

PROCUREMENT OF IT EQUIPMENT
LIST – IT EQUIPMENT

| S/No | Name of Equipment | Specifications | Required Brand | Quantity |
|------|-------------------|---|---|----------|
| 1. | Computer | <p>Tower Computers</p> <ul style="list-style-type: none"> • 11th Generation Intel® Core™ i5-11400 (12 MB Cache, 6 Core, 12 Threads, 2.6 GHz to 4.4 GHz, 65 W) • 8 GB, 1 x 8 GB, DDR4, 2666 MHz for Intel® Pentium® and 10th Generation Intel® Core™ i3/i5 processors, 3200 MHz for 11th Generation Intel® Core™ i5/i7 processors • Intel® UHD Graphics 730 for 11th Generation Intel® Core™ i5-11400 processors • 3.5-inch, 1 TB, 7200 RPM, SATA, HDD • M.2 2280, 256 GB, PCIe NVMe Gen3 x4, Class 40 SSD • Ports 2 DisplayPort 1.4 ports 1 VGA Port/DisplayPort 1.4 Port/HDMI 2.0b Port/ USB • 8x DVD+/-RW • 360 W typical 92% Efficient PSU, 80 Plus Platinum • With Original Brand Wired Multimedia Keyboard & Optical Mouse • Black, LED IPS 24” Full HD (1080p) 1920 x 1080 at 60 Hz Display Screen Coating Anti-Glare • Input Connectors Power connector 1 X VGA 1 X HDMI 1.4 1 X Display Port With Power and HDMI/Display Port/VGA Cable • 3 Years Hardware warranty with on-site service. • Year of Establishment/Certificate of Incorporation must be attached. | International Recognized Brands Dell/HP Or Equivalent | 236Nos |

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|------|--------------------|---|---|----------|--|--|--|--|
| | | <ul style="list-style-type: none"> • Vendor should have Tier One GOLD partner. • Principal register offices locally Services support/parts depot available in Pakistan • Proof that the equipment is brand new and current year manufactured which should be verify able by the bill of landing and with the OEM. • With Complete Brochure and Full Technical Specification | | | | | | |
| 2. | All in One Printer | <p>Printing specifications Print technology Laser Duplex printing Automatic (standard) Print resolution (best) Up to 1200 x 1200 dpi Maximum print area (metric) 214 x 356 mm Monthly duty cycle Up to 30,000 pages Print languages,PCL5c; PCL6; PS; PCLm; PDF; URF. Jet Intelligence cartridges, Duplex printing</p> <p>Scan Technology CIS Scan speed (normal) Up to 15 ppm Scan resolution, hardware Up to 300 x 300 dpi (color and mono, ADF); Up to 600 x 600 dpi (color, flatbed); Up to 1200 x 1200 dpi (mono, flatbed) Levels of grayscale 256 Bit depth 24-bit Duplex ADF scanning No Maximum flatbed scan size (metric) 215.9 x 297 mm Minimum ADF scan size (metric)148.5 x 210 mm,5.85 x 8.27 in Maximum ADF scan size (metric) 215.9 x 297 mm</p> <p>Connectivity Ports 1 Hi-Speed USB 2.0; 1 Ethernet 10/100Base-TX</p> <p>Copier settings Number of Copies; Lighter/Darker; Optimize; Paper; Multi-Page Copy; Collation; Draft Mode Maximum number of copies Up to 99 copies Copy reduce / enlarge 25 to 400% Copy speed (black, normal) Up to 30 cpm (Letter), 28 cpm (A4) Copy resolution 600 x 600 dpi</p> <p>Memory 256 MB</p> <p>Mobile printing ePrint; AirPrint 1.5; Google Cloud Print 2.0</p> <p>Network protocols TCP/IP: IPv4; IPv6; IP Direct Mode; LPD; SLP; Bonjour; WS-Discovery; BOOTP/DHCP/AutoIP; WINS; SNMP v 1/2/3; HTTP/HTTPS</p> | International Recognized Brands HP/Canon Or Equivalent | 23 Nos | | | | |

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|------|-------------------|---|---|----------|--|--|--|--|
| | | <p>Paper handling Input capacity Up to 260 sheets priority tray (envelopes) Up to 10 Output capacity Up to 150 sheets A4 Media sizes supported Letter; Legal Paper (laser, plain, photo, rough, vellum), envelopes, labels, cardstock, postcards Media weight supported 60 to 163 g/m²</p> <p>Paper handling - ADF Automatic document feeder capacity 35 sheets of 75.2 g/m² (20 lb)</p> <p>Paper handling - duplexer Recommended media weight, duplex (metric) 60 to 105 g/m² Media sizes, duplex (metric) A4 Media sizes,</p> <p>Physical dimensions Maximum dimensions (W x D x H, metric) 403 x 407.4 x 311.5 mm Weight (metric) 9.4 kg</p> <p>Power Energy savings feature technology Auto-On/Auto-Off technology Power supply 110-volt input voltage: 110 to 127 VAC (+/- 10%), 60 Hz/50 Hz, 5.9 A; 220-volt input voltage: 220 to 240 VAC (+/- 10%), 60 Hz/50 Hz, 3.3A Power consumption 475 watts (active printing), 4.5 watts (ready), 1.0 watts (sleep), 0.8 watts (Auto Off/Wake on USB, enabled at shipment)</p> <p>Warranty One-year limited warranty</p> | | | | | | |
| 3. | Color Printer | <p>Print speed Up to 29 ppm First page out (ready) black As fast as 9.3 sec First page out (ready) color As fast as 10.9 sec Resolution (black) Up to 600 x 600 dpi Resolution (color) Up to 600 x 600 dpi Resolution technology Monthly duty cycle Up to 55,000 pages Recommended monthly page volume</p> | International Recognized Brands HP/Canon Or Equivalent | 03 Nos | | | | |

