

Maharaja Ranjit Singh Punjab Technical University, Bathinda

Name of Items		Providing, Installation & Commissioning of Networking Equipments in PIT GTB GARH (MOGA) and PIT Nandgarh.	
Name of Firm			
Sr. No.	Description	Proof (Attached/Not Attached) (Y/N)	Page No.
1	Full Address		
	i. Head Office		
	ii. Branch Office (if any)		
2	Name of contact Person		
	i. Mobile No.		
	ii. E mail ID		
3	Telephone Number(s)		
4	Fax Number (if any)		
5	Proof of Dealership Certificate/Distributor Certificate (if any)		
6	Undertaking that firm is not blacklisted by any University/Institute/Organisation and no complaint is pending in any Police station		
7	GST No.		
8	PAN NO:- TAN NO:-		
9	Bank Name and Address		
10	Bank A/c No. and IFS Code		
11	Confirmation of Earnest Money Deposit.		
12	Proof of Bidder having his own manufacturing unit if any.		
13	The bidder should submit list of the customers using the goods with detail like: name of the person using the equipments, telephone number, email id, communication address in detail.		
14	Proof of Bidder having successfully delivered of similar goods/Items of value of 100% of the estimated value in the last three years. OR Satisfactory delivery of similar goods/items of value not less than 50% of estimated value as a single order in India in the last 3 years.		
15	Proof of Financial standing such as statement of (i) Profit and loss Account (ii) Balance sheet (iii) Auditor report for the last 3 years and (iv) Credit Worthiness Certificate from Bank.		
16	Proof of Bidder having Minimum Annual turnover of 03 times of the estimated value during atleast in last three financial year.		
ACTIVE COMPONENT (Make Cisco,HP,Dell, Fortinet, Juniper,Sophos)			
17	Agree to provide Guarantee/Warranty of ACTIVE COMPONENTS solution and support for 3years period (mentioned clearly)		
S.No.	24-port 10/100/1000 Base-T L2 Managed Switch with Fiber Uplinks		
18	Interfaces		
	Should have 24 # 10/100/1000 Base-T and 2 SFP ports and 2Gigabit Ethernet combo		
19	CPU/ Memory		
	Should have 128 MB and 16MB flash		
20	Performance Summary		
	Should have Switching fabric: 56Gbps Line-rate (non blocking fabric)		
	Should have Throughput: 41Mpps		
	Should have Address database size: 16,000 MAC addresses		
	Should have VLAN ID Range: 1 - 4096		
	Should have Support for IEEE 802.3ad Link Aggregation Control Protocol (LACP) Up to 8 ports per group with 16 candidate ports for each (dynamic) 802.3ad link aggregation		
	Should have supports 1K multicast groups (source-specific multicasting is also supported)		
21	L2 Services		
	Should have Spanning Tree Protocol (STP)		
	Should have VLAN and Voice VLAN		
	Should have Multicast TV VLAN		
	Should have Q-in-Q VLAN		
	Should have Generic VLAN Registration Protocol (GVRP)/Generic Attribute Registration Protocol (GARP)		
	Should have Unidirectional Link Detection (UDLD)		
	Should have Dynamic Host Configuration Protocol (DHCP) Relay at Layer 2		
	Should have Internet Group Management Protocol (IGMP) versions 1, 2, and 3 snooping		
	Should have IGMP Querier		
	Should have Head-of-line (HOL) blocking		
22	L3 Services		
	Should have Wirespeed routing of IPv4 packets Up to 512 static routes and up to 128 IP interfaces		
	Should have Classless Inter-Domain Routing (CIDR)		
	Should have Configuration of layer 3 interface on physical port, LAG, VLAN interface or Loopback interface		
	Should have Relay of DHCP traffic across IP domains		
	Should have Relay of broadcast information across Layer 3 domains for application discovery or relaying of BootP/DHCP packets		

