



No.F.1-8/Tender/2025-26/FMC
Federal Medical College (FMC)
Hanna Road G-8/4, Islamabad



TENDER DOCUMENT

“ESTABLISHMENT OF ONLINE EXAMINATION SYSTEM”

FOR

**FEDERAL MEDICAL COLLEGE
FY – 2026-27**

**MINISTRY OF NHR&C
GOVT. OF PAKISTAN, ISLAMABAD
051-9107724-5**


SHAHZAD BASHIR
Admin Officer
Federal Medical College
Ministry of NHR&C
Hanna Road, G-8/4, Islamabad

1. Requirement

- i) Hardware / software etc installation, configuration and support services will be solely responsibility of the vendor.
- ii) Bidder will be responsible for the installation, configuration and support services.
- iii) **In case of any discrepancy** or less items quoted bid will be rejected. Compliance / Checklist sheet with the Technical specification must be attached with the Technical proposal.
- iv) Product Support Services must be within 24 hours hardware replacement under warranty period as described in detailed specifications.
- v) In case of failure or malfunctioning of hardware equipment / component, a free replacement and installation of the device / part will be the responsibility of the vendor and on exchange bases as Free of Cost (FOC) under warranty.
- vi) Technical Support services should include resolution of complaints related to equipment.
- vii) The drivers / applications support CD / media must be provided for hardware equipment compatible with the OS respectively (if any)
- viii) Hardware devices having end of life must be communicated, moreover, nearly end of life hardware devices will not be acceptable.
- ix) Vender will be responsible for all types of IT equipment being delivered.
- x) 24 x 7 availability of hotline service.
- xi) The bidder must conduct a mandatory site survey to understand the existing network infrastructure and workstation placement. An attendance sheet must be signed during the visit and submitted with the bid. Failure to conduct the site visit shall result in disqualification.
- xii) The bidder shall provide comprehensive High-Level Design (HLD) and Low-Level Design (LLD) diagrams, clearly illustrating connectivity with the existing infrastructure and ensuring seamless integration with the current environment.
- xiii) Smooth integration of the proposed core and access switches with the existing network infrastructure including firewalls, switches, servers, and other connected devices shall be the sole responsibility of the bidder. The bidder shall also integrate the proposed switches with the existing Network Management System (NMS) for centralized monitoring, management, and log collection.
- xiv) The bidder shall install and configure the existing XDR solution on all proposed desktops after delivery. The required XDR licenses shall be provided by FMC. The bidder shall also integrate the proposed desktops and XDR solution with the existing firewall and Network Management System (NMS) to enable centralized monitoring, event visibility, and log correlation.
- xy) The provision and installation of electrical power points for the proposed desktops, including centralized power connectivity with the existing UPS, shall be the sole responsibility of the bidder. Any associated cabling, wall paneling, painting, and restoration work required during installation shall also be completed by the bidder at no additional cost to FMC.

Renovation and Deployment of 50 Workstations and Desktop Computers

The bidder shall undertake the complete turnkey renovation and development of the designated halls for the installation and operationalization of fifty (50) workstations with desktop computers. The bidder's scope shall include site survey, layout verification, supply, installation, electrical and data connectivity, wall treatment, finishing, testing, commissioning and restoration of the premises.

The proposed workstation layouts attached with the bidding documents shall be treated as reference drawings. The bidder shall verify all dimensions, quantities, access routes, doors, existing services and site conditions before commencing work. Any adjustment required for proper circulation, safety and operational efficiency shall be incorporated without additional cost to FMC and subject to its prior approval.

Scope of Work

1. Site Survey and Layout Verification

- The bidder shall conduct a mandatory site survey to examine the existing halls, walls, flooring, ceiling, electrical system, UPS connectivity, network infrastructure, lighting, entrances and workstation locations.
- The proposed layout shall be verified against actual site measurements before procurement, fabrication or installation.
- The bidder shall prepare and submit detailed layout drawings showing:
 - Placement and numbering of all 50 workstations
 - Desktop computer locations
 - Electrical and centralized UPS power points
 - Network/data outlets and cable routes
 - Distribution boards and protective devices
 - Cable trays, conduits and trunking
 - Access routes and circulation spaces
 - Wall-panelling and painted wall areas
- No work shall commence until the layout, colour scheme and material samples have been approved by FMC.

2. Hall Renovation and Surface Preparation

- The bidder shall inspect all walls and repair cracks, holes, damaged plaster, uneven surfaces, moisture-affected areas and other visible defects before applying any finish.
- Existing loose paint, dust, grease and damaged material shall be removed.
- Wall surfaces shall be properly scraped, filled, levelled, sanded and prepared using suitable primer, putty and base coats.
- Any dismantling, cutting, drilling or minor civil work required for electrical, data, workstation or wall-panelling installation shall be included in the bidder's scope.
- Existing floors, ceilings, doors, windows, equipment and other infrastructure shall be adequately protected throughout the renovation work.

3. Decorative Wall Panelling

- Decorative wooden-slat wall panelling, shall be installed on the wall areas identified and approved by FMC.
- The bidder shall take exact measurements and submit actual material samples before installation.


SHAHZAD BASHIR
Admin Officer
Federal Medical College
Ministry of NHR&C
F-7/1 Road, G-8/4, Islamabad

- The panelling shall comprise durable, uniformly spaced decorative vertical slats fixed over a suitable black backing panel, acoustic-felt backing or approved equivalent substrate.
- Slats shall have a laminated, veneered, PVC-wrapped or equivalent wood-finish surface of an FMC-approved colour and texture.
- The backing material shall be black, moisture-resistant, dimensionally stable and appropriate for indoor commercial use.
- Panels shall be properly aligned, levelled and securely fixed using concealed fasteners or approved adhesive and mechanical-fixing methods.
- Visible screws, loose panels, open joints, uneven spacing, chipped edges, exposed cuts or colour variations shall not be accepted.
- All internal and external corners, exposed ends, ceiling junctions, floor junctions, electrical outlets and openings shall be finished with matching trims or profiles.
- Wall panelling shall not obstruct electrical points, data outlets, ventilation openings, fire-safety equipment, doors, windows or access to existing services.
- The bidder shall provide samples of the proposed slat, backing, colour, finish and edge profile for FMC's approval before bulk installation.

4. Painting Works

- Wall areas not covered by decorative panelling shall receive complete surface preparation and premium-quality interior paint.
- A minimum of one coat of approved primer and two finishing coats of premium washable emulsion paint shall be applied, or additional coats as required to achieve a uniform finish.
- The paint shall be low-odour, low-VOC, washable, fungus-resistant and suitable for high-occupancy office environments.
- Colours shall be selected and approved by FMC.
- Finished walls shall be uniform and free from brush marks, roller marks, patches, cracks, bubbles, peeling, stains and colour variation.

5. Installation of 50 Workstations

- The bidder shall supply and install fifty (50) complete modular workstations according to the approved technical specifications and final layout.
- Workstations shall be properly aligned, levelled, interconnected and numbered.
- Installation shall preserve the required circulation and access routes and shall not obstruct doors, windows, electrical panels or emergency exits.
- All workstation tops, partitions, joints, brackets, cable grommets, levelling feet and finishing accessories shall be included.
- The installed workstations shall be identical in material, construction, colour and finish to the sample approved by FMC.

6. Desktop Computer Deployment

- The bidder shall deliver, install and configure the proposed desktop computers at their designated workstations.
- The scope shall include placement, assembly, connection of monitors and peripherals, power connectivity, network connectivity, labelling and operational testing.
- All connecting cables shall be properly dressed, secured and concealed through cable-management channels.
- The bidder shall install and configure the existing XDR solution on all proposed desktop computers. Required XDR licenses shall be provided by FMC.

- The desktops and XDR solution shall be integrated with the existing firewall and Network Management System, where technically supported, for centralized monitoring and log correlation.

