

**NATIONAL INSTITUTE OF TECHNOLOGY PATNA**  
**PATNA-800005, BIHAR (INDIA)**  
**NOTICE INVITING TENDER**

Sealed Tenders from the experienced and reputed Original Equipment Manufacturers / Dealers/Agencies for Supply and installation of Desktop Computers, Servers & Peripherals on turnkey basis at NIT Patna are invited by the undersigned up to 16.11.2010 till 12.30 PM.

The detailed specification of the work to be done along with terms and conditions may be downloaded from website of the Institute [www.nitp.ac.in](http://www.nitp.ac.in). The tender document fee is Rs. 3000/- (Non refundable) which is to be deposited by demand draft/Bankers cheque drawn in favour of Registrar, NIT Patna, payable at Patna.

The tenders received will be opened on the 16<sup>th</sup> November 2010 at 2:30 P.M. in the presence of the tenderers or their representatives, if they so desire, at NIT Patna.

**Terms & Conditions**

1. The rates quoted will be inclusive of all taxes, Excise duty, VAT etc as applicable showing each component separately and VAT will be deducted at source.
2. TDS as applicable on date will be deducted from the bill.
3. Entry tax, if applicable will be borne by the Bidder.
4. NIT Patna reserves the absolute right to accept or reject any or all the tenders on whole or in part without assigning any reason thereof.
5. Technical features of the offered equipment vis-à-vis specification should conform to as per Annexure – I to VI and the tender must be complied for Terms & Conditions mentioned in Annexure – VII
6. The article supplied should conform to manufacturers of standard quality, specifications & test.
7. Articles/Services should be delivered to NIT Patna without any extra charge.
8. Guarantee/Warranty clause should be clearly mentioned and Guarantee card/ Warranty card should be furnished along with the article supplied.
9. Terms of payment: a) 98% of the Annexure wise supply price will be made against receipt of materials in good condition in store, after final inspection and satisfactory installation certificate given by the competent authority and submission of Bank Guarantee for 3% of Supply Price, valid for one year. b) 2% of the supply price will be paid after receipt of Audit Report of the relevant year.
10. NIT Patna reserves the right to reject any articles/services found defective, damaged and or not of the desired quality and specification. Decision of NITP will be final.
11. Any loss or damage caused to the article in transit is to be made good by the supplier free of cost within reasonable time.
12. Postal or courier delay will not be considered and the Tender received late will be rejected.
13. Earnest money of Rs 4,00,000/-(refundable), which may be enclosed, in the form of Account Payee D.D / Bankers Cheque / Bank Guarantee drawn in favour of the Registrar, NIT Patna payable at Patna.
14. Security deposit/E.M. can be forfeited in case of non-supply/part supply /delayed supply of material unless permitted in writing by NIT Patna.
15. No escalation in respect of materials, labour, custom duties, freight etc. will be allowed in any shape.
16. The bids shall be submitted in three parts, viz. i) EMD should be in the form of Account payee Demand Draft / Banker's Cheque / Bank Guarantee in favour of Registrar, NIT Patna payable at Patna, ii) Technical bid and iii) Financial bid. Technical bid should contain papers regarding registration of the firm, ISO-9000 Certificate, Balance sheet for last 3 years, clearance from sales tax, clearance from I.T, PAN., Work Experience and completion certificate of similar type of work, Terms & conditions. Financial bid should contain duly filled up **Annexure VIII**, indicating installation charges, duties & taxes as applicable separately. The above three bids may be sealed by the bidder in separate cover duly super-scribed EMD, Technical bid and Financial bid respectively and all three sealed covers are to be put in a bigger cover which should also be sealed and duly super-scribed. 'Bid for Supply of Desktop Computers, Servers & Peripherals at NIT Patna vide Tender No. NITP/.....'. A bidder who submits more than one bid shall be disqualified.
17. A declaration should also be furnished by the agency that they will supply the original product of the manufacturing company. In case of supply of duplicate product suitable action will be taken against the agency including forfeiture of E.M./Security Deposit.
18. The bid document/resultant contract will be interpreted under Indian Laws and subject to the jurisdiction of courts in Patna.
19. This is a turnkey based tender. Bidder must quote for all items failing which the tender will be summarily rejected.

Registrar

# NATIONAL INSTITUTE OF TECHNOLOGY PATNA

(An Institute under Ministry of HRD, Govt. of India)  
ASHOK RAJPATH, PATNA-800005 (BIHAR)  
**BID DOCUMENT**

**Name of the work: - Supply & Installation of Desktop Computers, Servers & Peripherals at NIT Patna.**

## **1. Instructions to the bidders**

- 1.1 Sealed bids are invited on behalf of the Director, National Institute of Technology Patna – 800005, Bihar, for Supply of Desktop Computers, Servers & Peripherals at NIT Patna as detailed in the Annexure I to VI.
- 1.2 The bidders should quote their offer/rates in clear terms without ambiguity.
- 1.3 The rates should be quoted both in figures and words and legibly written without any over-writings. In case of any correction, the same must be attested by the bidder with full signature; however, no over-writing is permissible.
- 1.4 In case of any discrepancy between the rates in figures and that in words, the rate in words will be accepted as correct.
- 1.5 The last date for receipt of the bid is marked in the tender document. In case the above date is declared a holiday for NIT Patna, then the bids will be received up to the given time on the next working day.
- 1.6 The bids may be sent by registered post/speed post/courier service/by hand so as to reach the Registrar, NIT Patna before/on the last date & time of receipt.
- 1.7 Bids received after the deadline of receipt indicated in para 1.5 above, shall not be taken in to consideration.
- 1.8 The bids shall be submitted in three parts, viz., a) EMD in favour of Registrar NIT Patna payable at Patna. b) Technical bid and c) Financial bid. Technical bid should contain papers regarding registration of the firm, clearance from sale tax, clearance from IT/PAN, work experience and completion certificate of similar type of work and Terms and conditions. Financial bid should contain duly filled up **Annexure VIII** of the enquiry. The above three bids may be sealed by the bidder in separate cover duly super-scribed and all these sealed covers are to be put in a bigger cover which should also be sealed and duly super-scribed. The bidding format is specified in the tender document (Annexure – VIII). A bidder who submits more than one bid shall be disqualified.
- 1.9 The cover containing the bid must be sealed and super-scribed as “Supply of Desktop Computers, Servers & Peripherals at NIT Patna vide Tender No. NITP/10/.
- 1.10 The bids shall be opened in the Registrar’s office on the date and time given in the tender document. The bidders may attend themselves the bid opening meeting or may send their authorized representative to attend the bid opening meeting, if they so desire. In the event of the above bid opening date being declared holiday for the

NIT Patna, the bids will be opened at the specified time and place on the next working day.

- 1.11 The bidder has to sign in full at all pages of the bidding document.
- 1.12 Technical features of the offered equipment vis-à-vis specification must be as per Annexure – I to VI.

## **2. Conditions of the bid**

- 2.1 The rates quoted should preferably be net, inclusive of all taxes and duties, packing, forwarding, freight, Insurance and all other incidental charges.
- 2.2 Supply must be completed within 60 days from the date of award of the work to the successful bidder.
- 2.3 The goods offered should strictly conform to the specification and technical details as per annexure – I to VI.
- 2.4 The institute may like to conduct site inspection of goods, where ever applicable.
- 2.5 The bid is to be accompanied with “Bid Security” (Earnest Money) amounting Rs. 4, 00,000/- as stated in the Tender Document, which may be enclosed, in the form of Account Payee Demand Draft / Bankers’ Cheque / Bank Guarantee. The bid security shall be in favour of the Registrar NIT Patna. The bid security may be forfeited, if the successful bidder does not finish the awarded work within 60 days from the award of work.
- 2.6 The bidder has to furnish up to date VAT and Income Tax Clearance Certificate along with the bid.
- 2.7 Payment: 98% of the Annexure wise supply price will be made against receipt of materials in good condition in store, after final inspection & satisfactory installation certificate given by the competent authority and submission of Bank Guarantee for 3% of supply price, valid for one year. b) 2% of the supply price will be paid after receipt of Audit Report of the relevant year.
- 2.8 In the event of any dispute arising out of the bid or from the resultant contract, the decision of the Director, NIT Patna shall be final.
- 2.9 The bid document/resultant contract will be interpreted under Indian Laws and subject to the jurisdiction of courts in Patna.
- 2.10 No escalation in respect of materials, labour, duties/cess, freight etc will be allowed in any shape.
- 2.11 Bidder needs to have their registered office and service center in Patna, failing which their bid will be rejected.
- 2.12 The Institute reserves absolute right to accept or reject any or all the Tender on whole or in part without assigning any reason thereof.

- 2.13 The Institute reserves the right to reject any article/service found defective, damaged and or not of the desired quality and specification, Decision of NIT Patna will be final. The agency will make good/suitable modification as per the direction of concerned authority without further delay at their cost.
- 2.14 Postal or courier delay will not be considered and the bid received late will be rejected without assigning any reason.
- 2.15 Earnest money/Security deposit may be forfeited in case of non supply/part supply /delayed supply of work unless permitted in writing by the Institute.
- 2.16 Standard Technical literature on each of the items offered should also be available on OEM's website to validate that the quoted items are factory standard of the quoted brand.
- 2.17 The bidder should not unnecessarily quote for higher version, because given specification has been formulated keeping in view the requirement of this Institute. Therefore, offered higher version will not be evaluated by NIT and may lead to disqualification of such bid(s).
- 2.18 This is a Turn key based tender. Bidder must quote for all items, failing which the tender will be summarily rejected.
- 2.19 Annual Maintenance contract (**AMC**) rate (after expiry of warranty period) is to be clearly indicated – preferably for both comprehensive and non-comprehensive terms, *failure to which the offer may not be considered even if it turns out at the lowest price.*
- 2.20 *Warranty/Guarantee:* the material must be quoted with a minimum comprehensive warranty / Guarantee for the period as defined in this document against each item. During the period of warranty, the Bidder will have to post minimum two dedicated certified Hardware Engineers in the campus of NIT Patna, out of which one should be CCNA certified.
- 2.21 *Entry Tax:* Entry tax, if applicable will be borne by the Bidder.

