Maharaja Ranjit Singh Punjab Technical Un		niversity, Bathinda	
		Providing, Installation & Commissioning of Networking	
	Name of Items	Equipments in PIT GTB GARH (MOGA) a Nandgarh.	
	Name of Firm		
Sr.	Description	Proof (Attached/Not Attached)	Page
No.	Full Address	(Y/N)	No.
1	i. Head Office		
	ii. Branch Office (if any) Name of contact Person		
2	i. Mobile No.		
3	ii. E mail ID Telephone Number(s)		
4	Fax Number (if any)		
5 6	Proof of Dealership Certificate/Distributor Certificate (if any) Undertaking that firm is not blacklisited by any University/Institute/Oraganization and no		
	complaint is pending in any Police station		
7 8	GST No. PAN NO:- TAN		
	NO:-		
9	Bank Name and Address Bank A/c No. and IFS Code		
11	Confirmation of Earnest Money Deposit.		
12	Proof of Bidder having his own manufacturing unit if any. The bidder should submit list of the customers using the goods with detail like: name of the		
13	person using the equipments, telephone number, email id, communication address in detail.		
14	Proof of Bidder having sucessfully 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		
15	single order in India in the last 3 years. Proof of Financial standing such as statement of (i) Profit and loss Account (ii) Balance sheet		
13	(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 3 years 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 Chavid have 130 MB and 16MB fleet		
20	Should have 128 MB and 16MB flash 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		
21	also supported) L2 Services		
	Should have Spanning Tree Protocol (STP)		
	Should have VLAN and Voice VLAN		
	Should have O-in-O-VI AN		
	Should have Q-in-Q VLAN Should have Generic VLAN Registration Protocol (GVRP)/Generic Attribute		
	Registration Protocol (GARP)		
<u> </u>	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		
<u> </u>	application discovery or relaying of BootP/DHCP packets		

	Charled have Coultable for attack and an IDv4 DUCD Company and in ID addresses	
	Should have Switch functions as an IPv4 DHCP Server serving IP addresses for multiple DHCP pools/scopes Support for DHCP options	
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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	
	Ĭ	
-	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	
28		
29	Should have Automatic medium dependent interface (MDI) and MDI crossover (MDI-	
	X).	
	Should have an Auto negotiated port for connecting 10, 100, 1000-Mbps devices,	
30	Indicators for loop detection, Gigabit,*miniGBIC*, Must have minimum 16 SSIDs.	
	Should support radio resource management for power, channel, coverage hole	
31	detection and performance optimization.	
	Should have 24 RJ-45 connectors for 10BASE-T/100BASE-TX/1000BASE-T ports with 2	
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	combo mini-GBIC	
32	slots	
32	All units: automatic medium dependent interface (MDI) and MDI crossover (MDI-X);	
	auto-negotiated port for	
	connecting 10-, 100-, 1000-Mbps devices	
	Should have Ethernet: • 10 Mbps (half duplex), 20 Mbps (full duplex) • Fast Ethernet:	
33	• 100 Mbps (half duplex),200 Mbps (full duplex) • Gigabit Ethernet:	
	200260 (mail dapien/)200 mispo (mil dapien/ - digasit Ethernet.	
33		
- 33	Charled have Franch David Coultable of 1963 F. 11 / P. 11 FEE (1963 F. 11 / P.	
	Should have Front Panel Switches1 • (#1) Enable/disable EEE, (#2) Enable/disable	
34	Should have Front Panel Switches1 • (#1) Enable/disable EEE, (#2) Enable/disable Flow Control, (#3) Enable/disable Port Isolation/Broadcast Storm Control	
34	Flow Control, (#3) Enable/disable Port Isolation/Broadcast Storm Control	