7. Centralized UPS Power

- The bidder shall provide and install fifty (50) dedicated electrical power points for the desktop computers at the workstations.
- All workstation power points shall be connected to the existing main UPS system to provide centralized and uninterrupted power.
- Wiring shall be original Pakistan Cables, FAST Cables or an equivalent approved brand, with conductor size selected according to load calculations and applicable electrical standards.
- The bidder shall provide all required cables, sockets, conduits, trunking, junction boxes, distribution boards, labelling and accessories.
- Each UPS power point shall be clearly labelled and independently identifiable.
- Loose, exposed, unsupported or surface-hanging wiring shall not be accepted.
- The bidder shall verify the existing UPS and distribution capacity and immediately notify FMC of any material capacity limitation before installation.

8. Network and Data Connectivity

- Each desktop location shall be provided with a functional network connection from the existing network infrastructure.
- The bidder shall provide all required data cabling, I/O outlets, faceplates, patch cords, patch-panel termination, labelling, cable-management accessories and testing.
- Data cabling shall be routed separately from electrical wiring and installed through properly secured conduits, trays or trunking.
- Every network point shall be tested and certified, and the bidder shall submit point-wise test results.
- All desktop computers shall be integrated with the existing access switches, core switch, firewall, servers, XDR and NMS environment as applicable.

9. Workmanship, Safety and Site Protection

- All work shall be performed by qualified and experienced personnel under appropriate supervision.
- The bidder shall comply with applicable electrical, occupational, fire and workplace safety requirements.
- Dust, noise and disruption shall be controlled, and work may be required outside normal office hours when instructed by FMC.
- The bidder shall be responsible for any damage caused to the building, flooring, ceiling, doors, windows, furniture, cabling or equipment.
- Damaged areas shall be repaired or replaced to their original condition without additional cost to FMC.
- The site shall be cleaned daily, and all debris, packaging and waste shall be removed upon completion.

10. Testing, Documentation and Handover

Before final acceptance, the bidder shall:

- Test every electrical power point, network point and desktop computer.


SHAHZAD BASHIR
 Admin Officer
 Federal Medical College
 Ministry of NHR&C
 G-8/4, Islamabad

- Conduct voltage, polarity, earthing, insulation, load and protection-device tests.
- Verify centralized UPS operation at all 50 workstations.
- Verify desktop network connectivity and access to approved services.
- Confirm workstation stability, alignment and cable management.
- Rectify all finishing defects in the wall panelling and painted surfaces.
- Submit final as-built drawings showing workstation numbers, power points, network points and cable routes.
- Submit electrical and network test reports, material details, warranty documents and a completion report.
- Provide basic operational orientation to the designated FMC personnel.

Turnkey Responsibility

The complete renovation and operationalization of the halls—including labour, materials, transportation, tools, equipment, minor civil works, wall preparation, panelling, painting, workstations, electrical and data connectivity, installation, testing, finishing, cleaning and restoration—shall be the sole responsibility of the bidder.

The bidder shall include all incidental items necessary for a complete, safe, aesthetically finished and fully operational solution in the quoted price. No additional payment shall be admissible for any material, accessory or activity reasonably required to complete the scope.

Inspection and Acceptance

FMC may inspect materials and workmanship at any stage. Substandard, damaged, mismatched or non-compliant work shall be rejected. The bidder shall remove, repair or replace rejected items within the period specified by FMC and without additional cost.

Final acceptance shall be issued only after the successful installation and operational testing of all 50 workstations, desktop computers, UPS power points, network connections, wall panelling and painting works.

Note: *Vendor is solely responsible to provide the support services for the offered product even the support for the same product would have been discontinued by the OEM*


SHAHZAD BASHIR
 Admin Officer
 Federal Medical College
 Rawalpindi, G-8/4, Islamabad

TERMS, CONDITIONS AND INSTRUCTIONS FOR THE BIDDERS

(Please Read Carefully)

2.1. Documents Required

- i. Company profile with list of its recent clients.
- ii. Copy of NTN Certificate of the firm.
- iii. SECP Incorporation Certificate
- iv. Copy of Active Sales Tax Registration Certificate of the firm.
- v. Bid Security 2% of quoted price in the shape of Bank Draft/Pay Order bearing No., Date & Rs.
- vi. Compliance sheet for offered product.
- vii. Official Authorized Partnership Certificate from sole manufacture along with Product Broachers for ICT infrastructure and IT Equipment.
- viii. Proof of Financial capability
- ix. Proof of after sale Service Centre located in Islamabad /Rawalpindi.

2.2. Opening of Competitive Bids

- i. All the firms/ bidders should submit proposals as per Rule 36 (b) of PPR 2004 (Single Stage – Two Envelope Procedure)
- ii. **Bids are required to be submitted lot wise; clearly indicating rates in Pak Rupees and should be valid up to 30-06-27 or One year whichever is later.**

2.3. Rejection of the Bid

- i. Any offer not compliant with the terms & conditions of the tender enquiry is liable to be rejected under provision of PPRA Rules-2004.
- ii. Any offer will not be entertained if:
 - Firm/bidder is black listed/suspended by any Government department.
 - Offer with shorter price/delivery validity than required in the tender enquiry.
 - Not compliant with the required specifications, terms & conditions.
 - Bid submission after the time and date fixed for its receipt.
 - Received without earnest money.
 - Tender is received by telegram.
 - Tender/offer is un-signed.
 - Offer is ambiguous.
 - Offer is conditional.
 - Bid offering less items as defined in LOT
 - Federal Medical College (FMC) further reserves the right to accept or reject any or all tender(s) without assigning any reason.

2.4. Performance Guarantee

- i. The qualified bidder/firm will be required to furnish 2% performance guarantee of the total amount of supply order in the shape of CDR / Bank Guarantee / Insurance Guarantee, and released after satisfactory completion of the warranty / guarantee period of one year. The Earnest money will be released upon receipt of performance guarantee, In addition, earnest money can also be retained as a performance guarantee, if vendor desires.


SHAHZAD BASHIR
Admin Officer
Federal Medical College
Ministry of NHR&C
Main Road, G-8/4, Islamabad

- ii. In case, if supplier / contractor fails to complete the given assignment within specified timeframe, the performance guarantee / security deposit will be forfeited.

2.5. Warranty/ Guarantee

- i. The successful bidder shall provide warranty / guarantee as specified in detailed specifications against each hardware item.
- ii. The warranty period will start from the date of supplies received in Federal Medical College (FMC).
- iii. The qualified bidder must warranty the IT Equipment and ensure availability of Technical support services as informed through electronic & non-electronic means. Each and every complaint should be completely responded by the competent resource of the firm and visit on-site within 24 hours of its notification.
- iv. If any bidder fails to rectify the problem in the provided equipment during warranty period due to any reason, Federal Medical College will be authorized to repair or replace the faulty equipment / component thereof and forfeit the Bank Guarantee / Insurance Guarantee retained value.
- v. The security deposit for warranty and guarantee will be released after expiry of the warranty period (one year).

2.6. Taxes

- i. The rates should be quoted inclusive of all applicable taxes.
- ii. The bidder should provide the Income Tax and Sales Tax Registration Certificates.
- iii. The project authorities will deduct the taxes at source as per prevailing rules / regulations of the Government.
- iv. In case the supplies or part thereof are exempt from levy of any tax, the bidder shall provide an exemption certificate (SRO) to this effect, otherwise taxes will be deducted.