Registrar

| <b>Annexure-I</b>          |  | <b>Specification of Desktop</b> |                             |
|----------------------------|--|---------------------------------|-----------------------------|
| <b>Particulars</b>         | <b>Specification</b>   | <b>Marks for Complying</b>      | <b>Compliance by Bidder</b> |
| <b>Type</b>                | Brand & Model to be defined by OEM   | Must comply                     |                             |
| <b>Processor</b>           | Intel C2D(3.0-GHz, 6 MB L2 cache, 1333-MHz FSB) Processor equivalent or higher   | Must comply                     |                             |
| <b>Chipset</b>             | Intel Q43 Express Chipset equivalent or higher   | Must comply                     |                             |
| <b>Motherboard</b>         | OEM Motherboard  | Must comply                     |                             |
| <b>Memory</b>              | 2 x 2 GB DDR3 PC3-8500 (1066-MHz) Non ECC Memory upgradeable to 16 GB  | Must comply                     |                             |
| <b>HDD</b>                 | 320-GB SATA 3.0Gb/s NCQ hard drives (7200RPM) (Provision of Total of 2*Internal hard drive support) Full Drive Encryption support  | Must comply                     |                             |
| <b>Optical</b>             | 16x DVD R/W, 48x CD-RW   | Must comply                     |                             |
| <b>Graphics</b>            | Intel Graphics Media Accelerator 4500 integrated graphics with HD support equivalent or higher   | Must comply                     |                             |
| <b>Audio</b>               | Integrated High Definition audio with internal Speakers  | Must comply                     |                             |
|                            | All audio ports should be stereo   | Must comply                     |                             |
| <b>Monitor</b>             | 18.5" TFT (should be of the same make as of PC) V. Angle 160/160; Response Time:2ms; Pixel Pitch:0.280; Brightness;250cd/m2.   | Must comply                     |                             |
| <b>Ethernet</b>            | Integrated Gigabit Ethernet 10/100/1000  | Must comply                     |                             |
| <b>Bays</b>                | 5.25" external bays and (2) 3.5" internal bays   | Must comply                     |                             |
| <b>Slots</b>               | Total 4 PCI Slots including (minimum 1*PCIx1, 1*PCIx16slot)  | Must comply                     |                             |
| <b>Ports</b>               | I/O: (6) USB 2.0 : Rear<br>(4) USB 2.0 : Front<br>(1) standard serial port,<br>(1) optional parallel port,<br>(2) PS/2,<br>(1) RJ-45,<br>(1) VGA,<br>(1) audio in/out ,<br>(1) Display Port Front I/O<br>headphone and microphone,<br>Dual color Diagnostic LEDs               | 3                               |                             |
| <b>Input</b>               | Standard Keyboard, Two Button Scroll Optical Mouse   | Must comply                     |                             |
| <b>Form Factor</b>         | Small Form Factor: this must be validated through existing product classification of the OEM on their brochure, which should be available on website and submitted in hard copy. Chassis volume should not exceed 13 ltrs  | 5                               |                             |
|                            | Tool less chassis, Tool Less HDD, Tool Less Motherboard  | 5                               |                             |
| <b>Power Supply</b>        | 240-watt 89% efficiency power saving Power supply. Active Power Factor Correction (PFC). Energy Star 5.0 & EPEAT GOLD Certified  | 10                              |                             |
| <b>Security</b>            | Chassis Intrusion Alarm  | 5                               |                             |
|                            | BIOS Controlled chassis lock.<br>It is NOT Alarm control or Intrusion detection system. Using the BIOS the chassis shall be LOCKED and UNLOCKED.   | 15                              |                             |
| <b>O/S</b>                 | Dual Bootable Factory Installed windows 7 starter or higher in one partition & Latest Redhat Linux / SuSe on another, with free upgrades, updates & web support for 1 year along with drivers, for every component for Win 7, Win XPP, Vista, etc with Media of Win 7 starter. | Must comply                     |                             |
| <b>O/S Certification</b>   | Latest version Windows / Redhat Linux / SuSe OS  | Must comply                     |                             |
| <b>Other certification</b> | For PC: Energy Star 5.0 & EPEAT Gold   | Must comply                     |                             |
|                            | For Monitor: TCQ and Energy Star specification   | 5                               |                             |
|                            | Certified & Supported for Redhat Linux / SuSe Latest edition Linux   | 2                               |                             |
| <b>Warranty</b>            | Three years comprehensive on site  | Must comply                     |                             |

| <b>Annexure-II a</b>  |   | <b>Specification of Server Quad Core</b> |                   |
|---|---|--|-------------------|
| <b>Technical Parameters</b>   | <b>Required Specification</b>   | <b>Marks for complying</b>               | <b>Compliance</b> |
| Processor   | 2xIntel® Xeon® 4 core E5620 2.40GHz, 12MB L3 cache, 5.86 GT/s QPI, Turbo, HT, or higher. Two processors are required per Server. Should process 64 bits both Operating Systems and Applications | Must comply                              |                   |
| Mother Board  | OEM Mother board with Intel 5500 Chipset  | Must comply                              |                   |
| Memory  | 2 GB X 4 DDR-3 Registered RDIMM Memory @ 1333MHz. Total 8 GB Per Server.<br>Minimum Memory Scalability up to 128 GB   | Must comply                              |                   |
| Hard Disk   | Minimum Twelve Hot Pluggable Drive Bays for Hard Disk.<br>3 X 300 GB SAS 10K 2.5" Hot Plug HDD.   | Must comply                              |                   |
|   | Support for Hot Plug SSD Hard Disk Drives   |  |                   |
| Minimum Internal Storage  | 24 Terabytes  | Must Comply                              |                   |
| Optical Drive   | DVD Writer OEM  | Must comply                              |                   |
| Network Controller  | Two Dual Port Gigabit Ethernet adapters embedded with TOE (total 4 Ethernet ports) capable of Wake on LAN and PXE boot.   | Must comply                              |                   |
| Interface   | 1 USB for Keyboard  | Must comply                              |                   |
|   | 1 USB for Mouse   | Must comply                              |                   |
|   | 1 Standard Graphics Port  | Must comply                              |                   |
|   | 1 Serial Interface Port   | Must comply                              |                   |
|   | 4 RJ 45 (10/100/1000 NIC Ports)   | Must comply                              |                   |
|   | 6 USB 2.0 Ports (minimum) with 2 in front, 2 at rear & 2 internal.  | Must comply                              |                   |
| Graphics  | Video Graphics Card with 8 MB Memory and 32 Bit Color Resolution or better  | Must comply                              |                   |
| Expansion Slots   | Minimum 3 PCI-e slots   | Must comply                              |                   |
| Fans  | Redundant Fans  | Must comply                              |                   |
| Power Supply  | Dual Power Supply Unit. Redundant Power Supply is required  | Must comply                              |                   |
| Form Factor   | Rack Mountable (2 U Rack Optimized) with all related Rack Accessories. All the servers shall be rack mountable  | Must comply                              |                   |
| Railings  | OEM Railings of the servers are required to mount the servers   | Must comply                              |                   |
| Warranty  | The servers shall be under comprehensive onsite warranty for a period of 3 years from the date of installation.   | Must comply                              |                   |
| Compliance  | The server should be fully compliant with 64 bit windows 2003/2008, Red Hat 4.5 or above/Suse Enterprise server 10 or above   | Must comply                              |                   |
|   | the server should also be able to run x86 applications  | Must comply                              |                   |
|   | The server should have tool less access to all system components  | Must comply                              |                   |
|   | Support for Microsoft Terminal services, 128 bit SSL, SSH Version v2  | must comply                              |                   |
| Pre(Installed)  | RHEL server latest version  | Must comply                              |                   |
| Server Management   | Software should be capable of providing role based security alerts of critical component, failure (hard drives, Memory & CPU) and notify the same using email or SMS                            | Must comply                              |                   |
| Industry Standard Compliance  | ACPI, PCI 2.2, WOL, PXE Support, USB 2.0 support  | Must comply                              |                   |
| Remote Management Feature   | Should be capable of providing graphical interface, IPMI 2.0 SSL Encryption, Virtual Media (with advance license) and multi factor authentication   | Must comply                              |                   |
| Others  | All the servers should have to be RoHS Compliant.   | Must comply                              |                   |
| OEM management software Web-based user interface, should automatically detect supported systems as they are added to the network remotely installs an operating system onto bare-metal systems across the network. one-to-one systems management solution in two ways: from an integrated Web browser-based Graphical User Interface (GUI) and from a command line interface (CLI) through the operating system |   | 10 marks                                 |                   |
| Server Administrator should be designed for system administrators to manage systems locally and remotely on a network   |   | 5 Marks                                  |                   |
| Server Administrator allows system administrators to focus on managing their entire network by providing comprehensive one-to- one systems management   |   | 5 Marks                                  |                   |
| Software web based update should be scheduled for availability of new updates and configure e-mail task to notify for new updates   |   | 5 Marks                                  |                   |
| Active Directory authentication and authorization, OS-independent continuous video console  |   | 10 Marks                                 |                   |
| Supports virtual; floppy, CD, and DVD media Virtual media encryption, E-mail and SNMP alerting.   |   | 15 Marks                                 |                   |

| <b>Annexure-II (b)</b>   |  | <b>Specification of Server Dual Core</b> |                   |
|--|--|--|-------------------|
| <b>Technical Parameters</b>  | <b>Required Specification</b>  | <b>Marks for complying</b>               | <b>Compliance</b> |
| Processor  | Intel ® Xeon ® Processor L3406 (2 Core, 2.26 GHz., 4 MB Cache, Turbo Supported, HT)  | Must comply                              |                   |
| Mother Board   | OEM Mother board with Intel 3420 Chipset   |  |                   |
| Memory   | 2 X 4GB Dual Ranked UDIMM Memory @ 1333MHz. Total 8 GB Per Server.<br>Minimum Memory Scalability up to 32 GB   | Must comply                              |                   |
| Hard Disk  | Minimum Four Hot Pluggable Drive Bays for Hard Disk.<br>3 X 300 GB SAS 15000RPM Hot Plug HDD.<br>Support for Hot Plug SSD Hard Disk Drives                           | Must comply                              |                   |
| Internal Storage   | 8 Terabytes  | Must Comply                              |                   |
| Optical Drive  | DVD Writer OEM   | Must comply                              |                   |
| Network Controller   | Onboard Dual Port Gigabit Ethernet adapters embedded (total 2 Ethernet ports) capable of Wake on LAN and PXE boot.   | Must comply                              |                   |
|  | 1 Standard Graphics Port   | Must comply                              |                   |
|  | 1 Serial Interface Port  | Must comply                              |                   |
|  | 2 RJ 45 (10/100/1000 NIC Ports)  | Must comply                              |                   |
|  | 6 USB 2.0 Ports (minimum) with 2 in front and 4 at rear.   | Must comply                              |                   |
| Graphics   | Video Graphics Card with 8 MB Memory and 32 Bit Color Resolution or better   | Must comply                              |                   |
| Expansion Slots  | Slot 1: PCIe x16 (x8 routing),<br>Slot 2: PCIe x8 (x8 routing),  | Must comply                              |                   |
| Fans   | Fully Redundant Hot Pluggable Fans   | Must comply                              |                   |
| Power Supply   | Dual Power Supply Unit. Redundant Power Supply is required   | Must comply                              |                   |
| Form Factor  | Rack Mountable with all related Rack Accessories. All the servers shall be rack mountable  | Must comply                              |                   |
| Railings   | OEM Railings of the servers are required to mount the servers with cable management  | Must comply                              |                   |
| Warranty   | The servers shall be under comprehensive onsite warranty for a period of 3 years from the date of installation.  | Must comply                              |                   |
| Compliance   | The server should be fully compliant with 64 bit windows 2003/2008, Red Hat 4.5 or above/Suse Enterprise server 10 or above.   | Must comply                              |                   |
|  | the server should also be able to run x86 applications   | Must comply                              |                   |
|  | The server should have tool less access to all system components   | Must comply                              |                   |
|  | Support for Microsoft Terminal Services, 128 bit SSL, SSH Version v2   | Must comply                              |                   |
| Pre(Installed)   | Windows 2008 server  | Must comply                              |                   |
| Server Management  | Software should be capable of providing role based security alerts of critical component, failure (hard drives, Memory & CPU) and notify the same using email or SMS | Must comply                              |                   |
| Industry Standard Compliance   | ACPI, PCI 2.2, WOL, PXE Support, USB 1.1 and 2.0 support   | Must comply                              |                   |
| Remote Management Feature  | Should be capable of providing graphical interface, IPMI 2.0 SSL Encryption, Virtual Media (with advance license) and multi factor authentication                    | Must comply                              |                   |
| Others   | All the servers should have to be RoHS Compliant.  | Must comply                              |                   |
| USB & PS2 Connectivity. Both the connectivity should be available.   |  | 5 marks                                  |                   |
| OEM management software Web-based user interface, should automatically detect supported systems as they are added to the network remotely installs an operating system onto bare-metal systems across the network.one-to-one systems management solution in two ways: from an integrated Web browser-based Graphical User Interface (GUI) and from a command line interface (CLI) through the operating system |  | 10 marks                                 |                   |
| Server Administrator should be designed for system administrators to manage systems locally and remotely on a network  |  | 5 Marks                                  |                   |
| Server Administrator allows system administrators to focus on managing their entire network by providing comprehensive one-to- one systems management  |  | 5 Marks                                  |                   |
| Software web based update should be scheduled for availability of new updates and configure e-mail task to notify for new updates  |  | 5 Marks                                  |                   |
| Active Directory authentication and authorization, OS-independent continuous video console   |  | 10 Marks                                 |                   |
| Supports virtual; floppy, CD, and DVD media, Virtual media encryption-mail and SNMP alerting.  |  | 10 Marks                                 |                   |

