

**Hardware required for Establishment of Data Center in Ayub Teaching Hospital
Abbottabad**

S.no		Description	QTY Required
01	Branded Server 1	<p>Chassis: 2U Rackmount Processors: Dual Intel Xeon Silver 421622MB Cache Processors or Higher Memory:256 GB (8x 32GB) DDR4-2933 MT/s RDIMM, Dual Rank or Higher Chassis: 8 SFF with optional Universal Media Bay & SFF or NVMe drive bay Options or Higher Hard Drives:19 TB SAS 12G 10K SFF (2.5-Inch) Digitally Signed Firmware Drives RAID: PCIe Plug-in Raid Controller with minimum (8 Internal Lanes/2GB Cache) 12G SAS Ethernet:1GB Quad Port Network Adapter HBA:16Gb Dual Port Fibre Channel Host Bus Adapter 10G Ethernet:Ethernet 10Gb 2-port FLR-SFP+ BCM57414 Adapter Transceivers:BladeSystem c-Class 10Gb SFP+ SR Transceiver Optical Drive: Internal DVD-RW Drive Management:Dedicated Standard Management Port Expansion:Six PCI Express 3.0 slots, at least two x16 PCIe slots or Higher Rail Kit:Sliding Rails with Cable Manager Power Supply:Dual 800W Redundant Hotplug Power Supplies or Higher Warranty:3-Year Parts, Labor, Onsite support with next business days response</p> <p>Or Equivalent Server</p>	01
02	Branded Server 2	<p>Chassis: 1U Rackmount Processors: Dual Intel Xeon Silver 4210 13.75MB Cache Processors or Higher Memory: 128GB DDR4-2933 MT/s RDIMM, Dual Rank or Higher with scalable Chassis: Minimum 8x 2.5-Inch Drive Supported or Higher Hard Drives: 15 TB 12G 10K Enterprise (2.5in) Drives RAID: PCIe Plug-in Raid Controller with minimum (8 Internal Lanes/2GB Cache) 12G SAS Ethernet: 1GB Quad Port Network Adapter Optical Drive: Internal DVD-RW Drive Management: Dedicated Standard Management Port</p>	03

		<p>Expansion: Three PCI Express 3.0 slots, at least One x16 & one x8 slots or Higher</p> <p>Rail Kit: Sliding Rails with Cable Manager</p> <p>Power Supply: Dual 500W Redundant Hotplug Power Supplies or Higher</p> <p>Warranty: 3-Year Parts, Labor, Onsite support with next business days response</p>	
03	Branded Server3	<p>Chassis: 2U Rackmount</p> <p>Processors: Dual Intel Xeon Silver 421622MB Cache Processors or Higher</p> <p>Memory:512GB DDR4-2933 MT/s RDIMM, Dual Rank or Higher</p> <p>Chassis: 16/25 SFF with optional Universal Media Bay & SFF or NVMe drive bay Options or Higher</p> <p>Hard Drives:40TB SAS 12G 10K SFF (2.5-Inch) Digitally Signed Firmware Drives</p> <p>RAID: PCIe Plug-in Raid Controller with minimum (8 Internal Lanes/2GB Cache) 12G SAS</p> <p>Ethernet:1GB Quad Port Network Adapter</p> <p>HBA:16Gb Dual Port Fibre Channel Host Bus Adapter</p> <p>10G Ethernet:Ethernet 10Gb 2-port FLR-SFP+ BCM57414 Adapter</p> <p>Transceivers:BladeSystem c-Class 10Gb SFP+ SR Transceiver</p> <p>Optical Drive: Internal DVD-RW Drive/External</p> <p>Management:Dedicated Standard Management Port</p> <p>Expansion:Six PCI Express 3.0 slots, at least two x16 PCIe slots or Higher</p> <p>Rail Kit:Sliding Rails with Cable Manager</p> <p>Power Supply:Dual 800W Redundant Hotplug Power Supplies or Higher</p> <p>Warranty:3-Year Parts, Labor, Onsite support with next business days response</p> <p>Or Equivalent Server</p>	04
04	Branded Server 4	<p>Intel® Xeon® Gold 6250 Dual Processor (35.75M Cache, 3.90 GHz),</p> <p>Hard Drives: 20 TB RAID (Scalable/Extendable) with SAS 12G 10K (2.5-Inch) Digitally Signed Firmware Drives or equivalent</p> <p>Memory:512 GB RAM (Scalable/Extendable)</p> <p>Power Supply:Dual Power supplies,</p> <p>RAID: PCIe Plug-in Raid Controller</p> <p>Optical Drive: Internal DVD-RW Drive</p> <p>Rail Kit:Sliding Rails with Cable Manager</p> <p>Transceivers:BladeSystem c-Class 10Gb SFP+ SR Transceiver</p> <p>10G Ethernet:Ethernet 10Gb 2-port FLR-SFP+ BCM57414 Adapter</p> <p>Warranty:3-Year Parts, Labor, Onsite support with next business days response</p> <p>Or Equivalent Server</p>	01