2.7. Bidding

- i. Rate quoted for the offered product in Pak Rupees.
- ii. Installation and commissioning charges of equipment must be included in the quoted rates.
- iii. Tender documents must be filled in, stamped and signed by authorized representative of the firm.
- iv. Any bid with erasing / cutting / crossing etc. must be properly signed by the authorized person signing the tender. Moreover, all pages of the tender must also be properly signed. Offers with any over writing, not authenticated with signatures of authorized person, shall in no circumstances be accepted. Softcopy should also be provided.
- v. The participated firm must be an official authorized partner from principal for the quoted brand.
- vi. Federal Medical College may increase or decrease quantities of one or more items.
- vii. Procurement may be done in phases / partially against original quantities mentioned in the RFP within the bid validity period. However, bidders are required to quote for total quantities mentioned in the document. Schedule of deliveries will be shared


SHAHZAD BASHIR
Admin Officer
Federal Medical College
Ministry of NHR&CC
Hanna Road, G-84, Islamabad

at the time of signing of contract.

2.8. Timeline of the project:

Delivery Time / Installation and Configuration within 2 weeks and agreed by the Vendor / bidder in writing at the time of the technical bid submission on affidavit duly notarized.

2.9. Bid Evaluation

- i. Bid Must be submitted via EPADS 2.0
- ii. Bids shall be evaluated in accordance with advertised specifications of equipment, terms & conditions.
- iii. Rates offered by the firms.
- iv. Supply time, and maintenance of warranty period.
- v. Physical compliance with required specifications and quality conformance for the offered product in demonstration session.
- vi. Active part inspection will be carried-out visiting the site where offered product installed and operational.
- vii. Willingness of the firm to enter into contract agreement with the Federal Medical College for supply of equipment on the rates tendered by the firm / bidder in its financial bid.
- viii. The weightage of technical bid will be 80% and financial bid will be 20%.

#	Eligibility Criteria	Documents Required	Compliance (Yes/No)
1.	Bidder is an entity duly registered and incorporated under the laws of Pakistan. Bidder has a valid Registration Certificate for Income Tax, Sales Tax and/or other allied agencies / organizations / regulatory authorities	Registration/Incorporation certificate / FBR Certificate	
2.	Bidder has a valid Registration Certificate for Income Tax, Sales Tax and/or other allied agencies / organizations / regulatory authorities	FBR Certificate	
3.	Bidder is an Active Taxpayers as per Federal Board of Revenue (FBR)'s database i.e. Active Taxpayers List (ATL)	Active Tax Payer /Income Tax Returns	
4.	Bidder Affidavit on the Stamp Paper attested by Notary Public which certifies to provide One -years warranty/guarantee after installation for IT equipments/software.	Stamp Paper	
5.	Affidavit on the Stamp Paper duly attested by Notary Public that the bidder is not blacklisted by any government / semi government / public Department.	Stamp Paper	
7.	The bidder shall be authorized distributor/partner/reseller of OEM.	Proof of Partnership with OEM	
8.	The quoted brand must be having service centers in Islamabad/ Rawalpindi.	List of Service Centers	
9.	2 x Certified Resource of the quoted brand.	Certificate must attach	


SHAHZAD BASHIR
 Admin Officer
 Federal Medical College
 Ministry of NHR&C
 Harnai Road, G-8/4, Islamabad

	2 x Certified resource for the existing network switches / XDR / Firewall for the smooth integration and configuration.		
10	The bidder must submit samples of the quoted solution to FMC before the technical bid opening. Failure to provide the required samples within the specified timeframe shall result in disqualification of the bid.	Sample Required	
11	A valid Manufacturer's Authorization Letter (MAL) for the proposed core switches, access switches, desktop computers, and passive network components must be attached to the technical bid. Failure to submit the required MAL(s) shall result in disqualification.	MAL letters required	

SR.NO.	EVALUATION CRITERIA	MAX MARKS
1.	<u>Financial Capability:</u> Financial Strength of the Company provide Financial statements/ Bank Statement / Annual Turnover of FY 2024-25 and 2025-26 Bidder must provide evidence in the form of audit report or bank statement. Calculation Criteria: 30 Million or more = 25 20 to 29 Million = 20 10 to 19 Million = 15 Below 10 Million = 0 marks	25
2.	<u>Relevant Work Experience</u> The bidder must be registered with Security and Exchange Commission of Pakistan (SECP) Three (03) or more year = 25 marks Two (02) to Three (03) years = 15 marks One (01) to two (02) years = 05 marks	25
3.	<u>Meeting the Delivery Timelines after issuance of P.O.</u> Bidder MUST provide written acknowledgment on a Stamp Paper of PKR 100 duly attested by the notary public (Federal Medical College may visit the warehouse for inspection of the quoted quantities of hardware Ex-Stock). Delivery of hardware/Software equipment within fifteen (15) days or less – 25 marks Delivery of hardware/Software equipment within twenty (20) days – 10marks Delivery of hardware/Software equipment within thirty (30) days – 05marks <i>*Delivery time shall be started after the issuance of Purchase Order (PO)</i>	25

4.	Certified Resource of the quoted brand: 2-5 certified resources of the quoted brand – 25 marks 1- 2 certified resources of the quoted brand – 10 marks	25
TOTAL MARKS		100
NOTE: i. Total Technical Marks = 100 Marks ii. Minimum Technical Qualifying Marks = 80 Marks iii. Financial Marks 100 Marks iv. Weightage of Technical Marks is 80% v. Weightage of Financial Marks is 20%		

2.10. Supply of Stores

- The items mentioned in the list are required to be delivered and installed at Federal Medical College within Fifteen (15) days.
- The stores are required by the consignee within stipulated date. However, the tender is required to indicate their own guarantee earliest date by which the items / store should be brand new and in original manufacturers packing.

2.11. Federal Medical College reserve the Rights Within Provision Of PPRA Rules-2004

- Award contract to more than one bidder.
- Accept or reject any or all tenders
- Increase the quantity of items or may order partial supplies or cancel any or all items.
- Purchase full or part of the store or ignore / scrap / cancel the tender.
- Claim compensation for the loss caused by the delay in the delivery or any other damage pointed out at time of delivery or commissioning or installation or during warranty period.

2.12. Payment

The payment for the supplies made subject to availability of funds to the successful bidder shall be released provided that:-

- The invoice is complete, accurate and to the entire satisfaction of the procuring agency / client.
- Supplies are delivered / installed according to the instructions of the Federal Medical College.
- Vendor must produce satisfactory inspection with the invoice issued by the Federal Medical College that authenticates the quality conformance, quantity of products delivered and amount of work done successfully.
- 2% performance guarantee is provided with the invoice having validity up to the date of Warranty period (one year).
- The payment against a supply order shall be made on the completion of the delivery of supplies including installation, commissioning, etc. as mentioned in the supply order subject to availability of funds.


SHAHZAD BASHIR
Admin Officer
Federal Medical College
Ministry of NHR&C
Plot No. 1, G-8/4, Islamabad

2.13. Arbitration

Any disputed situation / condition between the bidder and the procuring agency regarding this bid or any other matter ancillary thereto whatsoever, the same shall be referred to the sole arbitrator i.e. Grievance Redressed Committee of M/o Federal Medical College (FMC)

The Arbitrator shall give its award within two months from the date on which it enters upon the reference. The provisions of the Arbitration Act, 1940 shall apply to the arbitration proceeding. Reference to arbitration shall be a condition precedent for any other action at law.

2.14. Penalty

For failure to comply with the supply / work order and the liquidated damages will be levied as under:-

- i. 1% of the cost of that items mentioned in the supply order that remain un-delivered / un-finished for each day of non-supply up to maximum of twenty (20) days exceeding the job completion / delivery period.
- ii. If the material is not supplied for 20 consecutive days, Federal Medical College reserves the right to cancel the contract and get the full or remaining assignment completed from the other competitive bidders on the equivalent price / amount that will be deducted from the securities deposited by the default firm / supplier.

- 1- Only registered suppliers, who are on Active Taxpayers List (ATL) of FBR, are eligible to supply goods / services to Government departments.
- 2- The payment to the registered persons may be linked with the active taxpayer status of the suppliers as per FBR database. If any registered supplier is not in ATL his payment should be stopped till he files his mandatory returns and appears on ATL of FBR.

