	1-250 MHz

* Typical worst pair swept margin when measured with same manufacturer's Category 6 modular patch cord.

**Guaranteed margin is valid at any frequency from 1-250 MHz for the single manufacturer's certified channel comprising the single manufacturer's Category 6 apparatus and the single manufacturer's High Performance series cable or Premium Performance series. Values represent margin over the draft Category 6/Class E channel specifications.

Specification & Requirement	Compliance Yes/No	Remarks
Physical Specifications		
<i>Dimensions</i> - 0.8 in (20 mm) W x 0.8 in (20 mm) H x 1.2 in (31 mm) D		
<i>Plastic</i> - High-impact, flame-retardant, UL rated 94V-0 thermoplastic		
<i>Connector</i> - Copper alloy, 100 micro-inch bright solder over 100 micro-inch nickel underplate		
<i>Outlet Wires</i> Copper alloy, 50 micro-inch lubricated gold plating over 100 micro-inch nickel underplate		
<i>Operating Temperature</i> 14°F to 140°F (-10°C to 60°)		
<i>Storage Temperature Range</i> -40°F to 158°F (-40°C to 70°C)		
<i>Humidity</i> - 95% (noncondensing)		
<i>Nominal Solid Conductor Diameter:</i> 0.025 to 0.020 in (22 to 24 AWG)		
<i>Nominal Stranded Conductor Diameter</i> 0.64 to 0.51mm (22 to 24 AWG)		
<i>Plug Retention Force</i> 30lb (133 N) minimum		
<i>Plug / Jack Contact Force</i> 100 grams minimum per contact using FCC-8 position telecommunication plug		
<i>Insertion Life</i>		

750 cycles minimum using FCC-8 position telecommunication plug		
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B1- 8,9 Copper Patch Cord 3 Feet & 7 Feet

Make :

Specification & Requirement	Compliance Yes / No	Remarks
All patch cords shall exceed TIA/EIA and ISO/IEC Category 6/Class E specifications.		
All patch cords shall be backward compatible with Category 5 and Category 5E systems.		
The patch cords shall incorporate an anti-snag feature that provides maximum protection from snagging during moves and re-arrangements.		
Patch cords shall support network line speeds in excess of 1 gigabit per second. 4. Patch cords shall be UL listed, UL-C certified and AUSTEL approved.		

Patch cords shall be available in stranded and solid conductor in lengths to 3 Feet & 7 Feet and Beyond		
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The Category 6 modular patch cord shall have guaranteed margin as follows:			
	Category 6 Patch Cord	High Performance Channel (4 Connections)	Premium Performance Channel
	Typical Worst Pair Margin*	Guaranteed Margin **	Guaranteed Margin**
Insertion Loss	N.A	5.0%	7.5%
NEXT	4.4 dB	6.0 dB	7.0 dB
	N.A	7.5 dB	8.5 dB
PSNEXT			
ELFEXT	N.A	6.0 dB	8.0 dB
PSELFEXT	N.A	8.0 dB	10.0 dB
Return Loss	5.9 dB	4.0 dB	4.0 dB
Frequency Range	1-250 MHz	1-250 MHz	1-250 MHz

* Typical worst pair swept margin when measured with same manufacture's Category 6 modular patch cord.

**Guaranteed margin is valid at any frequency from 1-250 MHz for the single manufacturer's certified channel comprising the single manufacturer's Category 6 apparatus and the single manufacturer's High Performance series cable or Premium Performance series. Values represent margin over the draft Category 6/Class E channel specifications.