05	SAN Storage	<p>OS Support:The Storage Array should support minimum of industry-leading Operating System platforms including: Windows 2016 & 2012 R2, RHEL 6.x & 7.x, SLES, Vmware, 6.7, 6.5 & 6.0</p> <p>Capacity & Scalability:<u>1.</u> The Storage Array shall be offered with 100TB Capacity using 10 drives (10x 10TB drives) and extendable</p> <p><u>2.</u> For effective power saving, Storage Subsystem shall be supplied with 2.5" small form factor SFF/3.5" Large form factor drives.</p> <p><u>3.</u> Storage shall be scalable to minimum of 60 or higher number of drives.</p> <p>Front End Ports:Offered Storage shall be supplied with minimum of Dual 16Gbps FC (Four ports per controller)</p> <p>FC SFPs & Cables:4x 16GB FC SFPs and 4x Fibre Cable OM4 LC/LC 10 Meter</p> <p>Back End:Offered Storage Subsystem back-end engine shall be running on latest SAS (12Gbps) speed</p> <p>Architecture: <u>1.</u>The Storage Array should support dual, redundant, hot-pluggable,active-active array controllers for high performance and reliability.</p> <p><u>2.</u>Offered storage shall have optional flexibility to create a wide strippool so that a single volume can be striped across all spindles of a giventype.</p> <p>Point of Failure: Offered Storage Array shall be configurable in a No Single Point of configuration</p> <p>Drive Support: <u>1.</u>Offered Storage Array shall support minimum 900/1200/1800/2400GBhot-pluggable Enterprise SFF SAS hard drives, 480/960/1920GB SSD orhigher.</p> <p><u>2.</u>For LFF drives, offered Storage Array shall support minimum of4/6/8/10/12 TB SAS MDL drive.</p> <p>Drive Filler:Hard drive filler as per remaining disks of enclosure</p> <p>Cache: <u>1.</u> Offered Storage Array shall be given with minimum of 8GB cache per controller in a single unit.</p> <p><u>2.</u> Cache shall be backed up in case of power failure of indefinite time either using batteries or capacitors or any other equivalent technology.</p> <p><u>3.</u> Offered Storage shall also have optional support for Flash cache using SSD / Flash drives. Offered Storage shall support at-least 400GB Flash Cache.</p> <p>RAID Support:Offered Storage Subsystem shall support RAID 0, 1, 5, 6, 10, 50 any combination of RAID levels can exist in single Array</p> <p>Clone Copying: <u>1.</u> Offered Storage shall be configured with Array based Snapshot and Clone functionality and shall be configured for minimum 64 Snapshots.</p> <p><u>2.</u> Offered Storage Array shall support at-least 512 point in time copies.</p>	
----	-------------	--	--