2.15. Undertaking

We undertake and declare that

- i. The prices quoted including of all taxes, transportation and cost of installation etc. The quantity of above items can be increased.
- ii. The offered prices must be valid up to 30-06-2027 or 01 year whichever is later starting from the date of tender opening.
- iii. All products are covered under warranty issued by manufacturer / principal starting from the date of supply / installation and in case of any defect and malfunctioning we shall be responsible for repair / replacement as per guarantee / warranty.
- iv. The supplier is responsible to arrange replacement / technical support during warranty / guarantee period.

We understand that:-

Federal Medical College reserves the right to accept or reject our bid and we undertake not to question the decision in this regard.

The earnest money submitted by us is liable to forfeiture in case our firm fails to abide by the terms and conditions given in the advertisement referred to above


SHAHZAD BASHIR
Admin Officer
Federal Medical College
F-7/1, Sector 7, F-7/1, Islamabad

Signature & Stamp Of Authorized Agency

Passive Network Nodes				
S/N	Description	Qty	Specification	QTY
1	Passive Complete Networking	50	Annexure A	50 Network Nodes
Network Switches				
2	Enterprise grade Network Data Switch 48x Gigabit Ports (Layer 2)	Each	Annexure B	1
3	Enterprise grade Network Data Switch 24x Gigabit Ports (Layer 2)	Each	Annexure C	1
4	Enterprise grade Network Core Switch, 24x SFP Ports (Layer 3)	Each	Annexure D	1
5	SFP	Each		8
Hall Renovation & Workstation Installation				
6	Workstation	Each	Annexure E	50
7	Electrical power points	Each	Annexure F	50
8	Workstation chairs	Each	Annexure G	50
9	Wall finishing / painting/ paneling	Each	Annexure H	As per requirement
10	Air-conditioning (1.5 Ton)	Each		3
Desktop				
11	Desktop Computers	Each	Annexure I	50
12	650VA Line Interactive UPS	Each	Annexure J	50

Turnkey
Lot

Bidder must quote for the complete Lot, Bider offering less items as defined in LOT will be disqualified.


SHAHZAD BASHIR
Admin Officer
Federal Medical College
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Passive Complete Networking

Annexure A

Passive Work including ducting, copper/ fiber laying, termination and fluke testing.

- i. Giga Cable UTP CAT6
- ii. CAT 6 Patch Panel
- iii. CAT6 I/O
- iv. Faceplate Single / dual Shutter
- v. Patch Cords CAT 6, 1 meter
- vi. Optical Distribution Frame.
- vii. Dura Duct, Pipe and Accessories

CAT 6 Cable

Cat 6 Cable, UTP, PVC, 4 pairs, 305 meter / Box Gigabit original copper cable Category 6 U/UTP

Cable (with cross-shaped separator) offer the possibility to deploy unshielded Category 6/Class E systems when installed with Cat-6 RJ45 Jacks.

- Conductor Diameter: AWG 24 (Ø 0.525 +/- 0.015mm)
- Insulation Diameter: PE Ø 0.95 +/- 0.05 mm
- Cable assemblies: pairs
- Sheath material: PVC

Mechanical Features:

Maximum cable diameter (mm) 5.40 +/- 0.30

Bending Radius (mm)

Dynamic (installation) / Static (installed) $\geq 8x$ outer diameter / $\geq 4x$ outer diameter

Temperature Range In service / Installation, Transport and Storage -20°C +60°C / 0°C +50°C

Standards Cables

IEC 61156-5 ed. 2

ANSI/TIA 568-C.2

ISO/IEC11801 ed.2

Fire Rating

LSZH: IEC 60332-1

PVC: IEC 60332-1

Patch Panel

1U 19" panels must be available to take a minimum of 24 copper fully shuttered jacks. Other connection densities must be available:

The panels must be designed for keystone fitting of the fully shuttered jacks/sockets. For efficiency of the termination and performance tool less terminate able keystone jacks must be used.

The copper panel panels must have cable management and tie down points (where required) for copper cable. Panels must have the facility to label each fully shuttered socket/jack.

CAT6 I/O

RJ45 K6 Jack, Cat 6, UTP, Shuttered (tool-less termination),

Category 6/Class E system, fully compliant with Category 6 ISO/IEC, EN and TIA standards for hardware performance, confirmed by independent laboratory certifications (Delta, GHMT).

The jacks have the following features:

- Category 6 UTP
- Keystone fixing;
- Tool less assembly (mandatory)
- Capable of being wired to both 568B and 568A

- three cable entry points
- Integral shutter/shuttered jack
- Jacks must be reusable i.e it must support multiple termination.

Applications

- IEEE 802.3 1GBASE-T
- PoE – IEEE 802.3at

Standards

- ISO/ IEC 11801 Edition 2, Am 1-2
- ISO/ IEC 60603-7-5
- EN 50173-1
- ANSI/ TIA/ EIA-568-C.2-2009
- IEC 60512-99-001

Faceplate

Single non-shuttered

U.K. Single Gang Faceplate, 1 port, w/o shutter.

86 x 86 faceplate range can be loaded with Cat-6 UTP I/O to provide the following configurations:

- Single gang, 1 port
- Single gang, 2 ports

Patch Cord

Patch cables must be available in either LSOH or PVC jackets. 100 Ohm RJ-45 copper patch cords shall be Category 6.

Optical Distribution Frame

along with supporting accessories

Rack mount with sliding tray pre-loaded with SC Duplex couplers

Fluke Testing of Copper Nodes & OTDR testing of fiber links.

Dura Duct

Duct, Pipe and accessories 16x25mm, 16x38mm, 40x40mm, 60x60, 1 inch pipe etc.- with Adamjee or equivalent ducting and flexible PVC pipe fiber termination unit/ODF


SHAHZAD BASHIR
 Admin Officer
 Federal Medical College
 Ministry of NHR&C
 Hanna Road, G-8/4, Islamabad

Annexure B

Enterprise grade Network Data Switch (L2) 48x Gigabit Ports:

General requirements

- The Supplier must provide a letter from the manufacturer of equipment confirming the legal delivery to the territory of Pakistan
- Switch must be covered with official warranty of the manufacturer on the territory of Pakistan for a period of not less than 3 years
- The switch must be equipped with 10/100/1000BaseT ports, not less than 48
- The switch must be equipped with SFP ports, not less than 8 x 10Gb SFP+ uplink ports (includes 2 x Stacking ports)
- MACsec-capable
- Switch must support fabric technology
- The switch must be equipped with out-of-band 10/100BaseT Ethernet port for management
- The switch must be able to mount in 19" Rack. Required rackmount kit must be included.
- Software upgrades for the next 10 years minimum.

Performance

- The switching bandwidth must be not less than 256 Gbps
- The switch should have non-blocking architecture. All ports must operate on highest possible speed simultaneously
- The maximum number of stored MAC addresses in the switching table the switch shall be not less than 32,000
- The routing table of the switch must store not less 16,000 IPv4 routes
- The switch must support 6,000 or more Multicast groups

Stacking

- The switch must support stacking with other families of switches from the same manufacturer and stack bandwidth must be not less than 40Gbps
- The failure of any switch in the stack should not cause stack outage more than 20ms.
- The switch must support the joint failover configuration with another identical switch to connected devices can use the mechanism for combining multiple physical channels (LAG) to two switches with active simultaneous use of all channels; the recovery Time in case of any link failure between switches should not exceed 50ms.
- The failover configuration must be supported for two separate switches and two separate stacks of switches.