C- Integration Components Supply

S.No	Description	UOM	QTY
1	1" Casing & Capping	Mtr	1000
2	2" Casing & Capping	Mtr	1000
3	1" Flexible Pipe	Mtr	100

4	2" Flexible Pipe	Mtr	100
5	6 U Wall Mountable Rack with standard accessories	No	6
6	42 U Closed Rack with standard accessories	No	1
7	1" HDPE Pipe with accessories	Mtr	500
8	1" GI Pipe with accessories	Mtr	20
9	150X50 MM Industrial Duct	Mtr	400
10	4 Pair telephone cable	Mtr	300
11	coaxial cable for TV	Mtr	200

D – Installation & Integration Services

Sr. No.	Item	Unit	Qty
A	Fiber		
1	laying of 12 Core Fiber Cable - Single Mode	mtrs.	800
2	Fixing of 24 Port LIU - Shelf fully loaded	nos.	2
4	Pigtails - LC Style - SM	nos.	24
3	LC-LC Patch Cords - SM	nos.	8
5	Digging & laying of 1" HDPE Pipe with standard Accessories	mtrs.	500

Sr. No.	Item	Unit	Qty
B	UTP		
1	Laying of CAT6 UTP cable	NO	4800
2	Fixing of CAT6 UTP Patch Panel -24 Port Fully Loaded	NO	8
3	Fixing of CAT6 IO	NO	277
4	Fixing of Face Plate-Single	NO	277
5	Fixing of Back Box	NO	277
6	CAT6 UTP PATCH CORD:3 Feet	NO	277
7	CAT6 UTP PATCH CORD:7 feet	NO	300

C	Integration components		
1	Installation of the 1" Casing & Capping	Mtr	1000
2	Installation of the 2" Casing & Capping	Mtr	1000
3	Installation of the 1" Flexible Pipe	Mtr	100
4	Installation of the 2" Flexible Pipe	Mtr	100

5	Fixing of 6 U Wall Mountable Rack with standard accessories	No	6
6	Fixing of 42 U Closed Rack with standard accessories	No	1
7	Laying of 1" HDPE Pipe with accessories	Mtr	500
8	Laying of 1" GI Pipe with accessories	Mtr	20
9	Installation of the 150X50 MM Industrial Duct	Mtr	400
10	Laying of 4 Pair telephone cable	Mtr	300
11	laying of video cable for TV	Mtr	200

E- CCTV Components

Serial No	Model & Make	Description	Quantity
1		Up to 2 megapixel high resolution Dome Camera , Full HD1080p video, Dual stream, 4mm/6mm fixed lens, 120dB Wide Dynamic Range, 3D Digital Noise Reduction, Backlight Compensation DC12V & PoE, Support H.264+, Up to 30m IR range, 3-axis adjustment, IP67 weather-proof protection, Metallic housing & bracket As per Detailed Specifications Listed under Section E1.1	24
2		Up to 2 megapixel high resolution Bullet Camera , Full HD1080p video, Dual stream, 4mm/6mm fixed lens, 120dB Wide Dynamic Range, 3D Digital Noise Reduction, Backlight Compensation DC12V & PoE, Support H.264+, Up to 30m IR range, 3-axis adjustment, IP67 weather-proof protection, Metallic housing & bracket As per Detailed Specifications Listed under Section E1.1	27
3		32 channel NVR with mobile Remote Viewing, VJA Port, HDMI Port without Hard disk As per Detailed Specifications Listed under Section E1.2	2

4		4 channel DVR with mobile Remote Viewing,VJA Port,,HDMI Port without Hard disk	1
5		4 TB Hard Disk	3
6		Converters & Co-Axial Cables (for above BOM)	
7		Installation charges	(LumSum)

E1- Technical specification

E1.1 IP camera configuration

SI No	specification	Compliance YES /NO	Remarks
1	2 Megapixel CMOS ICR Infrared Network Bullet Camera 1/3" Progressive Scan CMOS image sensor Min 75° Angle view 32kbps to 16 Mbps bit rate with dual stream Supports network storage Backlight compensation support Frame rate upto 30 fps 30 Meters IR range Standard video compression with high compression ratio Progressive scan CMOS, capture motion video without incised margin Support dual stream, and the sub-stream for mobile surveillance High-performance and long service life Infrared LED, Approx. 20 to 30 meters IR range IR cut filter with auto switch PoE (Power over Ethernet)		