Sr. No. Specification Should have Access Points Proposed must Include radios for 2.4 GHz and 5 GHz with SS 2.13 ke. An access point must include a standard DEM provided Mounting brackets for mounting on Celleg or Roof top. Should have Access Point for Standard DEM provided Mounting brackets for mounting on Celleg or Roof top. Should have Access Point standard Support Console port that uses Standard Port (RJ-45) Type connection Should have Access Point standard Support Console port that uses Standard Port What Shave are Risk-3 standard standard Standard Port Must Support data rate of 867 Mbgs on Sight with 80 mits channel. Must Support 3 MMINOT Dort 80 21 fac end 82 Lin client Must Support distance of 867 Mbgs on Sight with 80 mits channel. Must Support to minimum of 125 Mbgs on Sight with 80 mits channel. Must Support distance of 867 Mbgs on Sight with 80 mits channel. Must Support distance of 867 Mbgs on Sight with 80 mits channel. Must Support of minimum of 125 Mbgs on Sight with 80 mits channel. Must Support A Periforcel did adhabance between 2.4GHz and 5Ghz band. Must Support Posactive Key Caching and/or other methods for Fast Secure Roaming. Access Points must support encypted user data and management traffic between controller and Access point for better encurity. Must Support Posactive Key Caching and/or other methods for Fast Secure Roaming. Access Points must support encypted user data and management traffic between controller and Access point for better exerutive. Must support the Addity to server clients and monitor the RF environment Sci. Someoned AF That serves clients and monitor the RF environment Concerned. Must support to Evidence Secure clients who link to controller is down. Must support to Work that serves clients and monitor the RF environment Australia and Access Point Must control on the Secure Cualation of Latest Gartner Must support to Secure Control Secure Cualation of Latest Gartner Must support to Secure Cualation of Secure Cualation of Latest Gartner Must support to Secure Cuala		Should have Ordering Information 24-Port Gigabit Unmanaged Desktop or Rack	
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Computer Security Association (ICSA) Certification. The Firewall should have integrated SSL VPN solution to cater to 300 SSL VPN concurrent users.			
75 concurrent users.	/4		
	75		
76 The proposed system should support	76	The proposed system should support	
77 a) IPSEC VPN			
78 b) PPTP 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	
	The system shall support IPSEC site-to-site VPN and remote user VPN in transparent	
90	mode.	
	The system shall provide IPv6 IPSec feature to support for secure IPv6 traffic in an	
91	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	
	IPS Signatures can be updated in three different ways: manually, via pull technology	
99	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	
400	In event if IPS should cease to function, it will fail open by default and is configurable.	
100	This means that crucial network traffic will not be blocked and the Firewall will	
	continue to operate while the problem is resolved	
	IPS solution should have capability to protect against Denial of Service (DOS) and	
101	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	
102	issuing TCP Reset packets to each end of the connection, or silently drop traffic in	
	addition to sending a alert and logging the incident Signatures should a severity level defined to it so that it helps the administrator to	
103	understand and decide which signatures to enable for what traffic (e.g. for severity	
103	level: high medium low)	
104	Antivirus	
104	Antivirus	
	The proposed system should be able to block, allow or monitor only using AV	
105	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	
107	c) POP3	
108	d) IMAP	
110	e) FTP	
110	· ·	
111	The proposed system should be able to block or allow oversize file based on	
112	configurable thresholds for each protocol types and per firewall policy.	
112	Web Content Filtering The proposed system should have integrated Web Content Filtering solution without	
113	The proposed system should have integrated Web Content Filtering solution without	
	external solution, devices or hardware modules. The proposed solution should be able to enable or disable Web Filtering per firewall	
114		
114	policy or based on firewall authenticated user groups for both HTTP and HTTPS	
115	traffic. The proposed system shall provide useb content filtering features:	
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	
422	The proposed system shall be able to queries a real time database of over 110 million	
120	+ rated websites categorized into 78+ unique content categories.	
<u></u>		
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	
	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	
126	matching these patterns that will be blocked and/or logged when passing through	
	the unit.	
127		
127	High Availability	
128	The proposed system shall have built-in high availability (HA) features without extra	
	cost/license or hardware component	
120	The device shall support stateful session maintenance in the event of a fail-over to a	
129	standby unit.	
130	High Availability Configurations should support Active/Active or Active/ Passive	
131	Logging & Reporting Solution.	
	Should have A dedicated appliance to be proposed with the solution for logging,	
132	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	Туре	
1.55	Should have Unshielded twisted pair cabling system, TIA / EIA 568-C.2 Category 6	
1	Cabling system	
134	Network support	
104	Should have Supports ultrahigh speed data	
1	networks such as Gigabit Ethernet	
1	(1000 Base-T and 1000 Base-TX)	
1	and beyond.	
135	TIA / EIA 568-B.1	
	Should have ETL Verified, UL Listed and UL channel verified- All three Certificates are	
1	mandatory	
136	IEEE 802.3ab	
	Should have Zero-bit Error, ETL verified	
407	· ·	
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	
400	by OEM	
138	Performance characteristics to be provided along with bid	
	Should have Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return	
400	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	
172	Approvais	
<u> </u>	Obsorbid have III Liefe dear d.III Cl	
	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	
140	<u> </u>	
	Should have 100 Ohms + / - 15 ohms	
146	Performance characteristics to be provided along with bid	
1	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:	
130		
	Should have 66.5Ω/km	
151	Voltage:	
	Should have 150VAC	
152	Propagation delay:	
	Should have 535ns/100m @250MHz	
153	Mutual Capacitance:	
133	•	
	Should have 5.6nF/100m Nominal	