Ethernet L2

- The switch must support the IEEE family protocols: 802.3: 802.3, 802.3ae, 802.3ab, 802.3z.
- The switch must support 802.1ad (Q-in-Q) and Selective Q-in-Q protocols
- The switch must support High Availability Network Protocols with 50ms recovery time in ring topology with RFC 3619 Ethernet Automatic Protection Switching.
- The switch must support 802.1w, 802.1s, PVST+ protocols
- The switch must support Link Aggregation Group (LAG). Number of ports in one LAG must be not less than 8
- The switch must support the following mechanisms for traffic balancing in LAG: The combination of the MAC addresses of source and destination;

The combination of IP addresses of source and destination;
The combination of IP addresses of source and destination, and numbers of TCP and UDP port numbers;
The combination of IPv6 source and destination and numbers of the protocols of the 4th layer of the OSI model.

- The switch must support 802.1AS, 802.1Qav, 802.1Qat, 802.1BA

Routing IPv4/IPv6

- The switch must support Policy-based Routing
- The switch must support BFD for static routing and dynamic routing protocols OSPFv2/OSPFv3

L2/L3 Multicast

- The switch must support Multicast VLAN registration (MVR) protocol
- The switch must support IGMPv1 / v2 / v3 protocols;
- The switch must support protocols: IGMPv1 / v2 / v3 snooping (IGMPv1 / v2 / v3 snooping);
- The switch must support the protocol PIM Snooping;

User authorization and QoS

- Each interface for connecting user devices must support at least 8-x hardware queues.
- Access control lists that are configured on the switch port must operate at line speed available on port.
- The switch must support the IEEE 802.1x protocol.
- The switch should provide dynamic assignment of user access policies L2-L4 on ports

Management

- The switch must support standard SNMP versions 2c and 3, Syslog.
- The switch must support NTP
- Switch must support on Prem management


SHAHZAD BASHIR
Admin Officer
Federal Medical College
Ministry of NHR&C
Hanna Road, G-8/4, Islamabad

Annexure C

Enterprise grade Network Data Switch (L2) 24x Gigabit Ports:

General requirements

- The Supplier must provide a letter from the manufacturer of equipment confirming the legal delivery to the territory of Pakistan
- Switch must be covered with official warranty of the manufacturer on the territory of Pakistan for a period of not less than 3 years
- The switch must be equipped with 10/100/1000BaseT ports, not less than 24
- The switch must be equipped with SFP ports, not less than 8 x 10Gb SFP+ uplink ports (includes 2 x Stacking ports)
- MAC sec-capable
- switch must support fabric technology
- The switch must be equipped with out-of-band 10/100BaseT Ethernet port for management
- The switch must be able to mount in 19" Rack. Required rackmount kit must be included.
- Software upgrades for the next 10 years minimum.

Performance

- The switching bandwidth must be not less than 208 Gbps
- The switch should have non-blocking architecture. All ports must operate on highest possible speed simultaneously
- The maximum number of stored MAC addresses in the switching table the switch shall be not less than 32,000
- The routing table of the switch must store not less 16,000 IPv4 routes
- The switch must support 6,000 or more Multicast groups

Stacking

- The switch must support stacking with other families of switches from the same manufacturer and stack bandwidth must be not less than 40Gbps
- The failure of any switch in the stack should not cause stack outage more than 20ms.
- The switch must support the joint failover configuration with another identical switch to connected devices can use the mechanism for combining multiple physical channels (LAG) to two switches with active simultaneous use of all channels; the recovery Time in case of any link failure between switches should not exceed 50ms.
- The failover configuration must be supported for two separate switches and two separate stacks of switches.

Ethernet L2

- The switch must support the IEEE family protocols: 802.3: 802.3, 802.3ae, 802.3ab, 802.3z.
- The switch must support 802.1ad (Q-in-Q) and Selective Q-in-Q protocols
- The switch must support High Availability Network Protocols with 50ms recovery time in ring topology with RFC 3619 Ethernet Automatic Protection Switching.
- The switch must support 802.1w, 802.1s, PVST+ protocols
- The switch must support Link Aggregation Group (LAG). Number of ports in one LAG must be not less than 8
- The switch must support the following mechanisms for traffic balancing in LAG: The combination of the MAC addresses of source and destination;
The combination of IP addresses of source and destination;
The combination of IP addresses of source and destination, and numbers of TCP and UDP port numbers;

The combination of IPv6 source and destination and numbers of the protocols of the 4th layer of the OSI model.

- The switch must support 802.1AS, 802.1Qav, 802.1Qat, 802.1BA

Routing IPv4/IPv6

- The switch must support Policy-based Routing
- The switch must support BFD for static routing and dynamic routing protocols OSPFv2/OSPFv3

L2/L3 Multicast

- The switch must support Multicast VLAN registration (MVR) protocol
- The switch must support IGMPv1 / v2 / v3 protocols;
- The switch must support protocols: IGMPv1 / v2 / v3 snooping (IGMPv1 / v2 / v3 snooping);
- The switch must support the protocol PIM Snooping;

User authorization and QoS

- Each interface for connecting user devices must support at least 8-x hardware queues.
- Access control lists that are configured on the switch port must operate at line speed available on port.
- The switch must support the IEEE 802.1x protocol.
- The switch should provide dynamic assignment of user access policies L2-L4 on ports

Management

- The switch must support standard SNMP versions 2c and 3, Syslog.
- The switch must support NTP
- Switch must support on Prem management


SHAHZAD BASHIR
Admin Officer
Federal Medical College
Ministry of NHR&C
Hatta Road, G-8/4, Islamabad

Annexure D

Enterprise grade Network Core Switch (L3), 24x SFP Ports

General requirements

- The Supplier must provide a letter from the manufacturer of equipment confirming the legal delivery to the territory of Pakistan
- All equipment must be covered with official guarantee of the manufacturer on the territory of Pakistan for a period of not less than three year
- The switch must be equipped with SFP+ ports, not less than 24
- The switch must support up to 2 40Gbit QSFP+ ports
- The switch must have 1 expansion slot for additional modules
- The switch must be equipped with out-of-band 10/100BaseT Ethernet port for management
- The switch must support two or more redundant power supplies that are hot-swappable.
- Must support N+1 redundant modular hot-swappable fan units with front to back airflow.
- Must support flexible management options to include secure cloud, as well as through an on-premises SNMP management platform, to monitor and manage the device through a supported web browser from anywhere on the network. Please describe the management and on-boarding capabilities of the switch.
- Must support industry standard RESTCONF APIs. Please describe supported capabilities for automation and programmability.
- The switch must be able to mount in 19" Rack. Required rackmount kit must be included.
- Must support both conventional Switched-Routed IP and/or Fabric-based network deployments. Please describe the capabilities of the switch.
- Software upgrades for the next 10 years minimum.
- Must support the following IP Routing techniques:
 - Static
 - RIP/RIPng
 - OSPFv2/v3
 - BGP/BGP+
 - VRRP/VRRPv3
 - VRF

Performance

- The switch bandwidth must be not less than 1060 Gbps
- The switch should have non-blocking architecture. All ports must operate on highest possible speed simultaneously
- The maximum number of stored MAC addresses in the switching table the switch shall be not less than 114,500
- The routing table of the switch must store up to 80,500 of IPv4 routes
- The switch must support the up to 43,000 Multicast Entries

Stacking

- The switch must support stacking with other families switches from the same manufacturer and stack bandwidth must be not less than 200Gb per unit stacking of up to eight witches
- The switch must support the joint failover configuration with another identical switch to connected devices can use the mechanism for combining multiple physical channels (LAG) to two switches with active simultaneous use of all channels.

- The failover configuration must be supported for two separate switches and two separate stacks of switches.

Ethernet L2

- The switch must support the IEEE family protocols: 802.3: 802.3, 802.3ae, 802.3ab, 802.3z.
- The switch must support High Availability Network Protocols with 50ms recovery time in ring topology with RFC 3619 Ethernet Automatic Protection Switching.
- The switch must support Link Aggregation Group (LAG).