| <b>Annexure-II (c)</b>   | <b>Specification of Rack</b> |                   |
|--|------------------------------|-------------------|
| <b>Required Specification</b>  | <b>Marks for complying</b>   | <b>Compliance</b> |
| The offer should included one OEM complete 42 U or above rack per Server   | Must Comply                  |                   |
| This rack should be able to accommodate 8 2 U Rack optimized servers along with two 17" LCD Monitor console and two sets of KVM switch.            | Must comply                  |                   |
| Pallet rack  | Must comply                  |                   |
| Side panel Kit   | Must comply                  |                   |
| 600W Stabilizer Kit  | Must comply                  |                   |
| Fan Kit 220 V AC   | Must comply                  |                   |
| Rack Grounding Kit   | Must comply                  |                   |
| Cable Management D-Rings Kit   | Must comply                  |                   |
| Moduler PDU 16A 220V   | Must comply                  |                   |
| The rack should have wheels with lock  | Must comply                  |                   |
| The offer should included one 16 Port Rack mountable KVM switch  | Must comply                  |                   |
| the switch should include all the 16 interface cables and the required console cables  | Must comply                  |                   |
| The make of the KVM should be the same as that of the server.  | Must comply                  |                   |
| the switch should have VGA console status indicator LED / LCD Panel  | Must comply                  |                   |
| The switch shall be accommodated in a 42 U rack. All the necessary railings are required to mount the KVM in the Rack                              | Must comply                  |                   |
| The KVM switch shall be under comprehensive onsite warranty for a period of three years  | Must comply                  |                   |
| The offer should have two rack mountable 17" LCD monitor-keyboard-mouse console  | Must comply                  |                   |
| The console should have to be same OEM as the server   | Must comply                  |                   |
| Each 17" TFT with keyboard with touch pad in a 1 or 2 U format with enough room to mount a KVM switch behind it. Tool less rails ease installation | Must Comply                  |                   |
| High resolution XGA TFT LCD Display supporting most commonly used resolutions  | Must comply                  |                   |
| Built in interface electronics. Offers support of common video resolutions from 640 X 480 through 1280x1024 at up to 75 Hz. Refresh rates          | Must comply                  |                   |
| Active Matrix TFT Screen Only TFT Technology   | Must comply                  |                   |
| USB & PS2 Connectivity. Both the connectivity should be available.   | Must comply                  |                   |
| Wide format anti-glare display   | Must comply                  |                   |
| Intuitive, 2 button On Screen Display (OSD) Should be located on the front / right of display assembly   | Must comply                  |                   |
| Adjustments: wide array of adjustments should be possible to make, including brightness, contrast, image adjust, OSD settings and factory presets  | Must comply                  |                   |
| button touch pad with scrolling located below the space bar for a centrally located input devise.  | Must comply                  |                   |
| Four scroll keys (Inverted T) located between the keyboard and numeric keypad for easy access  | Must comply                  |                   |
| the entire console shall be under comprehensive onsite warranty of the supplier for a period of three years  | Must comply                  |                   |

| <b>Annexure-III (a)</b> |  | <b>Specification of LCD Projector</b>  |                            |                   |
|-------------------------|--|--|----------------------------|-------------------|
| <b>SN</b>               | <b>Technical Specification</b>             |  | <b>Marks for complying</b> | <b>Compliance</b> |
| 1                       | Make & Model                               | Vendor to Specify  | Must comply                |                   |
| 2                       | Panel                                      | .63 inch with MLA LCD Technology   | Must comply                |                   |
|                         |  | 786432 (1024x768) x 3 pixel  | Must comply                |                   |
| 3                       | Projection Lens                            | 1.6x optical Zoom or better  | Must comply                |                   |
|                         |  | F=19to 28 or better  | 5                          |                   |
|                         |  | F 1.5 to 1.9or better  | 5                          |                   |
| 4                       | Lamp                                       | 230 W  | 5                          |                   |
| 5                       | Screen Coverage                            | 30 to 300" (Viewable area measured diagonally)   | Must comply                |                   |
|                         |  | 100 inches (2 – 3.8m) (viewable area measured diagonally)                                  | Must comply                |                   |
| 6                       | Keystone Correction Range                  | -30 to + 30 degrees vertically   | Must comply                |                   |
| 7                       | Light output                               | 3000ANSI Lumens (Lamp mode : High)   | Must comply                |                   |
|                         |  | 2400 ANSI Lumens (Lamp mode : Low)   | 5                          |                   |
| 8                       | Contrast                                   | 2000:1   | Must comply                |                   |
| 9                       | Speaker                                    | 7 W or better  | 5                          |                   |
| 10                      | Mass                                       | 4 kg (Max)   |                            |                   |
| 11                      | Inputs / Outputs                           | USB Type A   |                            |                   |
|                         |  | USB Type B   |                            |                   |
|                         |  | 2 Computer in Port   |                            |                   |
|                         |  | 1 Monitor out Port   |                            |                   |
|                         |  | S Video input port   |                            |                   |
|                         |  | video input port   |                            |                   |
|                         |  | mic input port   |                            |                   |
|                         |  | 2 audio input port   |                            |                   |
|                         |  | audio out port   |                            |                   |
|                         |  | RS232 Port   |                            |                   |
| 12                      | Others                                     | LAN Port   |                            |                   |
|                         |  | Vista Ready  | 10                         |                   |
|                         |  | Complete Software & Drivers  |                            |                   |
|                         |  | Full Function Remote Control   |                            |                   |
|                         |  | Multi Screen Display   |                            |                   |
|                         |  | Integrated wireless unit   | 15                         |                   |
|                         |  | Ceiling Mountable  |                            |                   |
| OEM Carry Case          |  |  |                            |                   |
| 13                      | Compliance / Certification to be submitted | Vendor must enclose authorisation from OEM, authorising the vendor to quote in this tender | Must comply                |                   |
| 14                      | Technical Brochure                         | Technical brochures to be attached – signed and stamped by bidder                          | Must comply                |                   |
| 15                      | Warranty                                   | One year comprehensive onsite warranty   | Must comply                |                   |

## Annexure-III (b) Specification of Digital / Visual Presenter

| SN | Technical Specification     |   | Marks for complying | Compliance |
|----|-----------------------------|---|---------------------|------------|
| 1  | Type                        | The desktop visual presenter shall be suitable for capturing still and video images for projection through multimedia projector | Must Comply         |            |
| 2  | <b>Camera</b>               | Image Pick-up Device: 1/4inch CCD/CMOS or higher  | Must Comply         |            |
| 3  | Resolution/Effective Pixels | XGA (1024x768 pixels) or better   | 10 marks            |            |
| 4  | Frame rate                  | 30 FPS or better  | Must Comply         |            |
| 5  | <b>Optics</b>               | Zoom (Optical): 12x as or better  | 15 marks            |            |
| 6  | Shooting Area               | 210x297 mm  | Must Comply         |            |
| 7  | Focusing                    | Auto  | 5 marks             |            |
| 8  | Digital magnification       | 2x or better  | 5 marks             |            |
| 9  | Image rotation facility     | Required  | 5 marks             |            |
| 10 | Graphic User Interface      | Required  | Must Comply         |            |
| 11 | Image Memory                | 6 images or more  | Must Comply         |            |
| 12 | Computer Interface          | Required with software for transmission of images to computer.  | 5 marks             |            |
| 13 | Illumination                | LED   | Must Comply         |            |
| 14 | Others                      | Capable for backlit transparencies  | Must Comply         |            |
| 15 | Standard Accessories        | Remote Control VGA Cable, Power Cable, Lens Cap.  | 5 marks             |            |
| 16 | Warranty                    | Three years comprehensive on site   | Must Comply         |            |

| <b>Annexure IV (a)</b>  |                 | <b>80 KVA UPS Specification</b>  |                            |
|---|-----------------|--|----------------------------|
| <b>Particulars</b>  |                 | <b>Specification</b>   | <b>marks for complying</b> |
| <b>Power rating Pn</b> (KVA at PF = 0.8)<br>(rated apparent output power) |                 | <b>80 KVA</b>  | must comply                |
| Active power (kW)   |                 | <b>64KW</b>  | must comply                |
| <b>Input</b> (rated values and tolerances)                                |                 |  |                            |
| Voltage   | Normal AC input | Un = 400 V Range : <b>250 V to 470 V</b>   | 3 marks                    |
|   | Bypass AC input | 400 V $\pm$ 10% or $\pm$ 15% (option)  | 2 marks                    |
| Frequency   | Utility         | 50 or 60 Hz $\pm$ <b>10%</b> i.e. 45 to 65 Hz  | 3 marks                    |
| THDI  |                 | < <b>3%</b>  | 3 marks                    |
| Rectifier Type  |                 | Must be IGBT based Rectifier with 0.99 Power Factor.   | must comply                |
| <b>Output</b> (rated values and tolerances)                               |                 |  |                            |
| Number of phases  |                 | 3 + N or 3ph (for operation without neutral)   | must comply                |
| <b>Voltage</b><br>( rms output value)                                     |                 | 380 / 400 / 415 V $\pm$ 1% 3-phase at 50 Hz  | must comply                |
| <b>Frequency</b>  | AC power sync   | 50 Hz $\pm$ 0.5 Hz (adjustable)  | must comply                |
|   | free running    | $\pm$ 0.25 Hz (adjustable from 0.25 to 2 Hz in 0.25 Hz steps)                                  | must comply                |
| Power factor  |                 | <b>0.8</b>   | must comply                |
| THDU  | linear load     | <b>£ 1%</b> ph/ph, £ 1.5% ph/N (RL loads at cos j = 0.8 and 0.9)                               | must comply                |
|   | non-linear load | <b>£ 2%</b> ph/ph, £ 3.5% ph/N (RCD loads as per standard ENV 50091-3)                         | must comply                |
| Overload capacity of inverter   |                 | 125% for 10 min. - 150% for 1 min. - <b>220% for 1s</b>  | must comply                |
| Permissible crest factor  |                 | Up to 3 : 1  | must comply                |
| <b>Efficiency</b>   |                 |  |                            |
| On-line mode  | 100%            | Up to <b>94%</b>   | 5 marks                    |
| <b>Battery</b>  |                 |  |                            |
| Type  |                 | 12V, SMF, VRLA. Make: Panasonic / G&Y/Exide.   | 2 marks                    |
| Black start   |                 | <b>Black start facility</b> should be available in UPS   | 5 marks                    |
| Back up time  |                 | <b>20 Minutes (VAH 2x 38000 VAH)</b>   | must comply                |
| Battery bank  |                 | <b>Two numbers of battery bank should be connected in Parallel.</b>                            | must comply                |
| <b>Communication</b>  |                 |  |                            |
| Standard  |                 | 1 relay card with dry contacts, 2 inputs and 6 outputs, 250 V 2 A, SNMP Card should be inbuilt | must comply                |
| <b>Environment</b>  |                 |  |                            |
| Degree of protection (as per IEC 60529)                                   |                 | IP20   |                            |
| Noise level (dBA) ISO 3476  |                 | <b>62</b>  | must comply                |
| Storage temperature range   | without battery | -25°C to +70°C dry heat  |                            |
|   | with battery    | -10°C to +45°C   |                            |
| Operating temperature range   | Inverter        | <b>0 to 40°C</b>   |                            |
|   | Battery         | tolerable: 0 to 35°C (40°C for 8 hours)  |                            |
| <b>Standards</b>  |                 |  |                            |
| Construction and safety   |                 | IEC 62040-1-2 / IEC 60950  | 5 marks                    |
| Performance and topology  |                 | IEC 62040-3 / EN 62040-3   | 5 marks                    |
| Harmonics   |                 | <b>IEC 61003-2 / IEC 61003-4</b>   | 5 marks                    |
| Design, manufacturing   |                 | <b>ISO 14001 / ISO 9001</b>  | 5 marks                    |
| Certification and marking   |                 | <b>TÜV / CE / LCIE</b>   | 5 marks                    |