	Should have Switch functions as an IPv4 DHCP Server serving IP addresses for multiple DHCP pools/scopes Support for DHCP options		
23	Security		
	Should have Secure Shell (SSH) Protocol& Secure Sockets Layer		
	Should have Secure Sockets Layer (SSL)		
	Should have 802.1X: RADIUS authentication and accounting, MD5 hash; guest VLAN; unauthenticated VLAN, single/multiple host mode and single/multiple sessions Supports time-based 802.1X Dynamic VLAN assignment		
	Should have security mechanism to protect the network from invalid configurations. A port enabled for BPDU Guard is shut down if a BPDU message is received on that port.		
	Should have STP Root Guard		
	Should have DHCP snooping		
	Should have IP Source Guard (IPSG)		
	Should have Dynamic ARP Inspection (DAI)		
	Should have IP/Mac/Port Binding (IPMB)		
	Should have Secure Core Technology (SCT)		
	Secure Sensitive Data (SSD)		
	Should have Layer 2 isolation Private VLAN Edge (PVE) with community VLAN		
	Should have The ability to lock Source MAC addresses to ports, and limits the number of learned MAC addresses.		
	Should have Supports RADIUS and TACACS authentication.		
	Should have Broadcast, multicast, and unknown unicast		
	Should have RADIUS accounting		
	Should have DoS prevention		
	Should have Support for up to 512 ACL rules		
24	Quality of Service (QoS)		
	Should have 4 hardware queues		
	Should have Strict priority and weighted round-robin (WRR) Queue assignment based on DSCP and class of service (802.1p/CoS)		
	Should have Port based; 802.1p VLAN priority based; IPv4/v6 IP precedence/type of service (ToS)/DSCP based; Differentiated Services (DiffServ); classification and re-marking ACLs, trusted QoS.		
	Should have Ingress policer; egress shaping and rate control; per VLAN, per port, and flow based.		
	Should have A TCP congestion avoidance algorithm is required to minimize and prevent global TCP loss synchronization.		
25	IPv6		
	Should have IPv6 host mode		
	Should have IPv6 over Ethernet Dual IPv6/IPv4 stack		
	Should have IPv6 neighbor and router discovery (ND) IPv6 stateless address auto-configuration		
	Should have Path maximum transmission unit (MTU) discovery		
	Should have Duplicate address detection (DAD) ICMP version 6		
26	LEDs		
	Should have System, Link/Act, Speed, LED power saving option		
27	Certifications		
	Should have UL (UL 60950), CSA (CSA 22.2), CE mark, FCC Part 15 (CFR 47) Class A		
	Unmanaged Switch specifications		
28	Should have Switch 24 Ports 10/100/1000 Ethernet + 2 SFP with Unmanaged		
29	Should have Automatic medium dependent interface (MDI) and MDI crossover (MDI-X).		
30	Should have an Auto negotiated port for connecting 10, 100, 1000-Mbps devices, Indicators for loop detection, Gigabit,*miniGBIC*, Must have minimum 16 SSIDs.		
31	Should support radio resource management for power, channel, coverage hole detection and performance optimization.		
32	Should have 24 RJ-45 connectors for 10BASE-T/100BASE-TX/1000BASE-T ports with 2 combo mini-GBIC slots All units: automatic medium dependent interface (MDI) and MDI crossover (MDI-X); auto-negotiated port for connecting 10-, 100-, 1000-Mbps devices		
33	Should have Ethernet: • 10 Mbps (half duplex), 20 Mbps (full duplex) • Fast Ethernet: • 100 Mbps (half duplex),200 Mbps (full duplex) • Gigabit Ethernet:		
34	Should have Front Panel Switches1 • (#1) Enable/disable EEE, (#2) Enable/disable Flow Control, (#3) Enable/disable Port Isolation/Broadcast Storm Control		
35	Should have LEDs • Power LED, 24 Link/Activity/Speed LEDs (one per port)		
36	Should have Power Inputs • 100 to 240V AC Input		

37	Should have Ordering Information 24-Port Gigabit Unmanaged Desktop or Rack mount switch.		
Access Point - Low Density			
Sr. No.	Specification		
38	Should have Access Points proposed must include radios for 2.4 GHz and 5 GHz with 802.11ac.		
39	An access point must include a standard OEM provided Mounting brackets for mounting on Ceiling or Roof top.		
40	Should have Access Point shall support Console port that uses Standard Port (RJ-45) type connection		
41	Should have one RJ-45 auto-sensing 10/100/1000 Mbps LAN port.		
42	Must have atleast 3 dBi Antenna gain on each radios		
43	Must support 3x3 MIMO for both 802.11ac and 802.11n client		
44	Must Support data rate of 867 Mbps on 5ghz with 80 mhz channel.		
45	Must support minimum of 22dbm of transmit power in both 2.4Ghz and 5Ghz radios. And should follow the local regulatory Norms.		
46	Must support AP enforced load-balance between 2.4Ghz and 5Ghz band.		
47	Must incorporate radio resource management for power, channel and performance optimization		
48	Must have -97 dB or better Receiver Sensitivity.		
49	Must support Proactive Key Caching and/or other methods for Fast Secure Roaming.		
50	Access Points must support encrypted user data and management traffic between controller and Access point for better security.		
51	Must support the ability to serve clients and monitor the RF environment concurrently.		
52	Same model AP that serves clients must be able to be dedicated to monitoring the RF environment.		
53	Must be plenum-rated (UL2043).		
54	Must support 16 WLANs per AP for SSID deployment flexibility.		
55	Access Point Must continue serving clients when link to controller is down.		
56	Must support telnet and/or SSH login to APs directly for troubleshooting flexibility.		
57	Must support Power over Ethernet, local power(DC Power), and power injectors.		
58	802.11e and WMM		
59	Must support QoS capabilities.		
60	Access Point should support 802.11 DFS		
Firewall			
61	Firewall		
62	The Firewall should be Hardware based, Reliable, purpose-built security appliance with hardened operating system that eliminates the security risks associated with general-purpose operating systems		
63	The Proposed Firewall Vendor should be in the Leaders' Quadrant of Latest Gartner Magic Quadrant for Unified Threat Management or Enterprise Firewalls		
64	Firewall appliance should have at least 2 x 1Gig SFP slots, and at least 6 x 10/100/1000 GE interfaces		
65	Firewall Throughput should be 19 Gbps or more		
66	Firewall should have 3DES IPSec throughput of more than 1 Gbps		
67	Firewall should support 1000 site-to-site VPN Tunnels.		
68	Firewall should support atleast 1,30,000 new sessions per second		
69	Firewall should support atleast 1.9 Million concurrent sessions		
70	The Firewall solution should support NAT64, DNS64 & DHCPv6		
71	The proposed system shall be able to operate on either Transparent (bridge) mode to minimize interruption to existing network infrastructure or NAT/Route mode. Both modes can also be available concurrently using Virtual Contexts.		
72	The physical interface shall be capable of link aggregation, otherwise known as the IEEE 802.3ad standard, allows the grouping of interfaces into a larger bandwidth 'trunk'. It also allows for high availability (HA) by automatically redirecting traffic from a failed link in a trunk to the remaining links in that trunk.		
73	The proposed system should have integrated Traffic Shaping functionality.		
74	The Firewall module shall belong to product family which minimally attain Internet Computer Security Association (ICSA) Certification.		
75	The Firewall should have integrated SSL VPN solution to cater to 300 SSL VPN concurrent users.		
76	The proposed system should support		
77	a) IPSEC VPN		
78	b) PPTP VPN		