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|------|-------------------|--|--|----------|--|--|--|--|
| | | 900 to 4,800 Pages Print Technology Laser Display 2.658" diagonal Color TFT-LCD back-lit (960 (H) x 240 (V)) Processor speed 800 MHz Number of print cartridges 4 (1 each black, cyan, magenta, yellow) Paper trays 3 Connectivity standard 1 Hi-Speed USB 2.0; 1 Host USB; 1 Gigabit Network Ready Standard (built-in Gigabit Ethernet) Duplex printing Automatic (default) Dimensions (W X D X H) 16.3 x 18.6 x 12 in Warranty One-year | | | | | | |
| 4. | Network Rack | Network Cabinet <ul style="list-style-type: none"> • 6U Double Section Network Cabinet • Installation of Switches and Access points • Installation of Electric Power for Switches in cabinets • 6 Port PDU For Cabinets Note. Serial No 4,5,6,11,12,13,14,15,16 will be a part of turnkey solution and quoted by single bidder | International Recognized Brands | 24Nos | | | | |
| 5. | Network Switch | Layer 2 Gigabit <ul style="list-style-type: none"> • The Access Switch should have 24xGE RJ 45+ interfaces. • Switch must have 4xGE SFP ports for uplink. • VLAN support • Trunk ports • Spanning Tree Protocol • Ac power Supply • 3 years hardware replacement Warranty 24/7 support • Web Based Managed Switch SFP Transceiver Qty=24 Single Mode 1XGE SFP Transceiver with 3 Years Hardware Replacement Warranty | International Recognized Brands Cisco Or Equivalent | 12 Nos | | | | |

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| | | <p>Note. Serial No 4,5,6,11,12,13,14,15,16 will be a part of turnkey solution and quoted by single bidder</p> | | | | | | |
| 6. | Network Cable Box | <ul style="list-style-type: none"> • Ethernet Pure Copper Cable Roll with installation • Face Plate with Back Box and Cat 6 I/O Qty=150 • Connectivity of 25 Access points with Switches • 3 Meter Patch Cords pure Copper 23 AWG standard Qty=200 • Installation of Switches and Access points • Cat6 RJ45 Connector Box Qty=06 <p>Note. Serial No 4,5,6,11,12,13,14,15,16 will be a part of turnkey solution and quoted by single bidder</p> | International Recognized Brands | 19 Nos | | | | |
| 7. | Laptop | <p>Processor 11th Generation Intel® Core™ i5-1145G7 (8 MB Cache, 4 Core, 8 Threads, 2.60 GHz to 4.40 GHz, 15 W)</p> <p>Operating System Ubuntu® Linux® 20.04 LTS, 64-bit</p> <p>Video Card Integrated: Intel® UHD Graphics Intel® Iris® Xe Graphics</p> <p>Memory 8 GB, 1 x 8 GB, DDR4, 3200 MHz</p> <p>Internal storage M.2 2230, 256 GB, PCIe NVMe Gen3 x4, Class 35 SSD</p> <p>Keyboard Black, English US, backlit keyboard with optional fingerprint reader</p> <p>Camera 720p at 30 fps HD camera, single integrated microphone 720p at 30 fps HD + IR camera, dual-array microphone</p> <p>Color Black</p> <p>Display 15.6-inch, FHD 1920 x 1080, 60 Hz, anti-glare, non-touch, 45% NTSC, 250 nits, wide-viewing angle</p> | International Recognized Brands Dell/HP Or Equivalent | 14 Nos | | | | |

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|------|-------------------|--|---|----------|--|--|--|--|
| | | <p>Audio and Speaker Stereo speakers with Realtek Audio Controller, 2W x 2 = 4 W</p> <p>Wireless technologies As per Installed</p> <p>Ports and Connectors 1 USB 3.2 Gen 2x2 Type-C port with DisplayPort alt mode/Power Delivery 2 USB 3.2 Gen 1 Type-A port 1 USB 2.0 port 1 HDMI 1.4a port 1 RJ-45 Ethernet port 1 universal audio port 1 power adapter port</p> <p>Slots 1 uSD 3.0 card slot 1 uSIM slot (WWAN only) 1 wedge-shaped lock slot</p> <p>Dimensions Height: 18.06 mm (0.71") x Width: 361 mm (14.2") x Depth: 240.9 mm (9.5") Starting Weight (Minimum): 1.79 kg (3.95 lb)ⁱ</p> <p>Battery 3-cell, 41 WHr Polymer, ExpressCharge™, Integrated 4-cell, 54 WHr Polymer, ExpressCharge™, Integrated</p> <p>Warranty 3-year warranty With Complete Brochure & Full Technical Specification</p> <p>Original Carrying Case/Bag for 15.6" Laptop</p> | | | | | | |
| 8. | Projector | <p>LCD, 4100 lumens, XGA Lamp and filter replacement cycle of up to 10,000 hours Quiet 28 dB Operation for Distraction 16,000:1 contrast ratio</p> <p>Power Supply AC100-240V 3.5A 50/60 Hz Power Consumption 300W 6W when Standby mode set to Normal, 0.5W when Standby mode set to Eco*1</p> <p>LCD Panel Size 16.0 mm (0.63 inches) diagonal (4:3 aspect ratio)</p> | International Recognized Brands Sony/Panasonic Or Equivalent | 32Nos | | | | |