|             |   |             |  |
|-------------|---|-------------|--|
| Maintenance | <b>Vender should have to do monthly maintenance of UPS without any shutdown (By means of software). Details report should be submitted after each Preventive maintenance.</b> | 2 marks     |  |
| Warranty    | Three years comprehensive warranty on site including battery  | Must comply |  |

| Annexure-IV (b)                  |                                    | 20 KVA Specification of UPS   |                     |            |
|----------------------------------|------------------------------------|---|---------------------|------------|
| Sl                               | Parameter                          | Specification   | Marks for complying | Compliance |
| 1                                | UPS Manufacturers Credentials      | Manufacturer must be ISO 9001:2000 certified. Please enclose Certificate  | 2                   |            |
|                                  |                                    | Manufacturer must be ISO 14001 certified. Please enclose certificate  | 10                  |            |
| 2                                | UPS Ratings                        | 20 KVA / 16 KW in case of 20 KVA  | Must comply         |            |
| 3                                | UPS Type                           | UPS should be True Online Double Conversion Type based on Digital Signal Processor (not micro processor)  | Must comply         |            |
|                                  |                                    | <b>Both Rectifier and Inverter must be IGBT based</b>   | Must comply         |            |
| 4                                | Mandatory System Features          | UPS system must have <b>inbuilt Isolation Transformer</b> at the output side  | Must comply         |            |
|                                  |                                    | UPS system must have fully functional LCD display for <ol style="list-style-type: none"> <li>1. Fault Annunciations</li> <li>2. System Parameters Display like Input / Output Voltages, Frequency etc</li> <li>3. System must have logging facility for easy diagnosis of system problems</li> </ol>  | 3                   |            |
|                                  |                                    | <b>UPS must have protection for Phase Reversal and UPS must automatically correct the input Phase Sequence without unnecessarily discharging the batteries</b>  | 5                   |            |
|                                  |                                    | <b>System to be supplied with Monitoring Software</b>   | Must comply         |            |
|                                  |                                    | UPS must not be based on a single Power PCB with Inverter, Charger or Rectifier on the same PCB. (so that in case any one of these fails then the entire UPS system becomes non functional and repeated failures does not render the PCB un-repairable) Undertaking stating that neither Charger, Rectifier or Inverter sections will be located on a single PCB must be provided by the bidder | 3                   |            |
| 5                                | Input Parameters                   | Nominal Input Voltage : 415V 3-phase, 4 Wire  |                     |            |
|                                  |                                    | Permissible Input voltage range : +25%,-30%   |                     |            |
|                                  |                                    | Nominal Input frequency : 50Hz  |                     |            |
|                                  |                                    | Permissible input frequency variation : +/- 10%   |                     |            |
|                                  |                                    | Input power factor : 0.99 p.f.  | 5                   |            |
|                                  |                                    | Power walk in: Progressive over 10 seconds  | 5                   |            |
| 6                                | Bypass Parameters                  | 220/230/240 VAC selectable  |                     |            |
| 7                                | Intermediate Dc Circuit Parameters | <b><u>Nominal DC bus voltage: 356V</u></b>  |                     |            |
|                                  |                                    | Permissible DC voltage variation: 260V-410V   |                     |            |
|                                  |                                    | DC bus OV trip: 410V  |                     |            |
|                                  |                                    | End of discharge DC bus voltage: 260V   |                     |            |
|                                  |                                    | Types of batteries supported : SMF  |                     |            |
|                                  |                                    | Nominal battery float voltage: 356V   |                     |            |
|                                  |                                    | Minimum battery charging current: 7.0 A   |                     |            |
|                                  |                                    | DC ripple : < 2% rms  |                     |            |
| D C Voltage Regulation : +/- 1 % |                                    |   |                     |            |
| 8                                | Output Parameters                  | <b><u>Output power rating at 1.0 pf:</u></b><br><b><u>20 KVA / 16 KW in case of 20 KVA</u></b>  |                     |            |
|                                  |                                    | Output power factor : 0.8 p.f.  |                     |            |
|                                  |                                    | Nominal Output voltage : 220 / 230 / 240V AC 1 Phase  |                     |            |
|                                  |                                    | Output voltage regulation: +/-1%  |                     |            |

|    |                           |   |    |  |
|----|---------------------------|---|----|--|
|    |                           | Output voltage distortion for 100% Linear Load < 2% and for 100% Non Linear load < 3%   |    |  |
|    |                           | Nominal Output frequency : 50Hz   |    |  |
|    |                           | Power Rating at 0.8 pf : 20 KVA   |    |  |
|    |                           | Output frequency tolerance : +/-0.1%  |    |  |
|    |                           | Output frequency synchronization : +/-1Hz, ± 2 Hz, ± 3Hz Settable   |    |  |
|    |                           | Output Crest factor capacity : 3:1  |    |  |
|    |                           | Overload Capacity:<br>110% overload for 1 hour<br>125% overload for 10 minutes<br>150% overload for 1 minutes   |    |  |
|    |                           | Transient response for 100% load change :<br>+ / - 10 % recovery within 10 msec   |    |  |
|    |                           | Transfer time to bypass Synchronized: 0 milliseconds<br>Unsynchronized : 20 millisecond   |    |  |
| 9  | DC Parameters             | Voltage Limits for Inv operation: 260 VDC to 410 V DC   |    |  |
|    |                           | SMF Battery: 26 Blocks of 12V 65 AH each .  |    |  |
|    |                           | Total VAH Capacity – 26X12X65   |    |  |
| 10 | Environmental Parameters  | <i>Operating temperature range : 0 degree C to 45 degree C</i>  |    |  |
|    |                           | Storage temperature: 0 degree C to 70 degree C  |    |  |
|    |                           | Relative humidity : 0-95% RH Non-Condensing   |    |  |
|    |                           | Maximum attitude with full rating: 1000 Meters  |    |  |
| 11 | Protections Required      | <ul style="list-style-type: none"> <li>• INPUT UNDER VOLTAGE</li> <li>• INPUT OVER VOLTAGE</li> <li>• DC OVER VOLTAGE</li> <li>• DC UNDER VOLTAGE</li> <li>• INPUT CURRENT LIMIT</li> <li>• BATTERY UNDER VOLTAGE</li> <li>• BATTERY DEEP DISCHARGE</li> <li>• BLACK START ON LOW CHARGE OF BATTERIES</li> <li>• BATTERY CURRENT LIMIT</li> <li>• HIGH AMBIENT TEMP</li> <li>• OUTPUT SHORT CIRCUIT PROTECTION</li> <li>• OUTPUT OVER VOLTAGE</li> <li>• OUTPUT UNDER VOLTAGE</li> <li>• OUTPUT OVER CURRENT</li> <li>• BYPASS UNDER VOLTAGE</li> <li>• BYPASS FREQUENCY OUT OF HEALTHY RANGE</li> <li>• BATTERY OVER TEMPERATURE ALARM</li> <li>• INVERTER/CONVERTER DEVICE OVER TEMP.</li> <li>• TRANSFORMER OVER TEMPERATURE.</li> </ul> | 7  |  |
| 12 | Parameters Display on LCD | <ul style="list-style-type: none"> <li>• INPUT VOLTAGE LINE TO LINE</li> <li>• INPUT CURRENT</li> <li>• INPUT FREQUENCY</li> <li>• BYPASS VOLTAGE</li> <li>• BYPASS FREQUENCY</li> <li>• DC BAS VOLTAGE</li> <li>• BATTERY VOLTAGE</li> <li>• BATTERY CURRENT</li> <li>• OUTPUT VOLTAGE</li> <li>• OUTPUT CURRENT</li> <li>• OUTPUT FREQUENCY</li> </ul>  | 10 |  |

|                      |   |             |  |
|----------------------|---|-------------|--|
|                      | <ul style="list-style-type: none"> <li>• OUTPUT KVA</li> <li>• AMBIENT TEMPERATURE</li> <li>• INVERTER TEMPERATURE</li> <li>• OUTPUT TRANSFORMER TEMPERATURE</li> <li>• INPUT CHOKE TEMPERATURE</li> <li>• DC BUS MODE OF OPERATION</li> <li>• NUMBER OF BATTERY USED</li> <li>• TYPE OF BATTERY USED</li> <li>• FLOAT VOLTAGE PER CELL</li> <li>• BATTERY CURRENT LIMIT</li> <li>• BOOST VOLTAGE PER CELL</li> <li>• BOOST CHANGEOVER CURRENT LEVEL</li> <li>• BOOST MODE CURRENT LIMIT</li> <li>• BOOST TIMER</li> <li>• BATTERY AH</li> <li>• BATTERY AH</li> <li>• BATTERY LOW PREALARM</li> <li>• END OF DISCHARGE VOLTAGE</li> <li>• AUTO RESTART</li> <li>• DC BUS VOLTAGE</li> <li>• BYPASS UNDER VOLTAGE</li> <li>• BYPASS OVER VOLTAGE</li> <li>• RECTIFIER OPERATION MODE (FLOAT/BOOST)</li> <li>• TIME</li> <li>• DATE</li> <li>• PART NUMBER OF THE UNIT.</li> <li>• RATING OF THE UNIT</li> <li>• UPS INSTALLATION DATE</li> <li>• BATTERY INSTALLATION DATE</li> <li>• UPS ID.</li> <li>• LAST SERVICE DATE.</li> <li>• SERIAL NUMBER OF THE T</li> <li>• FIRMWARE REVISION NUMBER</li> <li>• LAST 50 EVENTS IS STORED WHICH HELPS FOR DIAGNOSIS AND REPAIR</li> </ul> |             |  |
| Standard Backup time | 60 minutes for each UPS system with 12 volts SMF batteries  | Must comply |  |
| Warranty             | Three years comprehensive on site including battery   | Must comply |  |

| Annexure-IV (c)                  |                                    | 10 KVA Specification of UPS   |                     |            |
|----------------------------------|------------------------------------|---|---------------------|------------|
| Sl                               | Parameter                          | Specification   | Marks for complying | Compliance |
| 1                                | UPS Manufacturers Credentials      | Manufacturer must be ISO 9001:2000 certified. Please enclose Certificate  | 2                   |            |
|                                  |                                    | Manufacturer must be ISO 14001 certified. Please enclose certificate  | 10                  |            |
| 2                                | UPS Ratings                        | 10 KVA / 8 KW in case of 10 KVA   | Must comply         |            |
| 3                                | UPS Type                           | UPS should be True Online Double Conversion Type based on Digital Signal Processor (not micro processor)  | Must comply         |            |
|                                  |                                    | <b>Both Rectifier and Inverter must be IGBT based</b>   | Must comply         |            |
| 4                                | Mandatory System Features          | UPS system must have <b>inbuilt Isolation Transformer</b> at the output side  | Must comply         |            |
|                                  |                                    | UPS system must have fully functional LCD display for<br>4. Fault Annunciations<br>5. System Parameters Display like Input / Output Voltages, Frequency etc<br>6. System must have logging facility for easy diagnosis of system problems   | 3                   |            |
|                                  |                                    | <b>UPS must have protection for Phase Reversal and UPS must automatically correct the input Phase Sequence without unnecessarily discharging the batteries</b>  | 5                   |            |
|                                  |                                    | <b>System to be supplied with Monitoring Software</b>   | Must comply         |            |
|                                  |                                    | UPS must not be based on a single Power PCB with Inverter, Charger or Rectifier on the same PCB. (so that in case any one of these fails then the entire UPS system becomes non functional and repeated failures does not render the PCB un-repairable) Undertaking stating that neither Charger, Rectifier or Inverter sections will be located on a single PCB must be provided by the bidder | 3                   |            |
| 5                                | Input Parameters                   | Nominal Input Voltage : 415V 3-phase, 4 Wire  |                     |            |
|                                  |                                    | Permissible Input voltage range : +25%,-30%   |                     |            |
|                                  |                                    | Nominal Input frequency : 50Hz  |                     |            |
|                                  |                                    | Permissible input frequency variation : +/- 10%   |                     |            |
|                                  |                                    | Input power factor : 0.99 p.f.  | 5                   |            |
|                                  |                                    | Power walk in: Progressive over 10 seconds  | 5                   |            |
| 6                                | Bypass Parameters                  | 220/230/240 VAC selectable  |                     |            |
| 7                                | Intermediate Dc Circuit Parameters | <b><u>Nominal DC bus voltage: 356V</u></b>  |                     |            |
|                                  |                                    | Permissible DC voltage variation: 260V-410V   |                     |            |
|                                  |                                    | DC bus OV trip: 410V  |                     |            |
|                                  |                                    | End of discharge DC bus voltage: 260V   |                     |            |
|                                  |                                    | Types of batteries supported : SMF  |                     |            |
|                                  |                                    | Nominal battery float voltage: 356V   |                     |            |
|                                  |                                    | Minimum battery charging current: 7.0 A   |                     |            |
|                                  |                                    | DC ripple : < 2% rms  |                     |            |
| D C Voltage Regulation : +/- 1 % |                                    |   |                     |            |
| 8                                | Output Parameters                  | <b><u>Output power rating at 1.0 pf:</u></b><br>10 KVA / 8 KW in case of 10 KVA   |                     |            |
|                                  |                                    | Output power factor : 0.8 p.f.  |                     |            |
|                                  |                                    | Nominal Output voltage : 220 / 230 / 240V AC 1 Phase  |                     |            |
|                                  |                                    | Output voltage regulation: +/-1%  |                     |            |