79	c) L2TP VPN		
80	IPSEC (DES, 3DES, AES) encryption/decryption		
81	SSL encryption/decryption		
82	The system shall support the following IPSEC VPN capabilities:		
83	a) Multi-zone VPN supports.		
84	b) IPsec, ESP security.		
85	c) Supports NAT traversal		
86	d) Supports Hub and Spoke architecture		
87	e) Supports Redundant gateway architecture		
88	The system shall support 2 forms of site-to-site VPN configurations:		
89	a) Policy based IPsec tunnel		
90	The system shall support IPSEC site-to-site VPN and remote user VPN in transparent mode.		
91	The system shall provide IPv6 IPsec feature to support for secure IPv6 traffic in an IPsec VPN.		
92	Intrusion Prevention System		
93	IPS throughput should be more than 5.5 Gbps		
94	The Next Generation Firewall throughput should be at least 1.8 Gbps		
95	The IPS detection methodologies shall consist of:		
96	a) Signature based detection using real time updated database		
97	b) Anomaly based detection that is based on thresholds		
98	The IPS system shall have at least 7,000 signatures		
99	IPS Signatures can be updated in three different ways: manually, via pull technology or push technology. Administrator can schedule to check for new updates or if the device has a public IP address, updates can be pushed to the device each time an update is available		
100	In event if IPS should cease to function, it will fail open by default and is configurable. This means that crucial network traffic will not be blocked and the Firewall will continue to operate while the problem is resolved		
101	IPS solution should have capability to protect against Denial of Service (DOS) and DDOS attacks. Should have flexibility to configure threshold values for each of the Anomaly. DOS and DDOS protection should be applied and attacks stopped before firewall policy look-ups.		
102	IPS signatures should have a configurable actions like terminate a TCP session by issuing TCP Reset packets to each end of the connection, or silently drop traffic in addition to sending a alert and logging the incident		
103	Signatures should a severity level defined to it so that it helps the administrator to understand and decide which signatures to enable for what traffic (e.g. for severity level: high medium low)		
104	Antivirus		
105	The proposed system should be able to block, allow or monitor only using AV signatures and file blocking based on per firewall policy based or based on firewall authenticated user groups with configurable selection of the following services:		
106	a) HTTP, HTTPS		
107	b) SMTP		
108	c) POP3		
109	d) IMAP		
110	e) FTP		
111	The proposed system should be able to block or allow oversize file based on configurable thresholds for each protocol types and per firewall policy.		
112	Web Content Filtering		
113	The proposed system should have integrated Web Content Filtering solution without external solution, devices or hardware modules.		
114	The proposed solution should be able to enable or disable Web Filtering per firewall policy or based on firewall authenticated user groups for both HTTP and HTTPS traffic.		
115	The proposed system shall provide web content filtering features:		
116	a) which blocks web plug-ins such as ActiveX, Java Applet, and Cookies.		
117	b) Shall include Web URL block		
118	c) Shall include web keyword block		
119	d) Shall include Web Exempt List		
120	The proposed system shall be able to queries a real time database of over 110 million + rated websites categorized into 78+ unique content categories.		
121	Application Control		
122	The proposed system shall have the ability to detect, log and take action against network traffic based on over 2800+ application signatures		
123	The application signatures shall be manual or automatically updated		
124	The administrator shall be able to define application control list based on selectable application group and/or list and its corresponding actions		