Insulation Resistance:			
156 Delectric Strength:	154	Insulation Resistance:	
Should have 1000 V RMS Should have 1000 V RMS			
Strout have 10 mC Max PowerCast 5 DataGate Jack	155	Dielectric Strength:	
Should have 100 Make PowerCast © DataGate Jack 157 Features and Benefits Peterted Syring-Loaded Shutter: Should prevents incomplete mating and protects from dust and contaminants Thould have Patented IDC V-shaped contacts that fire not strigue when terminated J. Should have Patented IDC V-shaped contacts that fire not strigue when terminated J. Should have Patented IDC V-shaped contacts that fire not strigue when terminated T. Should have Dual color-coding allows to speed termination and enhance cable retention. T. Should have Patented USC V-shaped contacts that fire not strigue when terminated using industry strandard purch-down tools Should have R-11 compatible T. Should have R-14 (Compatible Should be speed out in the property of the strip of t		Should have 1000 V RMS	
PowerCast & DataGalle Lack 197	156	Contact Resistance:	
PowerCast & DataGalle Lack 197		Should have 10 mΩ Max	
Patented Spring-Leaded Shutter:		PowerCat 6 DataGate Jack	
Patented Spring-Leaded Shutter:	157	Features and Renefits	
Should prevents incomplete mating and protects from dust and contaminants . Should have Patinted IDC V-Ahaped contacts that flex not futigue when terminated . Should have Features pointed IDC towers to speed termination and enhance cable retention . Should have Dual color-coding allows for 568 A/8 wiring configuration . Can be terminated using industry standard punch-down tools . Should have Build industry standard punch-down tools . Should have Build Society of the Society of Society	107		
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Should have VE10 ABS		Snould nave VE10 ABS	

	24 Port loaded Patch Panel 1U Height	
	Features and benefits	
167	Available in 1U 24 Port and 2U 48 Port density	
107	Each port features Should have the patented spring-loaded shutter:	
	prevents incomplete mating	
	prevents incomplete mating protects from dust and contaminants	
	□ Should have Patented IDC V-shaped contacts that flex not fatigue when terminated	
	Should have Patented IDC v-shaped contacts that hex not fatigue when terminated	
	☐ Should have Features pointed IDC towers to speed termination and enhance cable	
	retention	
	☐ Should have Dual colour-coding allows for 568 A/B wiring configuration	
	☐ Should have Front and rear port labelling (port sequence 1–480) as well as panel	
	identification label	
	Should have 4 x 6 ganged jack configuration	
	Should have Individually removable patch panel ports	
	Should have Removable cable management shelf(s) ensure bend radius compliance	
	□ Should have Available with either ANSI and metric hardware kit	
	☐ Can be terminated using industry standard punch-down tools	
	□ Should have RJ45 port which is RJ-11 compatible	
	☐ 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 Compatiable 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	
173	Should have ETL Verified to ANSI/TIA-568-C.2, ISO/IEC 11801 Category 6	
	PowerCat 6 Patch cord	
	i oncidat di aton colu	