|    |                           |   |    |  |
|----|---------------------------|---|----|--|
|    |                           | Output voltage distortion for 100% Linear Load < 2% and for 100% Non Linear load < 3%   |    |  |
|    |                           | Nominal Output frequency : 50Hz   |    |  |
|    |                           | Power Rating at 0.8 pf : 20 KVA   |    |  |
|    |                           | Output frequency tolerance : +/-0.1%  |    |  |
|    |                           | Output frequency synchronization : +/-1Hz, ± 2 Hz, ± 3Hz Settable   |    |  |
|    |                           | Output Crest factor capacity : 3:1  |    |  |
|    |                           | Overload Capacity:<br>110% overload for 1 hour<br>125% overload for 10 minutes<br>150% overload for 1 minutes   |    |  |
|    |                           | Transient response for 100% load change :<br>+ / - 10 % recovery within 10 msec   |    |  |
|    |                           | Transfer time to bypass Synchronized: 0 milliseconds<br>Unsynchronized : 20 millisecond   |    |  |
| 9  | DC Parameters             | Voltage Limits for Inv operation: 260 VDC to 410 V DC   |    |  |
|    |                           | SMF Battery: 26 Blocks of 12V 65 AH each .  |    |  |
|    |                           | Total VAH Capacity – 26X12X65   |    |  |
| 10 | Environmental Parameters  | <i>Operating temperature range : 0 degree C to 45 degree C</i>  |    |  |
|    |                           | Storage temperature: 0 degree C to 70 degree C  |    |  |
|    |                           | Relative humidity : 0-95% RH Non-Condensing   |    |  |
|    |                           | Maximum attitude with full rating: 1000 Meters  |    |  |
| 11 | Protections Required      | <ul style="list-style-type: none"> <li>• INPUT UNDER VOLTAGE</li> <li>• INPUT OVER VOLTAGE</li> <li>• DC OVER VOLTAGE</li> <li>• DC UNDER VOLTAGE</li> <li>• INPUT CURRENT LIMIT</li> <li>• BATTERY UNDER VOLTAGE</li> <li>• BATTERY DEEP DISCHARGE</li> <li>• BLACK START ON LOW CHARGE OF BATTERIES</li> <li>• BATTERY CURRENT LIMIT</li> <li>• HIGH AMBIENT TEMP</li> <li>• OUTPUT SHORT CIRCUIT PROTECTION</li> <li>• OUTPUT OVER VOLTAGE</li> <li>• OUTPUT UNDER VOLTAGE</li> <li>• OUTPUT OVER CURRENT</li> <li>• BYPASS UNDER VOLTAGE</li> <li>• BYPASS FREQUENCY OUT OF HEALTHY RANGE</li> <li>• BATTERY OVER TEMPERATURE ALARM</li> <li>• INVERTER/CONVERTER DEVICE OVER TEMP.</li> <li>• TRANSFORMER OVER TEMPERATURE.</li> </ul> | 7  |  |
| 12 | Parameters Display on LCD | <ul style="list-style-type: none"> <li>• INPUT VOLTAGE LINE TO LINE</li> <li>• INPUT CURRENT</li> <li>• INPUT FREQUENCY</li> <li>• BYPASS VOLTAGE</li> <li>• BYPASS FREQUENCY</li> <li>• DC BAS VOLTAGE</li> <li>• BATTERY VOLTAGE</li> <li>• BATTERY CURRENT</li> <li>• OUTPUT VOLTAGE</li> <li>• OUTPUT CURRENT</li> <li>• OUTPUT FREQUENCY</li> </ul>  | 10 |  |

|                      |   |             |  |
|----------------------|---|-------------|--|
|                      | <ul style="list-style-type: none"> <li>• OUTPUT KVA</li> <li>• AMBIENT TEMPERATURE</li> <li>• INVERTER TEMPERATURE</li> <li>• OUTPUT TRANSFORMER TEMPERATURE</li> <li>• INPUT CHOKE TEMPERATURE</li> <li>• DC BUS MODE OF OPERATION</li> <li>• NUMBER OF BATTERY USED</li> <li>• TYPE OF BATTERY USED</li> <li>• FLOAT VOLTAGE PER CELL</li> <li>• BATTERY CURRENT LIMIT</li> <li>• BOOST VOLTAGE PER CELL</li> <li>• BOOST CHANGEOVER CURRENT LEVEL</li> <li>• BOOST MODE CURRENT LIMIT</li> <li>• BOOST TIMER</li> <li>• BATTERY AH</li> <li>• BATTERY AH</li> <li>• BATTERY LOW PREALARM</li> <li>• END OF DISCHARGE VOLTAGE</li> <li>• AUTO RESTART</li> <li>• DC BUS VOLTAGE</li> <li>• BYPASS UNDER VOLTAGE</li> <li>• BYPASS OVER VOLTAGE</li> <li>• RECTIFIER OPERATION MODE (FLOAT/BOOST)</li> <li>• TIME</li> <li>• DATE</li> <li>• PART NUMBER OF THE UNIT.</li> <li>• RATING OF THE UNIT</li> <li>• UPS INSTALLATION DATE</li> <li>• BATTERY INSTALLATION DATE</li> <li>• UPS ID.</li> <li>• LAST SERVICE DATE.</li> <li>• SERIAL NUMBER OF THE T</li> <li>• FIRMWARE REVISION NUMBER</li> <li>• LAST 50 EVENTS IS STORED WHICH HELPS FOR DIAGNOSIS AND REPAIR</li> </ul> |             |  |
| Standard Backup time | 60 minutes for each UPS system with 12 volts SMF batteries.   | Must comply |  |
| Warranty             | Three years comprehensive on site including battery   | Must comply |  |

| <b>Annexure-IV (d)</b>         |  | <b>5 KVA Specification of UPS</b> |                   |
|--------------------------------|--|-----------------------------------|-------------------|
| <b>Description</b>             | <b>Specification</b>   | <b>Marks for Complying</b>        | <b>Compliance</b> |
| Technology                     | True On Line UPS with double conversion technology based on DSP (Digital Signal Processor). Micro processor based systems will not be acceptable   | Must comply                       |                   |
|                                | UPS should be with Intelligent Battery Management for longer battery life  |                                   |                   |
|                                | UPS should come with Auto Shutdown and monitoring software in CD media   |                                   |                   |
|                                | IGTB based rectifier and inverter. With input power factor minimum 0.95  |                                   |                   |
| Power Rating                   | 5 KVA  |                                   |                   |
| Configuration                  | Stand alone Configuration  |                                   |                   |
| <b>Input</b>                   |  |                                   |                   |
| Nominal Voltage                | 220 VAC  |                                   |                   |
| Voltage Range                  | 110 – 300 VAC load dependent   |                                   |                   |
| Frequency                      | 50 Hz ± 5%   |                                   |                   |
| <b>Output</b>                  |  |                                   |                   |
| Voltage Range                  | 220 VAC ± 3%   |                                   |                   |
| Harmonic Distortion            | <4% (Linear Load)<br><7% (non Linear Load)   |                                   |                   |
| Frequency                      | ±5%, synchronized with bypass, 50 Hz ±0.2% free run  |                                   |                   |
| Power Factor                   | 0.8  |                                   |                   |
| Crest Factor                   | 3:1  |                                   |                   |
| Inverter Efficiency            | >95%   |                                   |                   |
| Inverter Overload              | 110% for 60 mins, 125% for 10 min, 150% for 1 min  |                                   |                   |
| Bypass Voltage                 | 120 – 250 VAC  |                                   |                   |
| <b>Battery</b>                 |  |                                   |                   |
| Type                           | Sealed Maintenance Free, Valve regulated Lead Acid   |                                   |                   |
| Number of Battery cells/Make   | To be specified  |                                   |                   |
| Rated Voltage                  | To be specified  |                                   |                   |
| AH Rating                      | Minimum 10000 VAH  |                                   |                   |
| Standard Backup Time           | 60 minutes for each UPS System with 12 volts SMF batteries   |                                   |                   |
| Charger Capacity               | To be specified  |                                   |                   |
| Transfer Time                  | Zero   |                                   |                   |
| Dynamic Response               | ±5% at 100% load change (resistive)  |                                   |                   |
| <b>Environmental and Other</b> |  |                                   |                   |
| Audible Noise                  | <40 dB   |                                   |                   |
| Display                        | LCD Display inbuilt should be provided in the UPS system   |                                   |                   |
| TVSS                           | A UL certified Transient Voltage Surge Suppressor will have to supplied at the input of the UPS system of minimum 25kA Capacity with two mode protection and response time of nano seconds. Please enclose brochure of the offered TVSS. |                                   |                   |
| Credentials                    | Manufacturer should be ISO 9001:2000 certified<br>Manufacturer should be ISO 14001 certified   |                                   |                   |
| Special Feature                | Manufacturer should be MAIT LEVEL II certified (preferable)<br>In the event of a shout down to low battery, the UPS should automatically restart once the input AC power resumes   |                                   |                   |
| Warranty                       | Three years comprehensive on site with battery   |                                   |                   |