125	Data Leakage Prevention		
126	The proposed system shall allow administrator to prevent sensitive data from leaving the network. Administrator shall be able to define sensitive data patterns, and data matching these patterns that will be blocked and/or logged when passing through the unit.		
127	High Availability		
128	The proposed system shall have built-in high availability (HA) features without extra cost/license or hardware component		
129	The device shall support stateful session maintenance in the event of a fail-over to a standby unit.		
130	High Availability Configurations should support Active/Active or Active/ Passive		
131	Logging & Reporting Solution.		
132	Should have A dedicated appliance to be proposed with the solution for logging, analysis, and reporting into a single system, delivering increased knowledge of security events throughout the network for centralized security event analysis, forensic research and reporting		
PASSIVE COMPONENT (Make Molex, Schneider,D-Link, Zyxel,Amp,Avaya)			
Technical Specification			
PowerCat 6 4 Pair Cable			
133	Type		
	Should have Unshielded twisted pair cabling system, TIA / EIA 568-C.2 Category 6 Cabling system		
134	Network support		
	Should have Supports ultrahigh speed data networks such as Gigabit Ethernet (1000 Base-T and 1000 Base-TX) and beyond.		
135	TIA / EIA 568-B.1		
	Should have ETL Verified, UL Listed andUL channel verified- All three Certificates are mandatory		
136	IEEE 802.3ab		
	Should have Zero-bit Error, ETL verified		
137	Warranty		
	Should have 25-year systems warranty; Warranty to cover Bandwidth of the specified and installed cabling system, and the installation costs. Site certificate must be issued by OEM		
138	Performance characteristics to be provided along with bid		
	Should have Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR for 4-connector channel		
139	Manufacturer		
	Should have All passive cabling must be from same OEM (UTP and Fiber)		
140	Conductors		
	Should have 23 AWG solid bare copper		
141	Insulation		
	Should have Polyethylene		
142	Approvals		
	Should have UL Listed and UL Channel verified		
	Should have ETL verified to TIA / EIA Cat 6		
143	Frequency tested up to		
	Should have 600 MHz minimum		
144	Packing		
	Should have Box of 305 meters		
145	Impedance		
	Should have 100 Ohms + / - 15 ohms		
146	Performance characteristics to be provided along with bid		
	Should have Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR		
147	Delay Skew:		
	Should have 45ns Max		
148	Impedance:		
	Should have 100 ± 15 Ohms		
149	Current Rating:		
	Should have 1.5 A Max		
150	Conductor DC Resistance:		
	Should have 66.5Ω/km		
151	Voltage:		
	Should have 150VAC		
152	Propagation delay:		
	Should have 535ns/100m @250MHz		
153	Mutual Capacitance:		
	Should have 5.6nF/100m Nominal		

154	Insulation Resistance:		
	Should have 500 MΩ Minimum		
155	Dielectric Strength:		
	Should have 1000 V RMS		
156	Contact Resistance:		
	Should have 10 mΩ Max		
PowerCat 6 DataGate Jack			
157	Features and Benefits		
	<input type="checkbox"/> Patented Spring-Loaded Shutter:		
	Should prevent incomplete mating and protect from dust and contaminants		
	<input type="checkbox"/> Should have Patented IDC V-shaped contacts that flex not fatigue when terminated		
	<input type="checkbox"/> Should have Features pointed IDC towers to speed termination and enhance cable retention		
	<input type="checkbox"/> Should have Dual color-coding allows for 568 A/B wiring configuration		
	<input type="checkbox"/> Can be terminated using industry standard punch-down tools		
	<input type="checkbox"/> Should have RJ-11 compatible		
	<input type="checkbox"/> Should have Molded category identification on jack face as well as optional port identification icons		
	<input type="checkbox"/> Should have USOC Wiring Sequences Available		
158	Should have RJ45 I/O Compatibility		
	a. Should have Individual Compatible RJ45 Jack		
	b. Should have Pointed IDC Tower on RJ45 Jack for easy termination		
	c. Half Plugged Patch Cord should be spitted out if not properly plugged in		
159	Dust Proof		
	RJ45 Jack should be supplied with Cap or Shutter to avoid Dust		
160	Mechanical Characteristics		
	Plastic Housing:		
	Should have Thermoplastic UL94V-0 rated or equivalent		
	Operating Life:		
	Should have Minimum 750 insertion cycles		
	Contact Material:		
	Should have Copper Alloy		
	Contact Plating:		
	Should have 50μ" Gold/100μ" Nickel		
	Contact Force:		
	Should have 100g minimum		
	Plug Retention Force:		
	Should have 11 lbf minimum		
161	IDC Connector		
	Plastic Housing:		
	Should have Thermoplastic UL94V-0 rated or equivalent		
	Operating Life:		
	Should have Minimum 20 reterminations		
	Contact Material:		
	Should have Copper Alloy		
	IDC Contact Plating:		
	Should have Tin/Lead Plate		
	Wire Accommodation:		
	Should have 22-24 AWG solid		
162	Electrical Characteristics		
	Interface Resistance:		
	Should have 20 milliohms		
	Initial Contact Resistance:		
	Should have 2.5 milliohms		
	Insulation Resistance:		
	Should have >100 Megaohms		
163	Parts List:		
	Should have <input type="checkbox"/> DataGate Plus Jack with Stuffer Cap		
Wall plates			
164	Features and Benefits		
	Should have The stylish unloaded Synergy Wallplates were designed specifically to accept the UTP Datagate Connector. The unloaded Synergy Wallplates are available in 1, 2 and 4 port variants, in five colours, to co-ordinate with any decor and any installation size.		
165	Accommodates		
	Should have Accommodates UTP, STP Datagate jacks Accommodates single bezel Fibre modules Accommodates media configurable modules		
166	Material		
	Should have VE10 ABS		