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| | | <p>Pixel 786,432 (1,024 x 768) x 3, total of 2,359,296 pixels Lense Manual zoom (1.2x), manual focus F 1.6- 1.76, f 19.16-23.02 mm</p> <p>Throw Ration 1.48- 1.78:1, Lamp 230 W UHM lamp Lamp/Filter*2 Replacement Cycle Normal: 5,000hrs / Eco1: 6,000hrs / Eco2: 10,000hrs Screen Size 30-300 inches (0.76 -7.62 m) diagonally, 4:3 aspect ratio Colors Full color (16,777,216 colors) Brightness*3</p> <p>Lumens 4,100 lumens (lamp power: normal)</p> <p>Resolution 1,024 x 768 pixels (Input signals that exceed this resolution will be converted to 1,024 x 768 pixels.)</p> <p>Keystone Correction Range Vertical: ±30°, horizontal: ±15°</p> <p>Installation Ceiling/floor, front/rear (menu selection)</p> <p>Built-in Speaker Output Power 10 W (monaural) x 1</p> <p>Terminals HDMI In HDMI 19-pin x 1, HDCP and Deep Color compatible Audio signal: linear PCM, Computer (RGB) 1 In D-sub HD 15-pin (female) x 1, Computer (RGB) 1 In R, G, B R, G, B: 0.7 Vp-p, 75 ohms; Computer (RGB) 1 In Y, PB (CB), PR (CR) Y: 1.0 Vp-p (including sync signal), 75 ohms PB, Computer (RGB) 1 In S-VideoY: 1.0 Vp-p; C: 0.286 Vp-p, 75 ohms Computer (RGB) 2 In D-sub HD 15-pin (female) x 1, Computer (RGB) 2 In R, G, B R, G, B: 0.7 Vp-p, 75 ohms; Monitor Out D-sub HD 15-pin (female) x 1, Monitor Out R, G, BR, G, B: 0.7 Vp-p, 75 ohms; Video In Pin jack x 1, 1.0 Vp-p, 75 ohms, Audio In 1 M3 (L, R) x 1, 0.5 Vrms, Audio In 2 Pin jack x 2 (L, R x 1), 0.5 Vrms, Audio Out M3 (L, R) x 1 (monitor out: 0-2.0 Vrms, variable), Serial In D-sub 9-pin (female) x 1, for external control (RS-232C compliant), LAN RJ-45 x 1, for network connection, compliant with PLink™, 100Base-TX/10Base-T</p> <p>Screen Size 120” Inch 16:9 Manual with Wall Mount Hanging Clips</p> <p>Cables 15 Meter VGA&HDMI Cables,</p> <p>KIT Projector Ceiling mount Hanging Complete Set</p> <p>Warranty 1-year warranty</p> | | |

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| 9. | Server Machine/Rack Servers | <ul style="list-style-type: none"> • 2 x Intel® Xeon® Platinum 8268 2.9G, 24C/48T, 10.4GT/s, 35.75M Cache, Turbo, HT (205W) DDR4-2933, • 128GB Ram, • 2 x 480 GB M.2 SSDs Nvme • 2 x 1.2TB 10k HDD, • 1 x Broadcom 57412 Dual Port 10GbE SFP+ & 5720 Dual Port 1GbE BASE-T rNDC With SFPs • 4 x Broadcom 57416 Dual Port 10GbE BASE-T Adapter, PCIe Full Height • 32GB Raid-1 Card for Hypervisor Installation, Integrated Remote Access with Enterprise License, • Network Adapter: 2 x Dual port 10Gb Network Card/iscsi Base-T, • RAID controller: 2Gb Supporting RAID Level 0,1,5,6,10,50,60 • Power Supply: 800watts Dual, Hot-plug, Redundant Power Supply (1+1) • Open Manage Integration for VMware vCenter - 1 host increment, 3 year license digitally fulfilled • Remote Server Management • 3 Years Warranty & Pro Support <p>Serial No 9,10 will be a part of turnkey solution and quoted by single bidder</p> <p>Important Note:</p> <ul style="list-style-type: none"> • Servers, Storage and Racks must be of same brand. • Vendor must be Tier 1 and Authorized Service delivery partner from last 3 years. (Documentary proofed from Principal required) • MAL from OEM is mandatory • Hands on training of all active equipment during Deployment | International Recognized Brands Dell/HP/ or Equivalent | 04 Nos | | | | |
| 10. | Enterprise Storage | Rack SAN Hybrid Storage (Supports SSD/SAS HDD/ NL-SAS) | International Recognized Brands | 02 Nos | | | | |

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| | | <p><u>With SAN Switch and SFPs</u> Required Raw Storage= 16 TB or Above Min/Max Drives= 6/500 Embedded SAS IO Ports per Array= 4 x 4 lane 12Gb/s SAS ports for BE (back end) Connection Embedded CNA ports per Array=4 ports: 8/16 Gb FCD ,10Gb IP/iSCSI, or 1Gb RJ45 Max SAN Hosts=512 Max Number of Pools=20 Max Number of LUNs per Array= 1000 Array Enclosure = A 2U Disk Processor Enclosure (DPE) with twenty five 2.5” drives Max Raw Capacity=2.4PBs CPU per Array= 2 x Intel CPUs, 12 cores per Array, 1.7GHz Memory per Array= 128GB Max FAST Cache = Up to 800GBs Interface Protocols = NFSv3, NFSv4, NFSv4.1; CIFS (SMB 1), SMB 2, SMB 3.0, SMB 3.02, and SMB 3.1.1; FTP and SFTP; FC, iSCSI and VMware Virtual Volumes (VVols) 2.0 Supported Media= FLASH, SSD(SAS), NL-SAS RAID Options=1/0, 5, 6 Mezzanine card or IO Module=Four-Port 10 Gb/s Optical Module (File & Block) With SFPs All Inclusive Base Software Management Software: <ul style="list-style-type: none"> • Unisphere: Element Manager • Unisphere Central: Consolidated dashboard and alerting • CloudIQ: Cloud-based storage analytics • Thin Provisioning • Dynamic Pools - All-Flash Arrays (AFA) only • Data Reduction: Zero Detect/Deduplication/Compression (AFA and All-Flash Pools in Hybrid Arrays, Block & File) </p> | DELL/IBM/Hitachi/ Brocade or Equivalent | |