| <b>Annexure-IV (e)</b> |   | <b>600 VA UPS Specification</b>             |  |
|------------------------|---|---|--|
| <b>Description</b>     | <b>Specification</b>                              | <b>Marks for Complying</b>                  | <b>Compliance</b>                                |
| Type                   | Line Interactive                                  | Must comply                                 |  |
| Capacity               | 600 VA  |   |  |
| Features               | AVR   |   |  |
| Range                  | 140 – 300 volt                                    |   |  |
| Interface              | Minimum three 5 amp socket                        |   |  |
| Battery                | 7 AH SMF inbuilt                                  |   |  |
| Chassis                | Made from ABS (fire resistant)                    |   |  |
| Backup                 | 20 min.   |   |  |
| Warranty               | 2 years on UPS and one year on battery            |   |  |
| <b>Annexure-V (a)</b>  |   | <b>Basic A4 Laser Printer Specification</b> |  |
| <b>Description</b>     | <b>Specification</b>                              | <b>Marks for Complying</b>                  | <b>Compliance</b>                                |
| Type                   | A4 size Laser Mono                                | Must comply                                 |  |
| Resolution             | 1200 x 600 dpi                                    |   |  |
| Speed                  | 20 PPM  |   |  |
| First copy out         | Less than 12 seconds                              |   |  |
| Memory                 | 2 MB  |   |  |
| Processor              | inbuilt   |   |  |
| Consumable             | 1 default toner with each printer                 |   |  |
| Interface              | USB & Parallel; USB cable to be provided          |   |  |
| <b>Annexure-V (b)</b>  |   |   | <b>Heavy Duty A4 Laser Printer Specification</b> |
| <b>Description</b>     | <b>Specification</b>                              | <b>Marks for Complying</b>                  | <b>Compliance</b>                                |
| Type                   | A4 size Laser Mono                                | Must comply                                 |  |
| Resolution             | 1200 x 1200 dpi                                   |   |  |
| Speed                  | 38 PPM in A4                                      |   |  |
| First copy out         | Less than 10 seconds                              |   |  |
| Memory                 | 256 MB  |   |  |
| Duplex                 | Automatic inbuilt                                 |   |  |
| Network                | Automatic inbuilt                                 |   |  |
| Processor              | 350 MHz   |   |  |
| Consumable             | 1 default toner with each printer                 |   |  |
| Interface              | USB, Parallel, Ethernet; USB cable to be provided |   |  |
| <b>Annexure-V (c)</b>  |   | <b>A3 Laser Printer Specification</b>       |  |
| <b>Description</b>     | <b>Specification</b>                              | <b>Marks for Complying</b>                  | <b>Compliance</b>                                |
| Type                   | A3 size Laser Mono                                | Must comply                                 |  |
| Resolution             | 600 x 600 dpi                                     |   |  |
| Speed                  | 15 PPM in A3                                      |   |  |
| First copy out         | Less than 6 seconds                               |   |  |
| Memory                 | 128 MB  |   |  |
| Duplex                 | manual  |   |  |
| Network                | Automatic inbuilt                                 |   |  |
| Processor              | 200 MHz   |   |  |
| Consumable             | 1 default toner with each printer                 |   |  |
| Interface              | USB, Parallel, Ethernet; USB cable to be provided |   |  |

| <b>Annexure-VI (a)</b>  |  | <b>Switch Type A</b>       |                             |
|-------------------------|--|----------------------------|-----------------------------|
| <b>Sl. No.</b>          | <b>Description / Specification</b>   | <b>marks for complying</b> | <b>compliance by bidder</b> |
| <b>General Features</b> |  |                            |                             |
| 1                       | The Switch should be modular with 7 slots with minimum 5 payload slots   | 2 marks                    |                             |
| 2                       | The Switch should be Redundant CPU capable and should have dual hot-swappable CPUs.  | 2 marks                    |                             |
| 3                       | The performance of the CPU should not be affected in case of failure of one of the CPU. The other CPU should take over with the same performance capabilities.   | 2 marks                    |                             |
| 4                       | Dual Hot-swappable power supplies, a hot-swappable fan tray with redundant fans, and hot-swappable line cards.   | 2 marks                    |                             |
| 5                       | The CPU should have four built-in 10G ports  | must comply                |                             |
| 7                       | The Switch should be equipped with 48 x 10/100/1000 port Module  | must comply                |                             |
| 8                       | The Switch chassis should have minimum 3 slots free for future expansion   | 2 marks                    |                             |
| 9                       | Support for 10/100(RJ45 & RJ 21) Ports, 10/1000 IEEE 802.3af Power over Ethernet Ports, 100 FX Fast Ethernet, 100 LX-10 (MT-RJ) or 100 BX-D (LC) Fast Ethernet, 1000 Gigabit Ethernet (fiber), 10/100/1000BASE-T, 10/100/1000BASE-T Gigabit Ethernet with IEEE 802.3 af PoE Ports                      | must comply                |                             |
| <b>Performance</b>      |  |                            |                             |
| 1                       | 840 Gbps switch Capacity   | must comply                |                             |
| 2                       | Layer 2, L3, L4 hardware forwarding at 250 Mbps  | 2 marks                    |                             |
| 3                       | No performance penalty with advanced Layer 3 and Layer 4 services enabled  | 2 marks                    |                             |
| 4                       | Software-based learning at a sustained rate of 1000 hosts per second   | 2 marks                    |                             |
| 5                       | Support for 55,000 MAC addresses   | must comply                |                             |
| 6                       | Support for 131,072 entries in routing table (shared between unicast and multicast)  | 2 marks                    |                             |
| 7                       | Scalability to 4000 virtual ports (VLAN port instances)  | 2 marks                    |                             |
| 8                       | Bandwidth aggregation up to 16 Gbps through Port Aggregation.  | must comply                |                             |
| 9                       | Hardware-based multicast management & Hardware-based ACLs  | 2 marks                    |                             |
| <b>Layer 2 Features</b> |  |                            |                             |
| 1                       | IEEE 802.1Q VLAN encapsulation, Support for 4096 VLANs per switch  | 2 marks                    |                             |
| 2                       | Support for Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors.   | must comply                |                             |
| 3                       | Centralized VLAN Management. VLANs created on the Core Switches should be propagated automatically.  | must comply                |                             |
| 4                       | Spanning-tree PortFast and PortFast guard for fast convergence   |                            |                             |
| 6                       | 802.1d, 802.1s, 802.1w, 802.3ad, 802.3af Power over Ethernet (PoE)   | 2 marks                    |                             |
| 7                       | Spanning-tree root guard to prevent other edge switches becoming the root bridge.  |                            |                             |
| 8                       | IGMP snooping v1, v2 and v3  |                            |                             |
| 9                       | Port Aggregation across line cards   | 2 marks                    |                             |
| 10                      | Link Aggregation Protocol (LACP)   |                            |                             |
| 11                      | Support for Detection of Unidirectional Links and to disable them to avoid problems such as spanning-tree loops.   | 2 marks                    |                             |
| 12                      | The CPU Stateful Switchover should be in subsecond failover time, so that the Layer 2 Links need not be renegotiated in case of failure of once of the CPU module.   | Must comply                |                             |
| 13                      | The Switch should be able to discover the neighbouring device of the same vendor giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems.   | 2 marks                    |                             |
| <b>Layer 3 Features</b> |  |                            |                             |
| 1                       | IP routing protocols Open Shortest Path First [OSPF], Routing Information Protocol [RIP], RIP2), Intermediate System to Intermediate System (IS-IS), Border Gateway Protocol Version 4 (BGP4) and Multicast Border Gateway Protocol (MBGP), ICMP Router Discovery Protocol, Policy-Based Routing (PBR) | 2 marks                    |                             |

|  |  |             |  |
|--|--|-------------|--|
| 2  | Support for Router redundancy Protocol   | must comply |  |
| 3  | The Switch should be Non-Stop Forwarding (NSF)-Aware for most of the dynamic routing protocols.  |             |  |
| 4  | Software routing of Internetwork Packet Exchange (IPX) and AppleTalk for legacy protocols  |             |  |
| 5  | IP multicast routing protocols (PIM, SSM, Distance Vector Multicast Routing Protocol [DVMRP]), Pragmatic General Multicast (PGM)   | 2 marks     |  |
| 6  | IGMP v1, v2, and v3, IGMP filtering on access and trunk ports  |             |  |
| 7  | Support for Virtual Route Forwarding feature to map VLANs to respective VRFs   | 2 marks     |  |
| 8  | Support for IPv6 Protocol.   | 2 marks     |  |
| <b>Quality of Service and Traffic Management</b> |  |             |  |
| 1  | Per-port quality of service (QoS) configuration, Support for four queues per port in hardware  | 2 marks     |  |
| 2  | Strict priority queuing, IP differentiated service code point (DSCP) and IP Precedence   |             |  |
| 3  | Classification and marking based on IP type of service (TOS) or DSCP, full Layer 3 and Layer 4 headers   | 2 marks     |  |
| 4  | Input and output policing based on Layer 3 and Layer 4 headers. Support for 1024 policers on ingress and 1024 policers on egress configured as aggregate or individual   | must comply |  |
| 5  | Shaping and sharing output queue management, Support for Congestion avoidance feature like DBL (Dynamic Buffer Limiting)   |             |  |
| 6  | No performance penalty for granular QoS functions  |             |  |
| 7  | Support for Automatic Quality of Service for easy configuration of QoS features for critical applications.   | 2 marks     |  |
| <b>Security Features</b>                         |  |             |  |
| 1  | Support for Admission Control features for end-point security (PCs & Desktop Posture Assessment) and thereby controlling the spread of viruses & worms   | must comply |  |
| 2  | RADIUS, which allow centralized control of the switch and restrict unauthorized users from altering the configuration  |             |  |
| 3  | Standard and extended ACLs on all ports  |             |  |
| 4  | 802.1x user authentication (with VLAN assignment and Guest VLAN extensions)  |             |  |
| 5  | Router ACLs (RACLs) on all ports (no performance penalty), VLAN ACLs (VACLs), Port ACLs (PACLs)  | 2 marks     |  |
| 6  | Private VLANs (PVLANS) on access and trunk ports   |             |  |
| 7  | Dynamic Host Configuration Protocol (DHCP) snooping and Option82 insertion   | 2 marks     |  |
| 8  | Port Security, Secure Shell (SSH) Protocol versions 1 and 2  |             |  |
| 9  | Unicast MAC filtering, Unicast port flood blocking   |             |  |
| 10   | Dynamic Address Resolution Protocol (ARP) inspection, IP source guard  |             |  |
| <b>Management Features</b>                       |  |             |  |
| 1  | Single console port and single IP address to manage all features of the system   | must comply |  |
| 2  | Software-configuration management, including local and remote storage  | must comply |  |
| 3  | Optional Compact Flash memory card to store software images for backup and easy software upgrades  | must comply |  |
| 4  | Manageability through a common network-management software on a per-port and per-switch basis, providing a common management interface for routers, switches of the same vendor  | must comply |  |
| 5  | Support for SNMP versions 1, 2, and 3  | must comply |  |
| 6  | Remote Monitoring (RMON) software agent to support four RMON groups (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis. Support for all nine RMON groups through the use of a mirrored port, which permits traffic monitoring of a single port, a group of ports, or the entire switch from a single network analyzer or RMON probe | must comply |  |
| 7  | Analysis support, including ingress port, egress port, and VLAN mirroring  | must comply |  |
| 8  | Support for sFlow / NetFlow or equivalent for Deep traffic & session flow analysis.  | must comply |  |
| 9  | Support for Port Mirroring, Remote Mirroring & ACL filtering for Port mirroring used for IDS functionalities   | must comply |  |
| 10   | <b>3 years comprehensive warranty inclusive of all subscriptions etc.</b>  | Must comply |  |