E1.2 NVR configuration

SI No	specification	Compliance YES /NO	Remarks
1	16/32 channel Network video recorder with following specifications Simultaneous HDMI and VGA outputs at up to 1920x1080 resolution. Holiday recording; Up to 16-ch synchronous playback at 4CIF resolution. Locking and unlocking record files. Support HDD quota mode; different capacity can be assigned to different channel. 2 SATA hard disks can be connected with maximum capacity 4		

	<p>TB</p> <p>1 self-adaptive 10M/100M/1000M network interface is provided; Support DDNS (Dynamic Domain Name System); Support network detection, including network delay, packet loss, etc. Support enabling H.264+ to ensure high video quality with lowered bitrate. Input upto 160mbps bandwidth Output upto 80 mbps bandwidth Output 1-ch, resolution: 1920 x 1080 /60Hz, 1600 x 1200 /60Hz, 1280 x 1024 /60Hz, 1280 x 720 /60Hz One network interface One usb 2.0 and one usb 3.0 interface</p>		
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F- EPABX Components

Serial No	Make & Model	Description	Quantity
1		40 Line EPABX	1
2		Analog Phone	20
3		Digital Phone	17

F1-Technical specification

SI No	specification	Compliance YES /NO	Remarks
1	40 line epabx system expandable upto 256 lines with 8 input lines Attendant/Operator console Auto fax detection, Caller line identification CLI based routing Caller identify software Programming backup facility Remote programming Computer telephone integration Fully configurable key phone system		

G- Biometric Components

Serial No	Make & Model	Description	Quantity
1		Biometric attendance unit	8
2		Magnetic door lock	6
3		Installation charges	Lumsum

G 1-Technical specification

Biometric attendance system

SI No	specification	Compliance YES /NO	Remarks
1	Standalone finger print attendance system with keypad and speaker 1,00,000 transaction storage Finger print template capacity 3000 Card capacity 3000 With 800Mhz 32 bit processor Network and usb ports Supports door sensor With suitable software Battery backup		

(Signature of Bidder with stam

Financial Bid

Consolidated Price Schedule for the Tender Requirements

Form No.	Item details with make and model	Warranty	Total price with taxes and duties etc with warranty as per Col. 3 (INR)
1	2	3	4
A	Active Components	1 Years	
B	Passive Components	1 Year	
C	Integration Components Supply	1 Year	
D	Installation & Integration Services	1 Year	
E	CCTV Components	1 Year	
F	EPABX Components	1 Year	
G	Bio Metric Components	1 Years	
	Total Project cost (INR)		

Bid amount in words (Col. No. 4) _____

(Signature of Bidder with stamp)

A- Active Components

S. No.	Make & Model	Item	Unit	Qty	Unit Price INR	Extd Price INR
1		24 port Gigabit switch with 4 x 1G SFP As per Detailed Specifications Listed under Section A.1	Nos.	12		
1 a		8 x 5 x NBD Hardware replacement warranty for 1 Year Directly provided by the principal manufacturer	Nos	12		
2		24 port Gigabit PoE 370W switch, 4 x 1G SFP As per Detailed Specifications Listed under Section A.2	Nos.	2		
2 a		8 x 5 x NBD Hardware replacement warranty for 1 Year Directly provided by the principal manufacturer				
3		8 Port Gigabit Ethernet switch with 2 x 1G copper or 2 x 1G SFP with Rack mounting KIT . As per Detailed Specifications Listed under Section A.3	Nos.	4		
3a		8 x 5 x NBD Hardware replacement warranty for 1 Year Directly provided by the principal manufacturer				
4		1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM As per Detailed Specifications Listed under Section A.4	Nos.	8		
Sub Total						
Taxes						
Grand total						