24 Port loaded Patch Panel 1U Height			
	Features and benefits		
167	Available in 1U 24 Port and 2U 48 Port density		
	<input type="checkbox"/> Each port features Should have the patented spring-loaded shutter: – prevents incomplete mating – protects from dust and contaminants		
	<input type="checkbox"/> Should have Patented IDC V-shaped contacts that flex not fatigue when terminated		
	<input type="checkbox"/> Should have Features pointed IDC towers to speed termination and enhance cable retention		
	<input type="checkbox"/> Should have Dual colour-coding allows for 568 A/B wiring configuration		
	<input type="checkbox"/> Should have Front and rear port labelling (port sequence 1–480) as well as panel identification label		
	<input type="checkbox"/> Should have 4 x 6 ganged jack configuration		
	<input type="checkbox"/> Should have Individually removable patch panel ports		
	<input type="checkbox"/> Should have Removable cable management shelf(s) ensure bend radius compliance		
	<input type="checkbox"/> Should have Available with either ANSI and metric hardware kit		
	<input type="checkbox"/> Can be terminated using industry standard punch-down tools		
	<input type="checkbox"/> Should have RJ45 port which is RJ-11 compatible		
	<input type="checkbox"/> Should have Molded category identification on each port face as well as optional port identification icons		
168	Rear Cable Manager		
	Should have Flat type metal with Perforated Rear Cable Manager to hold CAT6 UTP Cable with velcro cable ties		
169	Dust Proof		
	Should have RJ45 Jack should be supplied with Cap or Shutter to avoid Dust		
170	RJ45 I/O Compatibility		
	a. Should have Individual Compatible RJ45 Jack		
	b. Should have Pointed IDC Tower on RJ45 Jack for easy termination		
	c. Half Plugged Patch Cord should be spitted out if not properly plugged in		
171	Mechanical Characteristics		
	Material:		
	Should have CRS (cold rolled steel)		
	Thickness:		
	Should have .060" (1.52mm)		
	Coating:		
	Should have Grey / Option for Black		
172	Jack Connector		
	Plastic Housing:		
	Should have Thermoplastic UL94V-0 rated or equivalent		
	Operating Life:		
	Should have Minimum 750 insertion cycles		
	Contact Material:		
	Should have Phosphor Bronze		
	Contact Plating:		
	Should have 50µ" Gold/100µ" Nickel		
	Contact Force:		
	Should have 100g minimum		
	Plug Retention Force:		
	Should have 11 lbf minimum		
173	IDC Connector		
	Plastic Housing:		
	Should have Thermoplastic UL94V-0 rated or equivalent		
	Operating Life:		
	Should have Minimum 20 reterminations		
	Contact Material:		
	Should have Phosphor Bronze		
	IDC Contact Plating:		
	Should have Solder Plate (60% tin/40% lead)		
	Wire Accommodation:		
	Should have 22-24 AWG solid		
174	Electrical Characteristics		
	Interface Resistance:		
	Should have 20 milliohms		
	Initial Contact Resistance:		
	Should have 2.5 milliohms		
	Insulation Resistance:		
	Should have >100 Megaohms		
175	Standards		
	Should have ETL Verified to ANSI/TIA-568-C.2, ISO/IEC 11801 Category 6		
PowerCat 6 Patch cord			