| <b>Annexure-VI (b)</b>           |   | <b>Switch Type B</b>       |                             |
|----------------------------------|---|----------------------------|-----------------------------|
| <b>Sl. No.</b>                   | <b>Description / Specification</b>  | <b>marks for complying</b> | <b>compliance by bidder</b> |
| <b>General Features</b>          |   |                            |                             |
| 1                                | The switch should have minimum 20 x 10/100/1000 Fast Ethernet Ports & 4 Dual-Purpose Gigabit Uplinks [Combo ports 1000 Base X and 10/100/1000BASE-T]  | must comply                |                             |
| 2                                | Support for Redundant Power supply  | must comply                |                             |
| <b>Performance</b>               |   |                            |                             |
| 1                                | Minimum of 32 Gbps switching fabric   | must comply                |                             |
| 2                                | Minimum forwarding bandwidth - 24 Gbps  | 2 marks                    |                             |
| 3                                | Wire-speed forwarding rate - 35.7 Mpps  | 2 marks                    |                             |
| 4                                | Configurable up to 8000 MAC addresses   | 3 marks                    |                             |
| <b>Layer-2 Features</b>          |   |                            |                             |
| 1                                | IEEE 802.1Q VLAN encapsulation. Up to 255 VLANs should be supported. Support for 4000 VLAN IDs.   | must comply                |                             |
| 2                                | Support for Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors.  | must comply                |                             |
| 3                                | Centralized VLAN Management. VLANs created on the Core Switches should be propagated automatically.   | must comply                |                             |
| 4                                | Spanning-tree PortFast and PortFast guard for fast convergence  | must comply                |                             |
| 5                                | UplinkFast & BackboneFast technologies to help ensure quick failover recovery, enhancing overall network stability and reliability.   | must comply                |                             |
| 6                                | 802.1d, 802.1s, 802.1w, 802.3ad   | must comply                |                             |
| 7                                | Spanning-tree root guard to prevent other edge switches becoming the root bridge.   | must comply                |                             |
| 8                                | IGMP snooping v3, Support for upto 256 IGMP Groups. IGMP filtering.   | must comply                |                             |
| 9                                | Port Aggregation Protocol (PAgP), Link Aggregation Protocol (LACP)  | must comply                |                             |
| 10                               | Support for Detection of Unidirectional Links and to disable them to avoid problems such as spanning-tree loops.  | must comply                |                             |
| 11                               | The Switch should be able to discover the neighboring device of the same vendor giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems.   | must comply                |                             |
| 12                               | Per-port broadcast, multicast, and storm control to prevent faulty end stations from degrading overall systems performance.   | 3 marks                    |                             |
| 13                               | Local Proxy Address Resolution Protocol (ARP) to work in conjunction with Private VLAN Edge to minimize broadcasts and maximize available bandwidth.  | 5 marks                    |                             |
| 14                               | Multicast VLAN registration (MVR) to continuously send multicast streams in a multicast VLAN while isolating the streams from subscriber VLANs for bandwidth and security reasons.  | must comply                |                             |
| <b>Network security features</b> |   |                            |                             |
| 1                                | Support for feature to improve the network's ability to automatically identify, prevent, and respond to security threats and also to enable the switches to collaborate with third-party solutions for security-policy compliance and enforcement before a host is permitted to access the network. | must comply                |                             |
| 2                                | IEEE 802.1x to allow dynamic, port-based security, providing user authentication.   | 3 marks                    |                             |
| 3                                | Port-based ACLs for Layer 2 interfaces to allow application of security policies on individual switch ports.  | 3 marks                    |                             |
| 4                                | SSHv2 and SNMPv3 to provide network security by encrypting administrator traffic during Telnet and SNMP sessions.   | 2 marks                    |                             |
| 5                                | Bidirectional data support on the mirrored port to allow the intrusion detection system (IDS) to take action when an intruder is detected.  | 2 marks                    |                             |
| 6                                | TACACS+ and RADIUS authentication enable centralized control of the switch and restrict unauthorized users from altering the  | must comply                |                             |

|   |   |             |  |
|---|---|-------------|--|
|   | configuration.  |             |  |
| 7   | MAC address notification to allow administrators to be notified of users added to or removed from the network.  | 2 marks     |  |
| 8   | DHCP snooping to allow administrators to ensure consistent mapping of IP to MAC addresses. This can be used to prevent attacks that attempt to poison the DHCP binding database, and to rate-limit the amount of DHCP traffic that enters a switch port.  | 2 marks     |  |
| 9   | DHCP Interface Tracker (Option 82) feature to augment a host IP address request with the switch port ID.  | must comply |  |
| 10  | Port security to secure the access to an access or trunk port based on MAC address.   | 2 marks     |  |
| 11  | Multilevel security on console access to prevent unauthorized users from altering the switch configuration.   | 2 marks     |  |
| 12  | BPDU Guard to shut down Spanning Tree Protocol PortFast-enabled interfaces when BPDU's are received to avoid accidental topology loops.   | 2 marks     |  |
| 13  | Up to 512 ACL entries should be supported.  | must comply |  |
| <b>Quality of Service (QoS) &amp; Control</b> |   |             |  |
| 1   | Standard 802.1p CoS and DSCP  | must comply |  |
| 2   | Control- and Data-plane QoS ACLs  | must comply |  |
| 3   | Four egress queues per port to enable differentiated management of up to four traffic types across the stack.   | must comply |  |
| 4   | Weighted tail drop (WTD) to provide congestion avoidance  | 3 marks     |  |
| 5   | Strict priority queuing mechanisms  | 3 marks     |  |
| 6   | There should not be any performance penalty for highly granular QoS functions.  | 3 marks     |  |
| 7   | Rate Limiting function should guarantee bandwidth in increments as small as 1 Mbps.   | 3 marks     |  |
| 8   | Rate limiting should be provided based on source and destination IP address, source and destination MAC address, Layer 4 TCP and UDP information, or any combination of these fields, using QoS ACLs (IP ACLs or MAC ACLs), class maps, and policy maps.  | 3 marks     |  |
| 9   | Up to 64 aggregate or individual polices should be available per Fast Ethernet or Gigabit Ethernet port.  | must comply |  |
| <b>Management</b>                             |   |             |  |
| <b>Superior manageability Features</b>        |   |             |  |
| 1   | Command Line Interface (CLI) support for configuration & troubleshooting purposes.  | must comply |  |
| 2   | For enhanced traffic management, monitoring, and analysis, upto four RMON groups (history, statistics, alarms, and events) must be supported. All RMON groups must be supported through the SPAN port, which permits traffic monitoring of a single port, a group of ports, or the entire stack from a single network analyzer or RMON probe. | must comply |  |
| 3   | Layer 2 trace route to ease troubleshooting by identifying the physical path that a packet takes from source to destination.  | must comply |  |
| 4   | Domain Name System (DNS) support to provide IP address resolution with user-defined device names.   | must comply |  |
| 5   | Trivial File Transfer Protocol (TFTP) to reduce the cost of administering software upgrades by downloading from a centralized location.   | must comply |  |
| 6   | Network Timing Protocol (NTP) to provide an accurate and consistent timestamp to all intranet switches.   | must comply |  |
| 7   | SNMP v1, v2c, and v3 and Telnet interface support delivers comprehensive in-band management, and a CLI-based management console provides detailed out-of-band management.   | must comply |  |
| 8   | RMON I and II standards   | must comply |  |
| 9   | SNMPv1, SNMPv2c, and SNMPv3   | must comply |  |
| 10  | <b>3 years comprehensive warranty inclusive of all subscriptions etc.</b>   | Must comply |  |

| <b>Annexure-VI (c)</b>   |                            | <b>Unified Threat Management (UTM)</b> |  |
|--|----------------------------|--|--|
| <b>Description / Specification</b>   | <b>marks for complying</b> | <b>compliance by bidder</b>            |  |
| <b>HARDWARE FEATURES</b>   |                            |  |  |
| The Firewalls should be Hardware based, Reliable, purpose-built security appliance with hardened operating system that eliminates the security risks associated with general-purpose operating systems with 4 Gigabit Ethernet interfaces and 1 Fast Ethernet interface.   | Must Comply                |  |  |
| The Appliance should be Full-featured, high-performance firewall, intrusion prevention system (IPS), network antivirus, and IP Security/Secure Sockets Layer (IPSec/SSL) VPN technologies deliver robust application security, user- and application-based access control, worm and virus mitigation, malware protection, and remote user/site connectivity. | Must Comply                |  |  |
| Should be redundant supporting Active/Active or Active/Standby Firewall for High Availability & Scalability  | Must Comply                |  |  |
| Firewall Throughput of Up to 450 Mbps  | Must Comply                |  |  |
| Concurrent Threat Mitigation Throughput (Firewall + IPS Services) Up to 450 Mbps   | Must Comply                |  |  |
| VPN Throughput of Up to 225 Mbps   | Must Comply                |  |  |
| Concurrent Sessions of at least 280,000  | Must Comply                |  |  |
| IPSec VPN Peers of up to 750   | Must Comply                |  |  |
| SSLVPN Peers of up to 750  | Must Comply                |  |  |
| Support for Virtual Firewalls of up to 100 logical firewalls so that the Central site can have a individual firewalling for every remote site in future.   | Must Comply                |  |  |
| Virtual Interfaces (VLANs) support for at least 100 VLANs for forming Secure server Farms and DMZs   | Must Comply                |  |  |
| Scalability through VPN clustering and load balancing  | Must Comply                |  |  |
| <b>SOFTWARE FEATURES</b>   |                            |  |  |
| <b>Application Security Services</b>   |                            |  |  |
| The Firewall should have Integrated specialized inspection engines for protocols like HTTP, FTP, ESMTP, DNS, SNMP, ICMP, SQL*Net, NFS, H.323 Versions 1-4, SIP, MGCP, RTSP, TAPI and JTAPI over CTIQBE protocol, GTP, LDAP, ILS, RPC and many more   | Must Comply                |  |  |
| The Firewall should provide advanced inspection services to detect and optionally block instant messaging, peer-to-peer file sharing, and other applications tunnelling through Web application ports  | Must Comply                |  |  |
| It should block popular instant messaging applications such as AOL Instant Messenger, Microsoft Messenger, and Yahoo Messenger   | Must Comply                |  |  |
| Should stop peer-to-peer file sharing applications such as KaZaA and Gnutella. Should thwart tunnelling applications such as GoToMyPC  | Must Comply                |  |  |
| Support for SNMP version filtering for all SNMP traffic attempting to flow through security appliance, supporting filtering of SNMP versions 1, 2, 2c, and 3   | Must Comply                |  |  |
| For Sun RPC and Network Information Service Plus (NIS+) Security Services  | Must Comply                |  |  |
| Support for port-hopping UNIX applications through stateful inspection and NAT services for Sun RPC and NIS+ sessions transactions that use Portmapper v2 or RPCBind v3 or v4  | Must Comply                |  |  |
| Advanced H.323 inspection services that support versions 1-4 of the protocol along with Direct Call Signalling (DCS) and Gatekeeper Router Control Signalling (GKRCS) to provide flexible security integration in a variety of H.323-driven voice-over-IP (VoIP) environments  | Must Comply                |  |  |
| NAT and PAT support for H.323 services, including advanced features such as fax over IP (FoIP) using the T.38 protocol, an ITU standard that defines how to transmit FoIP in real time   | Must Comply                |  |  |
| Fortified SIP inspection engine that secures both, UDP and TCP based SIP environments  | Must Comply                |  |  |
| NAT- and PAT-based address translation support for SIP-based IP phones and applications such as Microsoft Windows Messenger, while delivering advanced services such as call forwarding, call transfers, and more  | Must Comply                |  |  |
| Secure integration of IP telephony services while successfully connecting calls over multiprotocol VoIP environments across NAT and PAT boundaries   | Must Comply                |  |  |
| Rich MGCP security services and NAT- and PAT-based address   | Must Comply                |  |  |