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| | | <ul style="list-style-type: none"> • Host Groups • Proactive Assist: Configure remote support, online chat, open a service request, etc. • Quality of Service (Block and VVols) • Storage Analytics Adapter for VMware® vRealize™ • File & Block Tiering / Archiving to Public/Private Cloud (Cloud Tiering Appliance) • File-Level Retention (FLR-E & FLR-C) <p>Unified Protocols:</p> <ul style="list-style-type: none"> • File • Block • VVols <p>Local Protection:</p> <ul style="list-style-type: none"> • Controller Based Encryption (optional), with self-managed or external key management • Local Point-In-Time Copies (Snapshots and Thin Clones) • AppSync Basic • Dell EMC Common Event Enabler; AntiVirus Agent, Event Publishing Agent <p>Remote Protection:</p> <ul style="list-style-type: none"> • Native Asynchronous Block & File Replication, including bandwidth throttling • Native Synchronous Block & File Replication, including bandwidth throttling • MetroSync Manager (optional software to automate synchronous file replication sessions) • Snapshot Shipping • Dell EMC Recover Point Basic <p>Migration:</p> <ul style="list-style-type: none"> • Native Block & File migration from VNX • SAN Copy Pull: Integrated Block migration from 3rd party arrays <p>Performance Optimization for Hybrid Arrays:</p> <ul style="list-style-type: none"> • FAST Cache | | |

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| | | <p>• FAST VP</p> <p>Power System=Powered by 2 power supplies (PS) per DPE/DAE. Each power supply can provide power to the entire module if the peer PS has been removed or is faulted. DPE power during a power failure is provided by a Battery Back Up (BBU) module. BBU is located within the SP enclosure and provides power to a single module (power zone)</p> <p><u>SAN Switch with Fiber Cables and Ethernet Patch Cord Complete Connectivity</u></p> <p>Fiber Channel Ports= 12 Fiber Channel Ports</p> <p>FCIP Ports= Six 1/10GbE SFP+ ports</p> <p>Fiber Channel Performance= Auto-sensing of 4, 8, 16 and 32 Gbps port speeds</p> <p>FCIP Performance= 2.5Gbps maximum WAN bandwidth</p> <p>ISL Trunking= Included with the -EP model and upgrade license</p> <p>Fabric Latency= Non-blocking shared memory, 900 ns with no contention, cut-through switching at 32 Gb/s</p> <p>Maximum MTU Size= Jumbo Frames 1280 bytes to 9216 byte</p> <p>Classes of Service= Class 2, Class 3, Class F (inter-switch frames)</p> <p>Port Types= F_Port, E_Port, EX_Port, (FCR E_Port),D_Port (Diagnostic), M_Port (Mirror), and self-discovery based on switch type (U_Port); VE_Port (FCIP and IP extension)</p> <p>Data Traffic Types= Fibre Channel, FCIP, and IP extension</p> <p>USB= One USB port for system log file downloads or firmware upgrades</p> <p>Media Types= Fibre Channel hot-pluggable Small Form-Factor Pluggable (SFP) and SFP+, short wavelength (SWL), and long wavelength (LWL) transceivers (available wavelength options vary for 8, 16, and 32 Gb/s SFPs) Ethernet: Brocade hot-pluggable SFP and SFP+,short-reach wavelength (SRWL), longreach wavelength (LRWL), and copper</p> | | |

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| | | <p>SFP/SFP+ transceivers</p> <p>Licensing Options= The following optional extension features can be enabled on the MP-7810B base configuration via the upgrade license: • Enable WAN-side throughput from 1 Gb/s to 2.5 Gb/s • Enable 10 GbE port speed on the Ethernet ports • Turn on additional 8 Fibre Channel ports, includes 16 Gb/s SFPs • Enable advanced software features, including Fabric Visiontechnology, Extension Trunking, Fibre Channel Trunking, and Integrated Routing</p> <p>Supported Management Software= Serial port (9600, 8, 1, no parity, no flow), Command Line Interface (CLI): SSHv2 or Telnet, Web Tools: HTTP/HTTPS, SNMPv1/v3 (FE MIB, FC Management MIB), SMI-S, RADIUS, LDAP</p> <p>Management Access= 10/100/1000 Ethernet (RJ-45); serial port (RJ-45) and one USB port</p> <p>Serial No 9,10 will be a part of turnkey solution and quoted by single bidder</p> | | | | | | |
| 11. | Hardware Firewall | <p>Firewall Throughput</p> <ul style="list-style-type: none"> • Minimum Firewall Throughput 38 GBps • Next Generation Firewall Throughput 8 Gbps • IPS throughput 8 Gbps or more • IPSec VPN Throughput 3Gbps or more • Minimum of 12 Million Concurrent session • Firewall should be able to work without license in routing mode. <p>Network Ports and Protocol</p> <ul style="list-style-type: none"> • 8 x 1GE Copper (RJ45) Interfaces,2XGE SFP Ports, • 2 port 10Gbps SFP Fiber Module. • 4X10GE Fiber module option for future use • Fully Support Dynamic Routing Protocols (OSPF, BGP), PBR. • Multi Wan Link Load Balancing • Interactive Traffic Monitoring and Management | <p>International Recognized Brands</p> <p>Cisco or Equivalent</p> | 02 Nos | | | | |

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| | | <ul style="list-style-type: none"> • Traffic Shaping, Bandwidth Monitoring and QOS <p>Reporting</p> <ul style="list-style-type: none"> • Real time Graphical visibility chart of each Source IP connected to the destination IP and type of traffic. X • User Friendly GUI Interface • Detail On-Box Reporting and logging at least for 3 months <p>License Subscription</p> <ul style="list-style-type: none"> • Must Have Security Subscriptions (IDS/IPS, Anti- Virus, Web/Content Filter, Application Blocking.) • Firewall must be rated in ICSA Labs and Gartner report attached Report (Last 3 years) • Firewall must be rated in NSS Lab Report attached Report (Last 3 years) • Firewall must have capability for Web Application Firewall for protection of servers by using license. • 500 SSL VPN license. • 3 years Warranty and support 24/7 <p>Note. Serial No 4,5,6,11,12,13,14,15,16 will be a part of turnkey solution and quoted by single bidder</p> | | | | | | |
| 12. | Manageable L3 48 Port Switch | <p><u>3 Slot Chassis Or Stackable Switch</u></p> <p><u>Ports</u></p> <ul style="list-style-type: none"> • Switch should have 48x 10 GE SFP+ interfaces. • Switch must have 6x40GE QSFP+ ports for uplink. • Switch must support one modular slot for future expansion. • Flash 2 Gb • RAM 8 GB • Switch must have minimum 1.8Tbps switching capacity or Higher • Switch must have minimum 1.2Bpps forwarding capacity or Higher • Switch must have stack cable and stack Supported. • Switch must support one modular slot for future expansion. <p><u>L3/L2 Features</u></p> | International Recognized Brands Cisco Or Equivalent | 02 Nos | | | | |