		<p>Replication:Offered Storage Subsystem shall support storage-based replication to DR location</p> <p>Thin Provisioning & Data Tiering: 1. Offered Storage shall have optional Sub-LUN real time automated tiering for moving data among SSD, Enterprise SAS drives and SAS-MDL drives for performance optimization.</p> <p>2. Offered Storage shall have optional thin provisioning support.</p> <p>Rails:Rack rail kit must be included</p> <p>Warranty: Storage Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business days response</p> <p>Oe Equivalent Storage</p>	
06	Firewall Hardware	GE RJ45 WAN/DMZ Ports 2/1, Internal Ports 5, FortLink Ports 2, USB Ports 1, Console (RJ45) 1, Internal Storage 128 GB SSD, IPS Throughput 1.4 Gbps& NGFW Throughput 1Gbps, Firewall Policies 5000, Certifications ICSA Labs: Firewall, IPSec, IPS, Antivirus SSL-VPN, Operating Atitudeupto 7,400 ft (2.250m) Warranty 3 Years	01
07	Antivirus	Kasper skyantivirus for servers	10
08	UPS System	10 KVA UPS along with Dry batteries Backup upto 5 Hours External battery cabinet	02
09	Rack PDU	32A Vertical Rack PDU, 230V, C13 and C19 Sockets	06
10	42U Branded Rack	<p>42U 600mmx1200mm G2 Enterprise Rack or Higher</p> <p>1x Express Base Racking Service or Higher</p> <p>2x HPE 6ft Qty 8 KVM CAT5 Cable or Higher</p> <p>1x Rack Grounding Kit or Higher</p> <p>1x Rack Baying Kit or Higher</p> <p>1x Side Panel Kit or Higher</p> <p>2x G2 Metered 7.3kVA/60309 3-wire 32A/230V Outlets (32) C13 (6) C19/Vertical INTL PDU or Higher</p> <p>1x Ballast Kit or Higher</p> <p>2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software or Higher</p> <p>1x LCD8500 1U INTL Rackmount Console Kit or Higher</p> <p>1x Rack Stabilizer Kit or Higher</p> <p>2x 1U 10-pack Black Universal Filler Panel or Higher</p>	02
11	Air Conditioners	2 Ton Air conditioner for Data Center	02
12	Environmental Monitoring System (Alert Through Mobile sms , web)	Temperature & Humidity Sensor alert system	02
		Smoke Detector alert system	05
		Water Leakage Sensor Alert System	01
		Or DCIM complete Solution for data center	

*		Emergency Alarm System	
13	Access Control	Door Access control with integrated TCP/IP controller, Installation, configuration, integration, commissioning and test run. complete in all respect Magnetic Lock Power supplies for Magnetic locks	02
14	Fire Detection & Suppression	Supply and installation of NOVEC 1230 Fire Suppression System with all accessories or equivalent system	01
15	False Ceiling & Lighting	False Ceiling per Sft	Sft rate
		LED Lights (600 x 600)mm	15
		Emergency Lights	02
		Exit Lights	02
16	Rodent Repellent System	Ultrasonic Rodent Repellent devices	02
17	Civil Works & Partitioning Walls	Anti Static Floor Tiles Per Sft	Per Sft rate
		Fire proof paint	Rate per feet
		Complete wiring of server room in all respect Per feet	Rate per feet
18	KVM IP BASE 16 PORT	18.5" LCD Console Tray with 16-Port KVM SWITCH along with all accessories.	01
19	CCTV Camera	8MP, 4K UHD, high image definition, Outputs max. 8MP (3840 × 2160) (AI function enabled by default), H.265 codec, high compression rate, low bit rate · Built-in IR LED, 30 m , Rotation mode, WDR, 3D DNR, HLC, BLC, digital watermarking, applicable to various monitoring scenes, Intelligent detection: Intrusion, tripwire, .Abnormality detection: Motion detection, video tampering, scene changing, audio detection , no SD card, SD card full, SD card error, network disconnection, IP conflict, illegal access, and voltage detection , Alarm: 1 in, 1 out , Supports max. 256 G Micro SD card, built-in Mic, 12V DC/Poe power supply IP67 protection.	05
20	Network Switch	48 Port Network Switch with 4 SPF slots Layer 3	02
21	Patch panel	24 ports	2
22	Patch panel	12 ports	3
23	Switch module black box	8 ports	3
24	Sfps patch cords	Patch cords (SC to SC and LC to SC)	30
25	Sfps modules	SMD module	16
26	Cable ties	For joining multiple cables	50
27	Dressing ties	To identify cable location	50
28	Cable manager	For dressing cable properly in rack (3M)	6
29	OFDF Box (12)	For splicing fiber cable	2
30	OFDF (24 ports)	For splicing fiber cable	2
31	Network I/O	As per actual	01

32	Faceplate	As per actual	01
33	Backbox	As per actual	01
34	CAT-6 A	333 Meter per roll (As per actual)	01
35	Fiber Optic Cable	Single Mode (As per actual)	01

- * Quantity can be increase or decrease
- * Delivery of all items must be within 45 days after signing of Purchase order

§ 