176	Type		
		Should have PowerCat 6 U/UTP End-to-End Solution and are designed to support data networks for 10/100BASE-T and 1000BASE-T applications.	
177	Conductor size:		
		Should have 24 AWG stranded copper wire	
178	Nom. O.D.:		
		Should have 5.9mm	
179	Sheath:		
		Should have LS0H	
180	Bend radius:		
		Should have 4X O.D.	
181	Boots		
		Should have Transparent Plug with anti-snap slip on boots	
182	RJ45 Plug Standard		
		Should have ISO/IEC 60606-7-4 and FCC 47 Part 68	
183	Sheath Standards		
		Should have Fire Propagation compliant with CSA FT1, IEC 60332-1, IEC 61034	
184	Operating temperature range:		
		Should have (-20°C to 60°C)	
185	MIN operating life		
		Should have : 750 insertion cycles	
186	RJ45 plug and boot material:		
		Should have Clear polycarbonate	
187	Contact material:		
		Should have 0.35mm thick copper alloy	
188	Contact plating:		
		Should have Selective gold	
189	RJ45 plug dimensions compliant with:		
		Should have ISO/IEC 60603-7-4 and FCC 47 Part 68	
190	Commercial Standards		
		Should have ISO/IEC 11801:2002/Amd 2:2010 Cat 6-, TIA-568-C.2 Cat 6	
191		Should have ETL Verified	
192	Fire Propagation Tests:		
		Should have LS0H Sheath: CSA FT1, IEC 60332-1, IEC 61034	
193	Standard length available		
		Should have 0.5mt to 10 mts	
24 Port Rack Mount Fiber Panel			
194	Rack Mount		
		Should have Lockable 19" rack mounted with 1U height, Sliding Drawer Type with 4 Cable entry/exit points (covered with rubber grommets)	
195	Material		
		Should have Powder coated mild steel	
196	Accommodation and Supports		
		Should have Accommodation of single mode cable multimode fibers Capable of supporting SC and LC interface - For 24 Port with SC Coupler Configurable. Fits up to four 6 pack plates/Angled 6 pack plates Management rings within system to accommodate excess fibre bend radius.	
197	Compatibiliy		
		Should have Labelling for port identification, Fiber Management rings to accomodate excess fiber cordage behind the trough adapters and maintain fiber bend radius	
Optical Fibre Adapter Plates			
198	Features and Benefits		
		Should have Optical Fibre Adapter Plates are modular platform that is compatible with a various Enclosures and Fibre Splicing Systems. Adapter density ranges from 6 fibres to 24 fibre per plate, allowing for 1U 96 fibre density. Available in a variety of connectors and performance levels, the Plates require no tools for installation	
		Should have From 6 Fibre to 24 Fibre Density – Allows you to reuse your existing enclosure and increase your fibre count to meet demand	
		Should have Greater Asset Utilisation – Easily Expandible – allows multiple generational uses of the enclosure for the same rack area. Our blank plates and a small profile plate ensures you only pay for the adapters you need.	
		Should have Snap Rivets – allows for easy installation and removal	
		Should have 100% Factory Tested – Guaranteed performance	
199		Should have Commercial Standards	

	Should have ISO/IC 11801, ANSI/TIA/EIA 568.B.3-2000, ANSI/TIA/EIA-492, TELECORDIA GR-409, ICEA-596		
200	Should have Mechanical Characteristics		
	Should have Dimensions: 86 x 33mm		
	Should have Plate Material: Black Electroplate or Thermoplastic		
optical Fiber Armored Multi-Mode OM3			
201	Cable Type		
	Should have optical fibres in water blocked loose tube, taped, corrugated steel tape armoured (STA) polyethylene (HDPE) outer sheathed embedded with two steel wires on the periphery. The cables are with UV Stabilized PE Jacket and protected from Rodent attacks. complying to ISO/IEC 11801, EN50173, ANSI/TIA 568-C.3, Telcordia GR-20; suitable for use in indoor / outdoor ducts, direct burial and backbone cabling		
202	Fiber Type		
	Should have Multi Mode, 50/125 micron primary coated buffers, OM3 (IEC 60793-2-50, B1.3 and ITU T G652.d). Shall be manufactured using Vapor Axial Deposition technology.		
203	Construction type		
204	Number of elements		
	1		
205	Tube:		
	Should have Polybutylene, Terephthalate(PBT)		
206	Tube colour:		
	Should have White		
207	Tube diameter		
	Should have 3.0/2.0 mm nominal OD/ID		
208	No of fibres:		
	Should have 4/6/8/12		
209	Fibre colour sequence		
	Should have Blue, Orange, Green, Brown, Slate (Grey), White, Red, Black, Yellow, Violet, Pink, Aqua		
210	Water Blocking		
	Should have Thixotropic Gel (Tube) Petroleum Jelly (Interstices)		
211	Core Wrapping		
	Should have Polyethylene Terephthalate		
212	Armouring:		
	Should have Corrugated Steel Tape Armour (ECCS Tape) Thickness > 0.125mm		
213	Peripheral Strength Member		
	Should have Two Steel wires (0.9 mm dia)		
214	Ripcord:		
	Should have Ployester based yarns below armoured tape for easy ripping		
215	Outer Sheath		
	Should have UV Stabilised Polyethylene (HDPE)		
216	Sheath thickness		
	Should have 2.0 mm nominal		
217	Sheath colour		
	Should have Black		
218	Standards		
	Should have complying to ISO/IEC 11801 2nd Edition, type OS1/OS2; AS/ACIF S008; AS/NZS 3080 ; TIA/EIA 568.C.3; IEC-60793-1, 60793-2 EN50173, ANSI/TIA 568-C.3, Telcordia GR-20; suitable for use in indoor / outdoor ducts, direct burial and backbone cabling		
219	Machanical characteristics		
220	Dimensions and Mass Overall Cable (Nominal):		
	Should have 9.0 MM		
221	Mass (Nominal)		
	Should have 80 kg/km		
222	Cable length		
	Should have 2 km ± 10%		
223	Max. Bending Radius (during installation)		
	Should have 20 X Overall diameter		
224	Max. Bending Radius (during full load):		
	Should have 10 X Overall diameter		
225	Max. Tensile Strength-Short Term		
	Should have 1500N		
226	Max. Crush Resistance-Short Term:		
	Should have 2000N/10 cm		
227	Operating Temperature range		
	Should have (-40°C ±70°C)		
228	Optical characteristics		