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| | | <ul style="list-style-type: none"> • Fully Managed Layer 3 • Minimum 30,000 MAC Address Support • Port Loop Detection, VLAN support • MAC binding, Link Aggregation Spanning tree protocol. • RIP, OSPF v2/v3, BGP4, BGP4+ and GRE support, Virtual Interfaces, Routed interfaces. • SDN Open Flow 1.3 support • Open Flow with Hybrid Modes • Support or able to Operate with Open Day light Controller. • MAC authentication, 802.1X authentication • BPDU Guard Root Guard support • Authentication , authorization and Accounting support • Layer 3/Layer 4 ACL • Switch must support IPV4 and IPV6 <p><u>Management</u></p> <ul style="list-style-type: none"> • User Friendly GUI Management • Management via telnet ,SSH and console • TFTP Server support • SNMP v1,v2 and v3 support • NTP, DHCP server and DHCP relay support • Industry standard CLI support • Dual Power Supply <p><u>SFP Modules</u></p> <ul style="list-style-type: none"> • Single Mode 10GE SFP+ Modules= Qty 50 <p><u>Stack Cable</u></p> <ul style="list-style-type: none"> • Stack Cable for Stack Connectivity= Qty 1 <p><u>Fiber Patch Cords 10GE Supported</u></p> <ul style="list-style-type: none"> • Duplex Optical Fiber Single Mode Patch Cord SC/LC to LC 10GE Supported (3Mtr)= 40 • Duplex Optical Fiber Single Mode Patch Cord LC to LC 10GE Supported (3Mtr)=10 • Duplex Optical Fiber Single Mode Patch Cord SC to LC 1GE Supported (3Mtr)=24 <p>Serial No 4,5,6,11,12,13,14,15,16 will be a part of turnkey solution and quoted by single bidder</p> | | | | | | |
| 13. | Manageable L3 | 24 port Switch Cisco or Equivalent | International | 10 Nos | | | | |

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| | 24 Port Switch | <p><u>Ports</u></p> <ul style="list-style-type: none"> • Fully Managed Layer 3 Switch • The Access Switch should have 24x 10/100/1000 RJ 45 interfaces. • Switch must have 4x10GE SFP+ ports for uplink. • Switch must have minimum 128Gbps switching capacity or Higher • Switching performance 95Mpps or Higher • RAM 1 GB • Flash 2 GB • Minimum15000 MAC Address Support. • Protected ports Support <p><u>L3/L2 Features</u></p> <ul style="list-style-type: none"> • Port Loop Detection, VLAN support • MAC binding, Link Aggregation Spanning tree protocol. • RIP, OSPF v2/v3 Support. • Virtual Interfaces, Routed interfaces. • VRRP support • SDN Open Flow 1.3 support • Open Flow with Hybrid Modes • Support or able to Operate with Open Day light Controller. • MAC authentication, 802.1X authentication • BPDU Guard Root Guard support • Authentication , authorization and Accounting support • Switch must support IPV4 and IPV6 <p><u>Management</u></p> <ul style="list-style-type: none"> • User Friendly GUI Management • Management via telnet ,SSH and console • SCP ,TFTP Server support • SNMP v1,v2 and v3 support • NTP, DHCP server and DHCP relay support • Industry standard CLI support AC Power Supply <p><u>L3/L2 Features</u></p> | Recognized Brands Cisco Or Equivalent | |

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| | | <ul style="list-style-type: none"> • Port Loop Detection, VLAN support • MAC binding, Link Aggregation Spanning tree protocol. • RIP, OSPF v1/v2 or VRRP support, Virtual Interfaces, Routed interfaces. • SDN Open Flow 1.3 support • MAC authentication, 802.1X authentication • BPDU Guard Root Guard support • Authentication , authorization and Accounting support • Switch must support IPV4 and IPV6 <p>3 years 24/7 hardware replacement next Business day Note. Serial No 4,5,6,11,12,13,14,15,16 will be a part of turnkey solution and quoted by single bidder</p> | | | | | | |
| 14. | Fiber Connectivity | <p>96 Core Armored Cable 1500 Meter 96 Core Armored Fiber Cable Single Mode Cable OM3 Standard 10GE Supported 8 Core Armored Cable 1100 Meter Single Mode Cable OM3 Standard 10GE Supported 96 Port ODF Qty 02 Nos 96 Port ODF metal Body ODF Single Mode 10GE Supported Pigtail and adopter 8 Port ODF Qty 22 Nos 8 Port ODF metal Body ODF Single Mode 10GE Supported Pigtail and adopter HDPE Pipe 2000 Meter HDPE Pipe-2 Inch diameter with 5mm thickness Joint Qty 24 Nos Fiber Joint Box 96 Core Pipe and Fiber Laying Main Hole Qty30 GI Cable tray With Cover 3"x2" With Fixing Material=250 Feet GI Flexible 2"=50 Feet Hard Surface Trench With Back Filling Depth 3' With Marking Tape=300 meter Soft Surface Trench With Back Filling Depth 3' With Marking Tape=1300 meter Manhole as per specifications 3'x3'x4' With Cover=30 Road Cutting and Bore & Repair with same material=20 Meter Fiber Cable Laying=2600 meter</p> | International Recognized Brands | 01 Job | | | | |