Routing IPv4/IPv6

- The switch must support following routing protocols: BGP, IS-IS, OSPF, RIP v1/v2, PIM, MSDP
- The switch must support Policy-based Routing
- The switch must support BFD for static routing and dynamic routing protocols OSPFv2/OSPFv3
BGP

L2/L3 Multicast

- The switch must support Multicast VLAN registration (MVR) protocol
- The switch must support IGMPv1 / v2 / v3 protocols;
- The switch must support protocols: IGMPv1 / v2 / v3 snooping (IGMPv1 / v2 / v3 snooping);
- The switch must support the protocol PIM Snooping;

User authorization and QoS

- Each interface for connecting user devices must support at least 8-x hardware queues.
- Access control lists that are configured on the switch port must operate at line speed available on port.
- The switch must support the IEEE 802.1x protocol.
- Must support the ability to authenticate multiple users on a single port via 802.1X, web, or MAC at the same time.
- Must support Denial of Service (DoS) protection.
- Switch must support on Prem management



SHAHZAD BASHIR
Admin Officer
Federal Medical College
Ministry of NHR&C
H-8/4, Islamabad

Workstation

Modular Office Workstation

The bidder shall supply, deliver, install, assemble, align, test and commission modular office workstations in accordance with the following minimum requirements. All components shall be new, unused, factory-finished and suitable for intensive office use.

1. Workstation Top

Finished worktop dimensions shall be not less than 30 inches wide × 24 inches deep.

Worktop shall be manufactured from minimum 16 mm-thick high-density laminated particle board conforming to recognized international or equivalent quality standards.

Board shall resist normal wear, scratches, stains, moisture and heat generated by routine office equipment, with factory-applied decorative laminate or melamine on both surfaces.

All exposed edges shall have minimum 1 mm-thick PVC edge banding, machine-applied with hot-melt adhesive, uniform and free from peeling, sharp edges, gaps, visible joints or excess adhesive.

Worktop shall be secured through concealed heavy-duty metal brackets and shall not sag, vibrate, move or separate during normal use.

At least one durable ABS cable-management grommet/wire cup, approximately 50 mm usable diameter, shall be provided with removable or rotating cover.

Worktop shall support a minimum uniformly distributed load of 50 kg without permanent deformation or instability.

2. Partition Frame

Each workstation shall include a side partition measuring 24 inches wide × 48 inches high and a front partition measuring 33 inches wide × 48 inches high.

Dimensional tolerance shall not exceed $\pm\frac{1}{2}$ inch, subject to site conditions and FMC's written approval.

Frame shall use extruded aluminium sections with minimum 47 mm face width and minimum 1.2 mm wall thickness.

Aluminium shall be straight, corrosion-resistant and free from dents, cracks, bends, burrs and visible manufacturing defects, with durable anodized, powder-coated or approved equivalent finish.

Each frame shall include at least one horizontal intermediate support member to improve rigidity and retain the upper and lower panels.

Vertical and horizontal members shall be mechanically secured using appropriate connectors, screws and concealed fittings and shall withstand routine use without loosening, twisting or deformation.

Exposed outer edges shall be completed with compatible top caps, side seals, end caps and finishing profiles. Exposed screws, sharp edges, open channels and unfinished cuts are prohibited.

3. Upper Partition Panel

Upper panel shall incorporate an internal frame of laminated particle-board strips or approved material of equal or superior strength.

Both sides shall be covered with minimum 12 mm-thick pin board of sufficient density to retain standard drawing pins securely.

Both faces shall be finished with commercial-grade industrial fabric in an FMC-approved colour, texture and pattern.

Fabric shall be tightly stretched, uniformly bonded, abrasion-resistant and easy to clean, without wrinkles, loose edges, colour variation, visible adhesive or surface defects.

Panel edges shall be fully concealed and securely retained within the aluminium frame.

4. Lower Partition Panel

Lower panel shall have an internal frame made from laminated particle-board strips or an equivalent reinforced structure.

Both sides shall be covered with minimum 3 mm-thick laminated MDF sheets having factory-laminated, scratch-resistant and washable surfaces.

Both faces shall have a consistent FMC-approved colour, grain and finish.

Panel shall be adequately reinforced and shall not bend, rattle, detach or deform during normal use; all edges shall remain concealed within the aluminium frame.

5. Central Poles and Partition Connections

Adjoining partitions shall be interconnected using 47 mm × 47 mm aluminium central poles or an approved compatible equivalent, with minimum 1.2 mm wall thickness.

Partitions shall connect through purpose-built shaped hinges, connectors or locking brackets that maintain alignment and structural stability.

Worktops shall attach through heavy-duty, corrosion-resistant metal mounting brackets of appropriate thickness and load-bearing capacity, concealed wherever practicable.

Ordinary plastic brackets and weak, improvised or unsuitable connections shall not be accepted.

6. Joints and Finishing Accessories

All open ends, corners and intersections shall include purpose-built top-side joint covers, L-joint, T-joint and cross-joint connectors, end/corner caps, base levellers and finishing seals wherever required.

The jointing system shall be compatible with the proposed partition profile, securely connect adjoining sections, maintain uniform alignment and eliminate exposed edges, open gaps and sharp corners.

All joint components shall be corrosion-resistant and shall not loosen, crack or detach during normal use.

7. Stability and Load Requirements

Each completed workstation shall be self-supporting, rigid, level and stable and shall not wobble, tilt, twist or move during typing, writing or routine office activity.

Adjustable levelling feet shall be provided wherever required to compensate for minor floor variations.

The completed structure shall safely carry a desktop computer, monitor, accessories and normal office materials in accordance with manufacturer-recommended load and safety requirements.

8. Cable-Management Provision

An organized pathway shall be provided for electrical and data cables, routed through the wire cup and securely supported below or behind the workstation.

Power and data cables shall be separately routed wherever practicable to minimize interference and maintain safety.

No cable shall remain loose, pinched, unsupported or exposed to sharp metal edges.

All required cable channels, clamps, ties and supports shall be included in the quoted price.

9. Workmanship and Finish

Panels, aluminium sections, brackets, joints and accessories shall be durable and uniformly finished.

Materials shall be free from scratches, dents, cracks, chips, stains, warping, rust, loose fittings, mismatched colours and other defects.

Colours, laminates, fabric, aluminium finish and accessories shall require FMC approval before production or supply.

All units shall be consistent in material, dimensions, colour and finish. Damaged, repaired, refurbished, mismatched or previously used components shall be rejected.

10. Dimensional and Material Requirements

Component	Minimum Requirement
Overall partition height	48 inches
Worktop width	30 inches
Worktop depth	24 inches
Side-partition width	24 inches
Front-partition width	33 inches
Aluminum-frame face width	47 mm
Aluminum-section wall thickness	Minimum 1.2 mm
Worktop thickness	Minimum 16 mm
PVC edge-band thickness	Minimum 1 mm
Upper pin-board thickness	Minimum 12 mm
Lower laminated MDF thickness	Minimum 3 mm

Permissible tolerance: Not more than $\pm\frac{1}{2}$ inch for overall workstation dimensions and ± 0.2 mm for specified material thicknesses. Deviations beyond these limits require FMC's prior written approval.

11. Mandatory Sample and Technical Documentation

Bidder shall submit one complete and fully assembled sample workstation before the technical bid opening or by the deadline stated in the bidding documents.

Photographs, brochures, drawings or unassembled materials shall not substitute for the complete physical sample.

The sample shall be evaluated for dimensions, material thickness, stability, load-bearing capability, workmanship, edge banding, fabric quality, surface finish and fitting strength.

FMC may physically measure, inspect or test any component to verify compliance.

Technical bid shall include detailed datasheet, dimensioned drawings, material specifications, worktop/panel samples, aluminium-profile cross-section, proposed colour and fabric swatches, manufacturer literature, clause-by-clause compliance statement and warranty undertaking.

Failure to submit the required sample or supporting documents within the prescribed time shall result in rejection of the bid.