	Should have Mode Field Diameter @ 850nm		
	Should have 50 + 3.0 µm		
	Should have Cladding Diameter		
	Should have 125 + 2.0 µm		
229	Electrical/Optical Characteristics		
230	Attenuation		
	Should have Characteristics - Optical Performance Max. Attenuation (Cable with fibres) At 850 nm: 3.0 dB/km At 1330 nm: 1.0 dB/km		
231	Min Bandwidth		
	Should have At 850 nm: 2000MHz At 1300 nm: 500MHz		
SC-LC OFC Patch Cords OM3			
232	Type of connectors		
	Should have SC or LC LSOH Jacket - Reduces toxic / corrosive		
233	Length		
	Should have Minimum 1 meters		
234	Polishing		
	Should have 100% Factory polished and tested		
235	Insertion Loss		
	Should have Less than 0.3dB per connector		
236	Attenuation		
	Should have 3.5dB/km @ 850 nm & 1.5dB/km @ 1300nm		
237	Standards		
	Should have ROHS Compliant		
238	Jacket colour		
	Should have Industry Standard Colour - OS1-Yellow, OM3-Aqua, OM2-Grey, OM1-Orange		
239	Make and Type		
	Should have SC to LC Duplex Fiber Optic Patch Cord 50/125 Micron		
240	Cable Sheath		
	Should have LSZH		
241	Cable Diameter		
	Should have 1.6 mm		
242	Ferrule		
	Should have Ceramic		
243	Buffer		
	Should have Tight buffered		
244	Temperature Range		
	Should have (-40 Degree C to +85 Degree C)		
245	Buffer Diameter:		
	Should have 900µm		
246	Primary Coating :		
	Should have 245µm		
247	Strength Member:		
	Should have Aramid Yarn		
248	Jacket Material:		
	Should have LSOH IEC 61034-1 & 2, IEC-60332-1, IEC-60754- 1 & 2		
Pigtail			
249	Type of connectors		
	Should have SC / LC LSOH Jacket - Reduces toxic / corrosive		
250	Length		
	Should have 1.5 Mtrs		
251	Polishing		
	Should have 100% Factory polished, tested and Guaranteed Performance		
252	Standards		
	Should have ROHS Compliant		
SC-LC Single Mode OFC Patch Cords 9/125 Micron			
253	Type of connectors		
	Should have SC or LC LSOH Jacket - Reduces toxic / corrosive		
254	Length		
	Should have Minimum 1 meters		
255	Polishing		
	Should have 100% Factory polished and tested		
256	Insertion Loss		
	Should have Less than 0.35dB per connector		
257	Attenuation		
	Should have 0.4dB/km over 1310nm to 1625nm		