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| | | Splicing and With OTDR Testing=2500 splice Note. Serial No 4,5,6,11,12,13,14,15,16 will be a part of turnkey solution and quoted by single bidder | | |
| 15. | Wi-Fi Controller | Wifi Controller= 01 <ul style="list-style-type: none"> • Minimum 150 Access points Support • Minimum 4000 Concurrent Clients • Minimum 256 SSID support • WPA, WPA2 support • Software Ques per client • Rate Limiting • Customize Dashboard • Guest Networking • Real Time Admission Control • Quality of service with WLAN prioritization, band steering and airtime fairness • RADIUS, LDAP, Active directory Supported • Integrated captive portal • STA location Service • AC Power Supply • 1 year Warranty • Integrated DHCP Server • 2X1 GE Ethernet Port • Wireless Standard 802.11a, 802.11b, 802.11g, 802.11n, 802.11ac, 802.11r, 802.11k, 802.11v, 802.11d, • License for 25 or Above Access Points Transceiver Ethernet Transceiver= Qty 2 Access Point Mid Range = Qty 20 <ul style="list-style-type: none"> • Controller Based IEEE 802.11a/b/g/n/ac/ax • 2.4GHz & 5 GHz channels • 2x2:2 802.11ac • 2x2 SU MIMO • 2X2 MU MIMO • Min 250 Concurrent users • Throughput 2.4GHz support 500Mbps and 5GHz support 1200Mbps or Higher | International Recognized Brands Cisco Or Equivalent | 01 Job |

| S/No | Name of Equipment | Specifications | Required Brand | Quantity |
|------|-------------------|--|----------------|----------|
| | | <ul style="list-style-type: none"> • Channelization of 20MHz, 40MHz, 80MHz and 160MHz • IPv4, IPv6 Support • WPA-PSK, WPA-TKIP, WPA2 AES, WPA3-Personal, WPA3- Enterprise, 802.11i, Dynamic PSK, OWE · WIPS/WIDS • NAT DHCP support • 15 SSID per AP • User Based Rate Limiting • POE 802.3af and 802.3at support • EN 60950-1 Safety certified • EN 60601-1-2 Medical certified • VLAN support • Dynamic Pre-Shared Key Support • Direct Multicast • Smart Roam • L2TP, GRE, Soft-GRE • 3 year warranty <p>Access Point High Range=05</p> <ul style="list-style-type: none"> • Controller Based IEEE 802.11a/b/g/n/ac/ax • 2.4GHz & 5 GHz channels • 4x4 802.11ac • Min 500 Concurrent users • Total Throughput 2800 Mbps • Channelization of 20MHz, 40MHz, 80MHz and 160MHz • IPv4, IPv6 Support • WPA-PSK, WPA-TKIP, WPA2 AES, WPA3-Personal, WPA3- Enterprise, 802.11i, WIPS/WIDS • NAT DHCP support • 16 SSID per AP • User Based Rate Limiting • POE 802.3af and 802.3at support • EN 60950-1 Safety • EN 60601-1-2 Medical • EN 62311 Human Safety/RF Exposure • VLAN support • Direct Multicast | | |

| S/No | Name of Equipment | Specifications | Required Brand | Quantity | | | | |
|------|-------------------|--|------------------------------------|----------|--|--|--|--|
| | | <ul style="list-style-type: none"> • Dynamic Pre-Shared Key Support • Smart Roam • L2TP, GRE, Soft-GRE 3 year warranty Layer 2 Gigabit POE Switch Qty 22 <ul style="list-style-type: none"> • The Access Switch should have 8xGE RJ 45+ interfaces. • Switch must have 2xGE SFP ports for uplink. • VLAN support • Trunk ports • Spanning Tree Protocol • Ac power Supply • 3 years hardware replacement Warranty 24/7 support • Web Based Managed Switch • 75 Watt POE Total Budget • 30 Watt Per Port Budget Note. Serial No 4,5,6,11,12,13,14,15,16 will be a part of turnkey solution and quoted by single bidder | | | | | | |
| 16. | Server Racks | Front door: tempered glass door with spring lock. Rear door: solid steel door with small round lock, optional for mesh door with spring lock. 4pcs cooling fans on the top cover, based on the depth (D600mm with 2pcs fans, D800mm & D1000mm with 4pcs fans). 1-3pcs fixed shelves included, depends on different height Cage nuts 300 Pieces included, depends on different height (floor standing below 27U with 20sets screws, 32U & 37U with 30sets screws, 42U & 47U with 40sets screws). Back Door 4 Fans LED indicators for ground and surge detection Qty=5 (6 Ports PDU) Network Communication Rack 2 x 42U Network Communication 600x1075 4 x 16amp PDU with 8 power ports each Rack Server Rack 2 x 42U Server Rack 800x1075mm with 8 Port KVM with accessories and cables, 2 x 16amp PDU with 10 or more C13 | International Recognized Brands | 04 Nos | | | | |

| S/No | Name of Equipment | Specifications | Required Brand | Quantity | | | | |
|------|-------------------|---|--|----------|--|--|--|--|
| | | connectors in each. Foldable LCD Console kit Note. (Must be of same brand as per Server/Storage) Serial No 4,5,6,11,12,13,14,15,16 will be a part of turnkey solution and quoted by single bidder | | | | | | |
| 17. | Scanner | Resolution Up to 600 x 600 dpi (color and mono, ADF); Up to 1200 x 1200 dpi (color and mono, flatbed) Weight 12.3 lb Supported operating systems Windows 10 (32-bit/64-bit), Windows 8.1 (32-bit/64-bit), Windows 8 (32-bit/64-bit), Windows 7 (32-bit/64-bit); Mac OS X Mavericks 10.9, OS X Yosemite 10.10 ENERGY STAR ENERGY STAR® 3.0 certified Warranty One-year limited hardware warranty; 2-line LCD; 5 buttons (Simplex/Duplex, Power, Cancel, Back and Tools/Maintenance) Bit depth 24-bits external 48-bits internal Maximum document scan size 8.5 x 122 in Scannable media types Paper (banner, inkjet, photo, plain), envelopes, labels, cards (greeting, index) Input type Flatbed, ADF Auto document feeder Standard, 50 sheets Connectivity USB 2.0 and USB 3.0 Dimensions (W X D X H) | International Recognized Brands HP or Equivalent | 05 Nos | | | | |