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 applicications. 177 Conductor size:	the state of the s
and are designed to support data networks for 10/100BASE-T and 1000BASE-T applicications.	
10/100BASE-T and 1000BASE-T applicications.	
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-snag 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 FTI, 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	
11 2	
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	
11x-300-0.2 Gat 0	
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 Compatiabiliy	
Should have Labelling for port identification, Fiber Management rings to accommodte	
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	
I norformance levels, the Diston require no tools for installation	
performance levels, the Plates require no tools for installation	
Should have From 6 Fibre to 24 Fibre Density – Allows you to reuse your existing	
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 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	
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	
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	
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	
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 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 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.	

ı	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	
ì	armoured (STA) polyethylene (HDPE) outer sheathed embedded with two steel	
i	wires on the periphery. The cables are with UV Stabilized PE Jacket and	
i	protected from Rodent attacks.	
i	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	
i	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	
i	technology.	
203	Contruction type	
204	Number of elements	
	1	
205	Tube:	
	Should have Polybutylene, Terephthalate(PBT)	
206	Tube colour:	
007	Should have White	
207	Tube diameter Should have 2 0/2 0 mm nominal OD/TD	
200	Should have 3.0/2.0 mm nominal OD/ID No of fibres:	
208	No of fibres: Should have 4/6/8/12	
209	Fibre colour sequence	
200	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:	
1	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	
1	Should have UV Stabilised	
216	Polvethylene (HDPE) 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	
222	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)	
	` '	

	Should have Mode Field Diameter @ 850nm	
	Should have 50 + 3.0 µm	
	Should have Cladding Diameter	
	Should have 125 + 2.0 µm	
000	·	
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		
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	
230		
	Should have Industry Standard Colour - OS1-Yellow, OM3-Aqua, OM2-Grey, OM1-	
000	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	
241		
	Should have 1.6 mm	
242	Ferrule	
	Should have Ceramic	
243	Buffer	
	Should have Tight buffered	
244	-	
244	Temperature Range	
	Should have (40 Degree C to +85 Degree C)	
245	Buffer Diameter:	
	Should have 900µm	
246	Primary Coating :	
240		
	Should have 245µm	
247	Strength Member:	
	Should have Aramid Yarn	
248	Jacket Material:	
_	Should have LS0H 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	
201		
	Should have 100% Factory polished, tested and Guaranteed Performance	
252	Standartds	
	Should have ROHS Compliant	
	SC-LC Single Mode OFC Patch Cords 9/125 Micron	
253	Type of connectors	
200		
	Should have SC or LC LSOH Jacket - Reduces toxic / corrosive	
254	Length	
	Should have Minimum 1 meters	
055	Polishing	
255		
255	I Should have 100% Factory poliched and tested	
	Should have 100% Factory polished and tested	
255 256	Insertion Loss	
	Insertion Loss	
256	Insertion Loss Should have Less than 0.35dB per connector	

	In	
258	Standards	
<u> </u>	Should have ROHS Compliant	
259	Jacket colour	
	Should have Industry Standard Colour - OS1-Yellow, OM3-Aqua, OM2-Grey, OM1-	
260	Orange Make and Type	
200	Should have SC to LC Duplex Fiber Optic Patch Cord 9/125 Micron	
261	Cable Sheath	
201	Should have LSZH	
000		
262	Cable Diameter Should have 1.6 mm	
000		
263	Ferrule	
204	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 LS0H 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	
	Should have Customize your own cables with this tool that crimps, strips and	
271	cuts	
	Should have Terminates 4-wire RJ11, 6-wire RJ12 and 8-wire RJ45 modular	
272	plugs	
	Should have Strips flat modular and round network cable, such as Cat5e and	
273	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	
	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	
277	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	
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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 Finanicial 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 Finanicial 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.
- $\textbf{8. In case of non-fulfillment of any of the above information/document (s)\ , the\ Tender\ will\ be\ summarily\ rejected\ without\ giving\ any\ notice.}$
- 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.