12. Installation and Site Restoration

Bidder shall verify locations, access, floor levels and site dimensions before manufacturing or supply. Delivery, unloading, shifting, assembly, installation, levelling and alignment shall be the bidder's sole responsibility.

Any drilling, cutting, fitting, minor civil work, wall panelling, painting or restoration required shall be completed at no additional cost to FMC.

Installation shall not damage flooring, walls, electrical systems, data cabling or existing infrastructure. Packaging, waste and debris shall be removed by the bidder.

13. Inspection and Acceptance

FMC may inspect materials at any stage before, during or after installation.

Supplied workstations shall be identical in material quality, construction and finish to the approved sample.

FMC may reject any defective, unstable, dimensionally non-compliant or inferior workstation.

Rejected items shall be removed and replaced within the period specified by FMC, without additional cost.

Final acceptance shall follow successful physical inspection, dimensional verification, stability testing and completion of installation and finishing works.

14. Warranty

Bidder shall provide a minimum One-year comprehensive onsite warranty covering worktops, partition panels, aluminium frames, central poles, brackets, hinges, joints, connectors, edge banding, laminate, fabric, structural stability, workmanship, manufacturing defects and installation defects.

Any defective, loose, damaged, peeled, deformed or unstable component shall be repaired or replaced without additional cost to FMC during the warranty period.

FMC logo must be embossed in the front side along with numbering


SHAHZAD BASHIR
Admin Officer
Federal Medical College
F-10, 1st Floor, Islamabad

The bidder shall be solely responsible for the complete design, supply, installation, testing, commissioning, and operationalization of fifty (50) electrical power points for the proposed desktop computers at their designated workstations.

The scope shall include, but not be limited to:

- Installation of complete electrical wiring from the existing main UPS distribution system to each designated workstation.
- Provision of suitable power sockets, cables, conduits, trunking, junction boxes, distribution boards, circuit breakers, accessories, and all associated materials required for a complete and operational installation.
- Use of original Pakistan Cables, FAST Cables, or an equivalent approved brand of appropriate size and current-carrying capacity. The cable size shall be determined according to the connected load and applicable electrical safety standards.
- Each power point shall be clearly labelled as “UPS Power” .
- All wiring shall be installed in properly secured PVC conduits or cable trays, or trunking. No loose or exposed wiring shall be permitted.
- The bidder shall assess the capacity and availability of the existing UPS system and associated distribution infrastructure before commencing the installation.
- The installation shall be completed without disrupting the existing electrical and IT infrastructure.
- Any cutting, drilling, wall panelling, painting, finishing, or restoration work required during installation shall be completed by the bidder to the satisfaction of FMC.
- The bidder shall perform insulation, polarity, earthing, voltage, load, and operational tests after installation.
- The bidder shall submit updated electrical layout drawings, circuit identification, and test reports upon completion.

The entire installation shall comply with applicable electrical safety standards and FMC's requirements. All materials, labour, tools, transportation, testing equipment, accessories, and associated civil works necessary to complete the installation shall be included in the quoted price. No additional payment shall be made for any item required to provide a complete, safe, properly finished, and fully functional centralized UPS power solution.


SHAHZAD BASHIR
Admin Officer
Federal Medical College
Ministry of NHRSC
Hanna Road, G-8/4, Islamabad

Workstation chairs

Annexure G

Parameter	Minimum Required Specification
Chair type	Ergonomic, high-back revolving office chair suitable for prolonged daily use.
Backrest	High-back, ergonomically contoured design providing appropriate lumbar and upper-back support.
Upholstery	Premium-quality black leatherette, PU leather or approved equivalent; durable, washable and abrasion-resistant.
Seat	High-density moulded foam, minimum 50 mm thickness, designed to retain its shape during prolonged use.
Internal structure	Strong moulded plywood, engineered wood, polypropylene or equivalent reinforced internal frame.
Seat-height adjustment	Pneumatic gas-lift mechanism with adjustable seat height.
Gas lift	Heavy-duty Class 3 or better gas-lift cylinder.
Reclining mechanism	Tilt/reclining mechanism with tension control and upright-position locking facility.
Swivel	360-degree smooth revolving mechanism.
Armrests	Two fixed, ergonomically shaped and cushioned polypropylene armrests.
Base	Heavy-duty five-star reinforced nylon or powder-coated metal base.
Castors	Five durable twin-wheel nylon castors suitable for tiled and carpeted floors.
Load capacity	Minimum 120 kg.
Overall color	Black, unless otherwise approved by FMC.
Workmanship	All edges, joints, stitching and fittings shall have a smooth and durable finish, without sharp edges or manufacturing defects.
Assembly	Chair shall be supplied completely assembled or assembled at the designated site by the bidder.
Warranty	Minimum one-year comprehensive warranty covering the gas lift, reclining mechanism, base, castors, frame and manufacturing defects.
Sample requirement	Bidder must submit a sample of the quoted chair before the technical bid opening for physical inspection and approval by FMC.
Compliance and acceptance	Supplied chairs must be identical to the approved sample. Any inferior, damaged or non-compliant chair shall be rejected and replaced by the bidder at no additional cost to FMC.


SHAHZAD BASHIR
 Admin Officer
 Federal Medical College
 Ministry of Health & Family Welfare, Islamabad

- The bidder shall inspect all walls and repair cracks, holes, damaged plaster, uneven surfaces, moisture-affected areas and other visible defects before applying any finish.
- Existing loose paint, dust, grease and damaged material shall be removed.
- Wall surfaces shall be properly scraped, filled, levelled, sanded and prepared using suitable primer, putty and base coats.
- Any dismantling, cutting, drilling or minor civil work required for electrical, data, workstation or wall-panelling installation shall be included in the bidder's scope.
- Existing floors, ceilings, doors, windows, equipment and other infrastructure shall be adequately protected throughout the renovation work.

Decorative Wall Paneling

- Decorative wooden-slat wall panelling, shall be installed on the wall areas identified and approved by FMC.
- The bidder shall take exact measurements and submit actual material samples before installation.
- The panelling shall comprise durable, uniformly spaced decorative vertical slats fixed over a suitable black backing panel, acoustic-felt backing or approved equivalent substrate.
- Slats shall have a laminated, veneered, PVC-wrapped or equivalent wood-finish surface of an FMC-approved colour and texture.
- The backing material shall be black, moisture-resistant, dimensionally stable and appropriate for indoor commercial use.
- Panels shall be properly aligned, levelled and securely fixed using concealed fasteners or approved adhesive and mechanical-fixing methods.
- Visible screws, loose panels, open joints, uneven spacing, chipped edges, exposed cuts or colour variations shall not be accepted.
- All internal and external corners, exposed ends, ceiling junctions, floor junctions, electrical outlets and openings shall be finished with matching trims or profiles.
- Wall panelling shall not obstruct electrical points, data outlets, ventilation openings, fire-safety equipment, doors, windows or access to existing services.
- The bidder shall provide samples of the proposed slat, backing, colour, finish and edge profile for FMC's approval before bulk installation.

Painting Works

- Wall areas not covered by decorative panelling shall receive complete surface preparation and premium-quality interior paint.
- A minimum of one coat of approved primer and two finishing coats of premium washable emulsion paint shall be applied, or additional coats as required to achieve a uniform finish.
- The paint shall be low-odour, low-VOC, washable, fungus-resistant and suitable for high-occupancy office environments.
- Colours shall be selected and approved by FMC.
- Finished walls shall be uniform and free from brush marks, roller marks, patches, cracks, bubbles, peeling, stains and colour variation.