| S/No | Name of Equipment | Specifications | Required Brand | Quantity | | | | |
|------|-------------------|---|---|----------|--|--|--|--|
| | | 18.1 x 15.2 x 5.7 in | | | | | | |
| 18. | Printers | PRINT SPEED BLACK (ISO, A4) Normal: Up to 38 ppm (default) ; Up to 40 ppm (HP High Speed) FIRST PAGE OUT (READY) Black: As fast as 6.3 sec FIRST PAGE OUT (SLEEP) Black: As fast as 8.8 sec PRINT QUALITY BLACK (BEST) Fine Lines (1200 x 1200 dpi) PRINT RESOLUTION TECHNOLOGIES HP FastRes1200, HP ProRes1200, Economode DUTY CYCLE (MONTHLY, A4) Up to 80,000 pages RECOMMENDED MONTHLY PAGE VOLUME 750 to 4,000 [4] PROCESSOR SPEED 1200 MHz PRINT LANGUAGES HP PCL 6, HP postscript level 3 emulation, PDF, URF, PWG Raster DISPLAY 2-line backlit LCD graphic display CONNECTIVITY, STANDARD 1 Hi-Speed USB 2.0; 1 host USB at rear side; Gigabit Ethernet 10/100/1000BASE-T network; 802.3az(EEE) MEMORY 256 MB MAXIMUM MEMORY 256 MB INTERNAL STORAGE None PAPER HANDLING OUTPUT, STANDARD 150 sheet output bin PAPER HANDLING INPUT, OPTIONAL | International Recognized Brands HP/Canon Or Equivalent | 04 Nos | | | | |

| S/No | Name of Equipment | Specifications | Required Brand | Quantity |
|------|-------------------|---|----------------|----------|
| | | <p>Optional third 550 sheet tray</p> <p>PAPER HANDLING INPUT, STANDARD</p> <p>100 sheet multipurpose Tray 1, 250 sheet input Tray 2</p> <p>MAXIMUM OUTPUT CAPACITY (SHEETS)</p> <p>Up to 150 sheets</p> <p>DUPLEX PRINTING</p> <p>Automatic (default)</p> <p>MEDIA SIZES SUPPORTED</p> <p>Tray 1, Tray 2: A4; A5; A6; B5 (JIS); B6 (JIS); 16K (195 x 270 mm, 184 x 260 mm, 197 x 273 mm); 10 x 15 cm; Oficio (216 x 340 mm); Postcards (JIS single, JIS double); Envelopes (DL, C5, B5); Optional Tray 3: A4; A5; A6; B5 (JIS); B6 (JIS); 16K (195 x 270 mm, 184 x 260 mm, 197 x 273 mm); 10 x 15 cm; Oficio (216 x 340 mm); Postcards (JIS single, JIS double); Automatic duplexer: A4; B5; 16K (195 x 270 mm, 184 x 260 mm; 197 x 273 mm); Oficio (216 x 340 mm)</p> <p>MEDIA SIZES, CUSTOM</p> <p>Tray 1: 76 x 127 to 216 x 356 mm; Tray 2, optional Tray 3: 100 x 148 to 216 x 356 mm</p> <p>MEDIA TYPES</p> <p>Paper (plain, EcoFFICIENT, light, heavy, bond, coloured, preprinted, prepunched, recycled, rough); Envelopes; Labels</p> <p>MEDIA WEIGHT, SUPPORTED</p> <p>Tray 1: 60 to 200 g/m²; Tray 2: Optional 550 sheet; Tray 3: 60 to 120 g/m²</p> <p>POWER</p> <p>220-volt input voltage: 220 to 240 VAC (+/- 10%), 50/60 Hz (+/- 2 Hz)</p> <p>POWER CONSUMPTION</p> <p>495 watts (Active Printing), 5.5 watts (Ready), 0.5 watts (Sleep), 0.5 watts (Auto Off/Wake on LAN, enabled at shipment), 0.05 watts (Auto Off/Manual On), 0.05 (Manual Off) [8]</p> <p>ECOLABELS</p> <p>ENERGY STAR® qualified; EPEAT® Silver; CECP</p> <p>SUSTAINABLE IMPACT SPECIFICATIONS</p> | | |

| S/No | Name of Equipment | Specifications | Required Brand | Quantity | | | | |
|------|-------------------|---|---|----------|--|--|--|--|
| | | Mercury-free BLUE ANGEL COMPLIANT Yes, Blue Angel DE-UZ 205—only ensured when using Original HP supplies OPERATING TEMPERATURE RANGE 15 to 32.5°C RECOMMENDED OPERATING HUMIDITY RANGE 30 to 70% RH ACOUSTIC POWER EMISSIONS (READY) 2.6 B(A) [7] ACOUSTIC PRESSURE EMISSIONS BYSTANDER (ACTIVE, PRINTING) 54 dB(A) [7] MINIMUM DIMENSIONS (W X D X H) 381 x 357 x 216 mm [6] Without trays and covers not extended MAXIMUM DIMENSIONS (W X D X H) 381 x 781 x 241 mm [6] Without trays and covers not extended WEIGHT 8.56 kg PACKAGE DIMENSIONS (W X D X H) 443 x 274 x 464 mm PACKAGE WEIGHT 10.5 kg | | | | | | |
| 19. | Workstation PC | Tower Workstation Intel® Xeon® E-2136 vPro™ (3.3 GHz) 12 MB cache and 6 cores (5 GB GDDR5 dedicated) 16 GB DDR4-2666 non-ECC SDRAM (2 X 8 GB) 512 GB HP Z Turbo Drive PCIe® SSD IPS Display Workstation Screen 24-inch LED Monitor With HDMI and Display Ports and Cable Warranty 3 Years Onsite Year of Establishment/Certificate of Incorporation must be attached. Vendor should have Tier One GOLD partner. Principal register offices and locally Services support/parts depot | International Recognized Brands HP/Dell Or Equivalent | 03 Nos | | | | |