B - Passive Components

Sr. No.	Item	Unit	Qty	Unit Rate	Total Amount
A	Fiber				
1	12 Core Fiber Cable - Single Mode	mtrs.	800		
2	24 Port LIU - Shelf fully loaded	nos.	2		
3	Pigtails - LC Style - SM	nos.	24		
4	LC-LC Patch Cords - SM	nos.	8		
				Sub Total	

B UTP

Sr. No.	Item	Unit	Qty	Unit Rate	Total Amount
1	CAT6 UTP cable box	NO	16		
2	CAT6 UTP Patch Panel -24 Port Fully Loaded	NO	14		
3	CAT6 IO	NO	277		
4	Face Plate-Single	NO	277		
5	Back Box	NO	277		
6	CAT6 UTP PATCH CORD:3 Feet	NO	277		
7	CAT6 UTP PATCH CORD:7 feet	NO	300		
				Sub total	

Sub Total A+B	
Taxes	
Grand Total	

C- Integration Components Supply

S.No	Description	UOM	QTY	Unit Price	Total Price
1	1" Casing & Capping	Mtr	1000		
2	2" Casing & Capping	Mtr	1000		
3	1" Flexible Pipe	Mtr	100		
4	2" Flexible Pipe	Mtr	100		
5	6 U Wall Mountable Rack with standard accessories	No	6		
6	42 U Closed Rack with standard accessories	No	1		
7	1" HDPE Pipe with accessories	Mtr	500		
8	1" GI Pipe with accessories	Mtr	20		
9	150X50 MM Industrial Duct	Mtr	400		
10	4 Pair telephone cable	Mtr	300		
11	coaxial cable for TV	Mtr	200		
				Sub Total	
				Taxes	
				Grand Total	

D - Installation & Integration Services

Sr. No.	Item	Unit	Qty	Unit Rate	Total Amount
A	Fiber				
1	laying of 12 Core Fiber Cable - Single Mode	mtrs.	800		
2	Fixing of 24 Port LIU - Shelf fully loaded	nos.	2		
4	Pigtails - LC Style - SM	nos.	24		
3	LC-LC Patch Cords - SM	nos.	8		
5	Digging & laying of 1" HDPE Pipe with standard Accessories	mtrs.	500		
				A Sub Total	

Sr. No.	Item	Unit	Qty	Unit Rate	Total Amount
B	UTP				
1	Laying of CAT6 UTP cable	NO	4800		
2	Fixing of CAT6 UTP Patch Panel -24 Port Fully Loaded	NO	8		
3	Fixing of CAT6 IO	NO	277		
4	Fixing of Face Plate-Single	NO	277		

		housing & bracket			
2		Up to 2 megapixel high resolution Bullet Camera , Full HD1080p video, Dual stream, 4mm/6mm fixed lens, 120dB Wide Dynamic Range, 3D Digital Noise Reduction, Backlight Compensation DC12V & PoE, Support H.264+, Up to 30m IR range, 3-axis adjustment, IP67 weather-proof protection, Metallic housing & bracket	12		
3		32 channel NVR with mobile Remote Viewing, VJA Port, HDMI Port without Hard disk	1		
4		4 channel DVR with mobile Remote Viewing, VJA Port, HDMI Port without Hard disk	1		
5		4 TB Hard Disk	2		
6		Converters & Co-Axial Cables (for above BOM)			
7		Installation charges	Lumsum		
					Sub Total
					Taxes
					Grand Total

F- EPABX Components

Sr. No.	Make & Model	Description	Quantity	Unit Price	Total Amount
1		40 Line EPABX	1		

2		Analog Phone	20		
3		Digital Phone	17		
4		Installation charges	LUMSUM		
				Sub Total	
				Taxes	
				Grand Total	

G- Bio Metric Components

Sr. No	Make & Model	Description	Quantity	Unit Price	Total Amount
1		Biometric attendance unit	8		
2		Magnetic door lock	6		
3		Installation Charges	Lumsum		
				Sub Total	
				Taxes	
				Grand Total	

(Signature of Bidder with stamp)