SHAHZAD BASHIR
Admin Officer
Federal Medical College
Ministry of NHR&C
Hanna Road, G-8/4, Islamabad

Annexure I

Desktop

PERFORMANCE	
Processor	Intel Core™ Ultra 5 225, 10C (6P + 4E) / 10T, Max Turbo up to 4.9GHz, 20MB Intel® Smart Cache
AI PC Category	AI PC
Memory	1x 16GB UDIMM DDR5-5600
Memory Slots	Two DDR5 UDIMM slots, dual-channel capable
Max Memory	Up to 64GB DDR5-5600
Storage	512GB SSD M.2 2280 PCIe® 4.0x4 NVMe®
Card Reader	3-in-1 Card Reader
Optical	None
Audio Chip	High Definition (HD) Audio, Realtek® ALC623-CG codec
Speakers	2Wx1
Power Supply	200W 90%
DESIGN	
LED	21.5 Inch Monitor with HDMI
Keyboard	USB, Calliope, Black, English (UK)
Mouse	USB Calliope Mouse, Black
Optional Bay	3.5" HDD Bracket
Case Color	Black
System Fan	None
Toolless Chassis Screw	Toolless Chassis Screw
Pen	Pen Not Supported
Form Factor	Tower
CONNECTIVITY	
WLAN + Bluetooth	Intel® Wi-Fi® 6 AX203, 802.11ax 2x2 + BT5.2
Ethernet	RTL8111K, 1x RJ-45
Front Ports	1x USB-C® (USB 5Gbps / USB 3.2 Gen 1), with data transfer and 15W charging, 2x USB-A (Hi-Speed USB / USB 2.0), 2x USB-A (USB 5Gbps / USB 3.2 Gen 1), 1x headphone / microphone combo jack (3.5mm), 1x microphone (3.5mm)
Rear Ports	2x USB-A (Hi-Speed USB / USB 2.0), 2x USB-A (USB 5Gbps / USB 3.2 Gen 1), one supports Smart Power On, 1x HDMI® 2.1 TMDS, 1x DisplayPort™ 1.4, 1x VGA, 1x Ethernet (RJ-45), 1x line-out (3.5mm)
SECURITY & PRIVACY	
Security Chip	Discrete TPM 2.0, TCG certified, FIPS 140-2 certified
Physical Locks	Kensington Security Slot™, 3 x 7 mm, Padlock Loop
Chassis Intrusion Switch	Chassis Intrusion Switch
SERVICE	
Base Warranty	1-year, Courier or Carry-in
Operation System	Windows 11 Pro

SHAHZAD BASHIR
Admin Officer
Federal Medical College
5th Str - 1st Floor
FMC, Abbottabad

650 VA Line-Interactive UPS -

The bidder shall supply, deliver, install, label, test and commission fifty (50) brand-new line-interactive UPS units. Each UPS shall provide dedicated protection and short-duration backup power to one proposed desktop computer, one LED monitor and essential associated accessories.

Parameter	Minimum Required Specification
Item	Line-interactive uninterruptible power supply for a desktop computer and LED monitor
Quantity	Fifty (50) units
UPS topology	Line-interactive with built-in Automatic Voltage Regulation (AVR)
Rated capacity	Minimum 650 VA
Rated active power	Minimum 360 W
Nominal input voltage	220/230/240 VAC
Input-voltage operating range	Minimum 162-290 VAC or wider for the 230 V version
Input frequency	50/60 Hz, automatic sensing
Nominal output voltage	220/230/240 VAC
Battery-mode voltage regulation	±10% or better
Battery-mode output frequency	50 Hz ±1 Hz or better
Transfer time	Typical 2-6 milliseconds; maximum acceptable 10 milliseconds
Battery-mode waveform	Simulated sine wave or superior
Efficiency	Minimum 95% in AC mode at full resistive load
Internal battery	Minimum one maintenance-free sealed battery rated 12 V, 7 Ah
Cold start	UPS shall start and supply connected equipment from battery without utility power
Automatic restart	Automatic restart upon restoration of utility power
Output sockets	Minimum two battery-backed sockets compatible with the proposed desktop and monitor
Protections	Short circuit, overload, surge, battery over-discharge and battery overcharge protection
Visual indications	Separate status indications for line mode, battery mode and fault
Audible alarms	Battery operation, low battery, overload, battery-replacement warning and continuous fault alarm
Communication	USB/RS232 communication or equivalent monitoring interface; shutdown software where supported
Operating environment	0-40°C and up to 90% non-condensing relative humidity
Noise level	Less than 40 dB during normal operation, excluding audible alarms
Construction	Compact, durable, fire-retardant enclosure with adequate ventilation
Warranty	Minimum two-year comprehensive onsite warranty for the UPS and minimum one-year warranty for the internal battery

SHAHZAD BASHIR
Admin Officer
Federal Medical College
Ministry of NHRSD
Hanna Road, G-8/4, Islamabad

1. Mandatory Backup-Time and Load Compatibility

Each UPS shall provide a minimum backup time of five (5) minutes, with a target backup of up to ten (10) minutes, when connected to the actual proposed desktop computer, LED monitor and essential accessories under normal operating load.

Backup time shall be demonstrated under actual connected load. Manufacturer estimates based on no load, minimum load or unspecified load shall not be accepted as evidence of compliance.

The bidder shall declare the measured or calculated running wattage of the complete desktop and monitor configuration. The normal connected load should not exceed 80% of the UPS rated watt capacity.

The UPS shall support the proposed desktop power supply without overload, repeated transfer, instability or shutdown. Where the desktop power supply is incompatible with simulated sine-wave output, the bidder shall provide a technically compatible superior waveform UPS without reducing any other requirement.

If the offered 650 VA/360 W UPS cannot provide the required minimum backup time, the bidder shall provide a suitable higher-capacity unit without additional cost to FMC.

2. Installation and Commissioning

One UPS shall be installed at each of the fifty designated workstations. The desktop computer and monitor shall be connected only to battery-backed output sockets.

Each UPS shall be labelled according to its workstation and desktop asset number. Input/output cables shall be properly dressed, secured and protected against accidental disconnection.

All batteries shall be fully charged before acceptance testing. Communication and controlled-shutdown software shall be configured where supported.

The bidder shall demonstrate transfer from utility to battery and restoration from battery to utility without restarting, shutting down or disrupting the connected desktop computer.

Mandatory Testing and Acceptance

FMC may conduct backup-time and load tests on any or all supplied units using the actual proposed desktop computer and monitor under normal operating conditions.

Each unit shall demonstrate stable operation on utility power, automatic transfer to battery, minimum five-minute actual-load backup, correct AVR operation, functional indicators/alarms and automatic recovery after restoration of utility power.

No unit shall exhibit abnormal heating, smell, excessive noise, battery leakage, overload indication, unstable output or premature shutdown.

Any unit failing the backup, transfer, protection or operational tests shall be rejected and replaced by the bidder without additional cost.

Battery Requirements

Batteries shall be new, unused, maintenance-free and manufactured not more than six months before delivery. Refurbished, reconditioned or old-stock batteries shall not be accepted.

The bidder shall state the battery manufacturer, model, voltage, ampere-hour capacity and manufacturing date.

During the battery warranty period, any battery that fails to provide the minimum five-minute backup under the approved actual load shall be replaced without additional cost.

Mandatory Sample and Documentation

The bidder shall submit one complete sample of the quoted UPS before the technical bid opening or within the time specified in the bidding documents.

The technical bid shall include the manufacturer's official datasheet, offered model number, country of origin, VA/watt ratings, battery rating, load-versus-runtime chart, safety/EMC certifications, clause-by-clause compliance statement and warranty/after-sales support undertaking.

Failure to submit the required sample, datasheet, runtime evidence or supporting documentation within the specified time shall result in rejection of the bid.

Turnkey Responsibility

All UPS units, internal batteries, input/output power cables, compatible plugs, sockets, installation accessories, labels, transportation, installation, testing, configuration and commissioning shall be included in the quoted price.

No additional payment shall be admissible for any accessory or activity required to achieve the specified backup time and deliver a complete operational solution.

 **SHAHZAD BASHIR**
Admin Officer
Federal Medical College
Ministry of NHR&C
Hanna Road, G-8/4, Islamabad