| S/No | Name of Equipment | Specifications | Required Brand | Quantity | | | | |
|------|---------------------|--|--|----------|--|--|--|--|
| | | available in Pakistan Proof that the equipment is brand new and current year manufactured which should be verify able by the bill of landing and with the OEM. With Complete Brochure and Full Technical Specification | | | | | | |
| 20. | Ethernet patch cord | Cat-6 RJ45 1Meter patch cords (Multi Colors) | International Recognized Brands | 500 Nos | | | | |
| 21. | Biomatric Machine | Type Of Attendance System Fingerprint Attendance System Products Included Charger Battery Backup 6-8 hours Display Type TFT Touch Screen LanguageEnglish Connectivity Type Wired Communication TCP/IP,RS232/485 Installation Type Wall Mounted Power Supply 12 V 3A Memory Capacity 256 Flash, 64 M SDRAM Operating Temperature 45 Degree C Operating Humidity 20-80% Fingerprint Capacity 2000 Log Capacity 100000 Cpu And Memory ZK Multi-Bio CPU MHZ Hardware Platform ZEM600 Multi medium development Varification Time 2 sec Face Capacity 400 Camera High Resolution Infrared Camera Warantey 1 Years | International Recognized Brands | 01 Nos | | | | |
| 22. | Apple NLE iMac | NLE Apple iMac (27-inch iMac with Retina 5K display. 3.8 Ghz quadcore 7th generation Intel Core i5 processor, Turbo Boost up to 4.2GHZ 8GB 2400MHZ DDR42TB fusion Drive radeon Pro 580 with 8GB video memory | International Recognized Brands Apple Or Equivalent | 01 Nos | | | | |
| 23. | 8 Port switch | Gigabyte Switch 8 port With 1 Years Warranty | International Recognized Brands | 01 Nos | | | | |
| 24. | Network Patch | 3M Ethernet cable roll Cat-6 | International | 01 Nos | | | | |

| S/No | Name of Equipment | Specifications | Required Brand | Quantity | | | | |
|------|-------------------|---|------------------------------------|----------|--|--|--|--|
| | cord | | Recognized Brands | | | | | |
| 25. | Projector | White Brightness 12,000 ANSI Lumens / 8,000 Lumens (Eco) Color Brightness 12,000 Lumens CLO Resolution 1920x1200 Aspect Ratio 16:10 (WUXGA) Display Type 3 cm 3LCD Chips Color Processing 8-bit Video Modes 720p, 1080i, 1080p/60, 1080p/24, 1080p/50, 576i, 576p, 480p, 480i Data Modes MAX 1920x1200 Lamp Type Laser Phosphor Lamp Life 20,000 hours Lens Shift Horizontal & Vertical Digital Zoom Yes Digital Keystone Horizontal & Vertical Projector Size 20 cm x 54 cm x 56 cm (HxWxD) Weight 28.0 kg Audible Noise 42 dB / 39 dB (Eco) Internal Speakers No Power 1,150 Watts 100V - 240V Connection Panel | International Recognized Brands | 01 Nos | | | | |

| S/No | Name of Equipment | Specifications | Required Brand | Quantity | | | | |
|------|-------------------------------|--|---------------------------------|----------|--|--|--|--|
| | | DVI Digital Input HDBaseT: RJ-45 HDMI 1.4 RGB In: BNC USB VGA In: Dsub-15pin VGA Out: Dsub-15pin Features Edge Blending Lens Memory Infinite Black Note. Part of Serial No 25,26,27,28 and quoted by single bidder | | | | | | |
| 26. | Projector Zoom Lens | Throw Ratio With VPL-FH500L: 2.62 to 3.36:1 With VPL-FX500L: 2.67 to 3.42:1 Lens Shift Range With VPL-FH500L: ± 113% V, ±63% H With VPL-FX500L: ± 96% V, ±64% H Note. Part of Serial No 25,26,27,28 and quoted by single bidder | International Recognized Brands | 01 Nos | | | | |
| 27. | Mount For Projector | Projector mount with installation Note. Part of Serial No 25,26,27,28 and quoted by single bidder | International Recognized Brands | 01 Nos | | | | |
| 28. | Projector Screen | Motorized projector screen 16'x12' Note. Part of Serial No 25,26,27,28 and quoted by single bidder | International Recognized Brands | 01 Nos | | | | |
| 29. | NLE machine For Video Editing | NLE machine core i7, 10th Gen Or higher, 32GB RAM, 2TBx2 HD, with 6GB RTX 2060 graphics card, 700 PSU, keyboard, mouse & With IPS 24" LED Warranty 3 Years Onsite Year of Establishment/Certificate of Incorporation must be attached. Vendor should have Tier One GOLD partner. Principal register offices and locally Services support/parts depot available in Pakistan Proof that the equipment is brand new and current year manufactured which should be verify able by the bill of landing | International Recognized Brands | 01 Nos | | | | |

| S/No | Name of Equipment | Specifications | Required Brand | Quantity |
|------|-------------------|-------------------|----------------|----------|
| | | and with the OEM. | | |

The University will enter into a contract with the successful vendor having the following terms & conditions.

1. Staff Training, Installation and Commissioning of IT Equipment.
2. Technical Support for 5 years.
3. Complete Installation of IT Equipment with required specification.
4. Educational/Academic Discounts also required where applicable.
5. Vendor Must Provide IT Equipment with Documentation/Manuals/Brochures/Diagrams/Designs.
6. Vendor Must Provide IT Equipment with Keys/User Name Passwords/Configuration Backup files.