258	Standards		
	Should have ROHS Compliant		
259	Jacket colour		
	Should have Industry Standard Colour - OS1-Yellow, OM3-Aqua, OM2-Grey, OM1-Orange		
260	Make and Type		
	Should have SC to LC Duplex Fiber Optic Patch Cord 9/125 Micron		
261	Cable Sheath		
	Should have LSZH		
262	Cable Diameter		
	Should have 1.6 mm		
263	Ferrule		
	Should have Ceramic		
264	Buffer		
	Should have Tight buffered		
265	Temperature Range		
	Should have (-40 Degree C to +85 Degree C)		
266	Buffer Diameter:		
	Should have 900µm		
267	Primary Coating :		
	Should have 245µm		
268	Strength Member:		
	Should have Aramid Yarn		
269	Jacket Material:		
	Should have LSOH IEC 61034-1 & 2, IEC-60332-1, IEC-60754- 1 & 2		
Rack Mount Fiber Panel - 17.C012G			
270	Features and Benefits		
	Should have The WR12/24/48 is a versatile fibre management enclosure that can be used as a wall mount enclosure for isolated applications or rack mount enclosure for integrated applications		
	Should have 1U panel can be mounted flush or recessed in 19" cabinet / wall rack accommodation with optional rack mount ears.		
	Should have WR48 unit is 2U high		
	Should have Wall mountable with either left or right vertical presentation of fibre through adapters		
	Should have Rear, side & base access for Incoming / Outgoing backbone cables		
	Should have Management rings within the system to accommodate excess fibre cordage behind the through adapters and maintain fibre bend radius.		
	Should have Removable lid also affords protection to the interfacing patch cords. Lid is fixed with screws		
	Should have Accommodates single or multimode fibre		
	Should have Rugged steel construction in graphite finish		
Sr No.	Crimping tool		
271	Should have Customize your own cables with this tool that crimps, strips and cuts		
272	Should have Terminates 4-wire RJ11, 6-wire RJ12 and 8-wire RJ45 modular plugs		
273	Should have Strips flat modular and round network cable, such as Cat5e and Cat6		
274	Should have Single blade cuts cable cleanly		
275	Should have Sturdy construction designed to last a long time		
276	Should have Easy-grip handle feels comfortable in your hand		
Sr No.	Punching Toolkit		
277	Should have This Impact 2-Pair Punch Down Tool offers a quick solution when needing to punch down large groups of cables. For use on LAN and Telecom cables with seating 2 pairs at a time. Suitable for both 110 type cable side and cross-connect side terminals blocks. For use with 90° Keystone Jacks only.		
	a) Punch Down Tool		
	b) Punch Down 2 Pairs at once		
	c) Extremely Fast		
Sr No.	Cable Tester		
278	Should have LED status display		
279	Should have Auto check of open/short/cross over circuit		
280	Should have Fast/slow checking modes conversion		
281	Should have Single key operation		
282	Should have Manual/auto power off (after 10-minute inactivity)		
283	Should have Low battery indication		
284	Should have Power supplied by 9V battery		

Sr No.	Internet Connectivity 20 MBPS Lease Line with (1:1) 10 Static IP (Including Installation & with all required accessories for lease line)		Page No.
285	ISP TYPE Class A		
286	Hardware (Fiber link/Radio link/Leased Line Modems, routers, antenna(s) and/or other necessary hardware. If required Provided by Tenderer.		
287	Software required establishing the required link. Provided by Tenderer.		
288	ISP has to provide min 10 Global IP numbers Provided by Tenderer.		
289	Bandwidth monitoring system, Internet router port at ISP Gateway for required bandwidth. Provided by Tenderer.		
290	Liaison with BSNL/Govt. Deptt.(s) for obtaining point to point connectivity between ISP node and PIT NANAGARH and/or WPC clearance (if required). To be Done by Tenderer.		
291	Installation, configuring of the link and necessary hardware/soft, commissioning to be done by Tenderer.		
292	Warranty of equipment supplied along with bandwidth for the period of contract.		
293	Maintenance Support Service (24 hours 7 days a week) for bandwidth and equipment / Software.		
294	Reports for performance monitoring/usage to be submitted on monthly basis.		
295	Packet Losses: less than 1% or 2%		
296	Availability of services: 99 %		
297	In case of above parameters going out specifications, payment will be deducted for those period on per minute basis.		
298	The list of existing customers of Internet bandwidth should be provided PO of atleast 3 years old. Attached.		
299	Ready to extend the contract for one or two more years, if required by University		

Note:- For Sr No 1 to 284

1. The Financial Bid will be opened only for those bidders whose Technical Bid is found complete and confirm the above eligibility criteria.
2. If any need arises to verify the scan copies from original then the same will be produced by the Bidder before the opening of Financial Bid failing which his bid will be rejected.
3. Any condition/ documents of regarding rates attached with technical bid shall not be accepted.
4. Page Number/Serial Number may be given to each and every page of Tender Documents and other documents attached. Mention Page Number, Wherever the copy(ies) of the document (s) are attached.
5. In case of non-fulfillment of any of the above information/document (s) , the Tender will be summarily rejected without giving any notice.
6. This work is to be done on turnkey basis
7. This is Tentative Quantity.Quantity may increase or decrease.

Note:- For Sr No 1 to 16 and For 285 to 299

1. The quotation should clearly indicate the different component of total charges Recurring (annual) and non-recurring (one time) including bandwidth, equipment supplied,
2. Educational discount, if any must clearly be quoted.
3. Payment will be made on monthly basis, payment of last month has to be paid after completion.
4. The Financial Bid will be opened only for those bidders whose Technical Bid is found complete and confirm the above eligibility criteria.
5. If any need arises to verify the scan copies from original then the same will be produced by the Bidder before the opening of Financial Bid failing which his bid will be rejected.
6. Any condition/ documents of regarding rates attached with technical bid shall not be accepted.
7. Page Number/Serial Number may be given to each and every page of Tender Documents and other documents attached. Mention Page Number, Wherever the copy(ies) of the document (s) are attached.
8. In case of non-fulfillment of any of the above information/document (s) , the Tender will be summarily rejected without giving any notice.
9. In case of downtime, payment will be deducted for those period on per minute basis.
10. Ready to extend the contract for two more years, if required by University.