|  |             |  |
|--|-------------|--|
| translation services for MGCP-based connections between media gateways and call agents or media gateway controllers  |             |  |
| NAT-based address translation services for RTSP media streams for improved support in real-time networking environments  | Must Comply |  |
| Support for inspection of various TAPI- and JTAPI-based applications that use CTIQBE   | Must Comply |  |
| Inspection of H.323, SIP based voice and multimedia streams that have been fragmented or segmented   | Must Comply |  |
| Support for foundational capabilities to assist in detecting protocol and application layer attacks  | Must Comply |  |
| To provide TCP stream reassembly and analysis services to help detect attacks that are spread across a series of packets   | Must Comply |  |
| Should offer TCP traffic normalization services for additional techniques to detect attacks, including advanced flag and option checking, TCP packet checksum verification, detection of data tampering in retransmitted packets, and more   | Must Comply |  |
| <b>Support for Advanced Intrusion Prevention Services</b>  |             |  |
| Advanced protection from known and unknown network and application layer attacks, DoS attacks, and malware, including worms, network viruses, Trojan horses, spyware, and adware   | Must Comply |  |
| Analysis of network traffic accurately for these threats using a wide range of techniques, including stateful pattern recognition, protocol analysis, traffic anomaly detection, protocol anomaly detection, and Layer 2 analysis to detect man-in-the-middle attacks                                    | Must Comply |  |
| Specialized safeguards to "scrub" network traffic to prevent "detection evasion" attempts, including IP fragmentation reassembly and normalization, TCP stream reassembly and normalization, TCP evasion control, as well as IP anti spoofing services   | Must Comply |  |
| Ensure malicious attacks are stopped without impacting legitimate traffic incorporating four elements (event severity, signature fidelity, asset value, and attack relevancy) to accurately determine the risk of an event, and then confidently performing administrator-specified mitigation action(s) | Must Comply |  |
| On-device event correlation capabilities to quickly identify and stop new threats and optionally reduce the number of events sent to centralized monitoring systems for analysis   | Must Comply |  |
| Should support both "in-line" prevention of attacks, as well as detection only, of attacks in both routed or Layer 2 transparent bridging modes  | Must Comply |  |
| Should provide granular control over protocols, and provides custom regular expression matching tools for businesses to craft environment-specific signatures  | Must Comply |  |
| Should Incorporate a variety of technologies to defend from many popular forms of attacks, including DoS attacks, fragmented attacks, replay attacks, and malformed packet attacks   | Must Comply |  |
| Advanced attack protection features such as DNSGuard, FloodGuard, FragGuard, MailGuard, IPVerify, and TCP intercept to identify and stop a wide range of attacks   | Must Comply |  |
| Advanced TCP stream reassembly and traffic normalization services to assist in detecting hidden application and protocol layer attacks   | Must Comply |  |
| Support for URL Filtering for Web usage management and control through integration with Websense- and Secure Computing/N2H2- based URL filtering solutions. Should support HTTPS and FTP Web request filtering through enhanced Websense integration   | Must Comply |  |
| Should provide optional filtering of ActiveX and Java applets to prevent downloads of malware and the resulting damage malware can create.   | Must Comply |  |
| <b>Network Containment and Control Services</b>  |             |  |
| Robust stateful inspection firewall services that track the state of all network communications  | Must Comply |  |
| Inbound and outbound access control lists (ACLs) for interfaces, time-based ACLs, and per-user or -group policies for improved control over network and application usage  | Must Comply |  |
| Greater control over resource usage by defining time-based ACLs, when certain ACL entries are active, with custom time ranges applied to selected ACLs   | Must Comply |  |
| Convenient troubleshooting tool that allows administrators to test and fine-tune ACLs without the need to remove and replace ACL entries   | Must Comply |  |
| Creation of security policies based on interface name instead of IP address, a feature that is especially useful in broadband environments   | Must Comply |  |

|  |             |  |
|--|-------------|--|
| where the external interface is typically assigned a dynamic IP address  |             |  |
| Powerful reporting and troubleshooting capabilities that help enable collection of detailed statistics on which ACL entries are triggered by network traffic attempting to traverse a security appliance   | Must Comply |  |
| Dynamic downloading and enforcement of ACLs on a per-user basis, upon user authentication with the firewall  | Must Comply |  |
| Grouping of network objects (such as devices, networks, and services) into logical groups to greatly simplify access control rule definition and maintenance   | Must Comply |  |
| Rich dynamic, static, and policy-based NAT and PAT services  | Must Comply |  |
| <b>Secure Connectivity Services</b>  |             |  |
| IPSec remote-access VPN concentrator services for up to hundreds of simultaneous remote software- or hardware-based VPN clients  | Must Comply |  |
| Should be able to Push VPN policy dynamically to Easy VPN Remote-enabled solutions upon connection, eliminating the need to manage each client separately and therefore helping ensure enforcement of the latest corporate VPN security policies   | Must Comply |  |
| Perform VPN client security posture checks when a VPN connection attempt is received, including enforcing usage of authorized host-based security products   | Must Comply |  |
| Support for automatic software updates to VPN clients with the ability to trigger updates when VPN connections are established, or on demand for currently connected VPN clients   | Must Comply |  |
| Extend VPN reach into environments using NAT or PAT, through support for the IETF UDP wrapper mechanism for safe traversal through NAT and PAT boundaries as well as TCP and UDP NAT traversal methods   | Must Comply |  |
| Support for Lempel-Ziv Standard (LZS) compression for optimizing performance over low-bandwidth connections  | Must Comply |  |
| Should include unlimited user support for the VPN Client. Should be available on wide range of platforms, including Microsoft Windows 98, ME, NT, 2000, and XP; Sun Solaris; Intel-based Linux distributions; and Apple Macintosh OS X   | Must Comply |  |
| Should provide many innovative features, including dynamic security policy downloading from VPN Server, automatic failover to back up VPN Servers, administrator customizable distributions, and more  | Must Comply |  |
| Should support SSL VPN-based remote-access connectivity from almost any Internet-enabled location, using only a Web browser and its native SSL encryption  | Must Comply |  |
| Supporting hundreds of simultaneous SSL VPN connections  | Must Comply |  |
| Provide CIFS (Microsoft Windows) file share access through an easy-to-use Web interface  | Must Comply |  |
| Enforce granular, group-based access control, limiting users to specific network resources   | Must Comply |  |
| Provide access to TCP-based applications, such as Telnet and Windows Terminal Services, with the SSL-VPN Port Forwarding Java applet (on systems running Sun Java Runtime Environment [JRE] 1.4 or later)  | Must Comply |  |
| Support for improved IPSec and WebVPN remote-access scalability and reliability through integrated VPN clustering and load-balancing services  | Must Comply |  |
| Should provide convenient method for authenticating VPN users through native integration with popular authentication services, including Microsoft Active Directory, Microsoft Windows Domains, Kerberos, LDAP, and RSA SecurID (without requiring a separate RADIUS server to act as an intermediary) | Must Comply |  |
| Support for Internet Key Exchange (IKE) and IPSec VPN standards with hub-and-spoke or meshed VPN configurations  | Must Comply |  |
| Improved network reliability and performance through support of OSPF dynamic routing and reverse-route injection over site-to-site VPN tunnels   | Must Comply |  |
| Support for Simple Certificate Enrolment Protocol (SCEP)-based enrolment and manual enrolment with leading X.509 solutions from Baltimore, Entrust, iPlanet/Netscape, Microsoft, RSA, and VeriSign   | Must Comply |  |
| Interoperability with large-scale PKI deployments through n-tiered certificate hierarchy support   | Must Comply |  |
| Ability to manually enroll into X.509 certificate authorities through support for Public Key Cryptography Standard (PKCS) #10 formatted certificate requests   | Must Comply |  |
| Support for manual importing of certificates using PKCS #7, and importing certificates with private keys using PKCS #12  | Must Comply |  |

|  |             |  |
|--|-------------|--|
| Support for a variety of RSA (Rivest, Shamir, Adelman) key sizes ranging up to 4096 bits   | Must Comply |  |
| Support for DSA (Digital Signature Algorithm)-based X.509 certificates with key sizes ranging up to 1024 bits  | Must Comply |  |
| <b>High-Availability Services</b>  |             |  |
| Support for Active/Active & Active/Standby failover.   | Must Comply |  |
| Support for bidirectional state sharing between Active/Active failover pair members for support of advanced network environments with asymmetric routing topologies, allowing flows to enter through one Firewall appliance and exit through the other, if required  | Must Comply |  |
| Maximizing VPN connection uptime with Active/Standby stateful failover for VPN connections   | Must Comply |  |
| Support for Synchronizing all security association state information and session key material between failover pair members, providing a highly resilient VPN solution   | Must Comply |  |
| Enable geographic separation of Security appliances in a failover pair by allowing failover information to be shared over a dedicated LAN connection between failover pair members   | Must Comply |  |
| Support to perform software maintenance release upgrades on the Firewall appliance failover pairs without affecting network uptime or connections  | Must Comply |  |
| <b>Intelligent Networking Services</b>   |             |  |
| Enable creation of multiple security contexts (virtual firewalls) within a single security appliance, with each context having its own set of security policies, logical interfaces, and administrative domains  | Must Comply |  |
| Support for upto 50 number of virtual firewalls on the same hardware firewall. Providing a convenient way of consolidating multiple firewalls into a single physical appliance or failover pair, while retaining the ability to separately manage each of these virtual instances.   | Must Comply |  |
| Support for deployment of the Firewall in a secure Layer 2 bridging mode, providing rich Layer 2-7 firewall security services for the protected network while remaining "invisible" to devices on each side of it. Simplified appliance deployments in existing network environments by not requiring businesses to readdress the protected networks | Must Comply |  |
| Support for multiple virtual interfaces on a single physical interface through VLAN trunking and multiple VLAN trunks per appliance  | Must Comply |  |
| Comprehensive OSPF dynamic routing services. Improved network reliability through fast route convergence and secure, efficient route distribution. Secure routing solution in environments using NAT through tight integration with NAT services   | Must Comply |  |
| MD5-based OSPF authentication, in addition to plaintext OSPF authentication, to prevent route spoofing and various routing-based DoS attacks   | Must Comply |  |
| Route redistribution between OSPF processes, including OSPF, static, and connected routes. Load balancing across equal-cost multipath routes   | Must Comply |  |
| Secure integration in RIP based enterprise networks by learning routing updates for both versions 1 and 2 of the protocol. Protection against RIP-based reconnaissance activities and DoS attacks by supporting plaintext and keyed-MD5 authentication methods for RIPv2   | Must Comply |  |
| Delivery of multimedia traffic in videoconferencing, collaborative computing, and mission-critical real-time enterprise applications through full PIM Sparse Mode v2 and bidirectional PIM routing support   | Must Comply |  |
| Facilitate a wide range of multicast applications by including support for Internet Group Management Protocol (IGMPv2) and stub multicast routing, including NAT and PAT and the ability to build ACLs for multicast traffic   | Must Comply |  |
| Should deliver per-flow, policy-based QoS services, with support for LLQ and Traffic Policing for prioritizing latency-sensitive network traffic and limiting bandwidth usage of administrator-specified applications  | Must Comply |  |
| Access control and deep inspection firewall services for native IPv6 network environments and mixed IPv4 and IPv6 network environments through dual-stack support  | Must Comply |  |
| IPv6-enabled inspection services for applications based on HTTP, FTP, SMTP, ICMP, TCP, and UDP   | Must Comply |  |
| Support for SSHv2, Telnet, HTTP and HTTPS, and ICMP-based management over IPv6   | Must Comply |  |
| DHCP server services on one or more interfaces, allowing devices to  | Must Comply |  |

|  |             |  |
|--|-------------|--|
| obtain IP addresses dynamically  |             |  |
| Capability of forward DHCP requests from internal devices to an administrator-specified DHCP server, helping enable centralized distribution, tracking, and maintenance of IP addresses  | Must Comply |  |
| Support for NPTv3 to provide convenient method for synchronizing the clock on the firewall appliance with other devices on a network   | Must Comply |  |
| <b>Flexible Management Solutions</b>   |             |  |
| Support for Built-in Management Software for simple, secure remote management of the security appliances through integrated, Web-based GUI   | Must Comply |  |
| Should provide a wide range of informative, real-time, and historical reports that give critical insight into usage trends, performance baselines, and security events   | Must Comply |  |
| Accessible through variety of methods, including console port, Telnet, and SSHv2   | Must Comply |  |
| Strong authentication of users through the Firewall appliance through a local user database or through integration with enterprise databases, either directly using RADIUS or indirectly with AAA Server   | Must Comply |  |
| Support for up to 16 levels of customizable administrative roles, so that businesses can grant administrators and operations personnel the appropriate level of access to each appliance; for example, monitoring-only access, read-only access to the configuration, network configuration only, firewall configuration only, and so on | Must Comply |  |
| Ability to generate AAA records for tracking administrative access to appliances, as well as tracking all configuration changes made during an administrative session  | Must Comply |  |
| Support for sending accounting information to multiple RADIUS servers simultaneously   | Must Comply |  |
| Network resiliency by giving administrative the ability to dynamically fall back to the local user database in case of external RADIUS server outages  | Must Comply |  |
| Should provide different methods to optionally authenticate users (over HTTP, HTTPS, or Telnet), which can be required before any network traffic from that user can traverse the firewall appliance   | Must Comply |  |
| User authentication through either the local user database on the appliance or a wide variety of popular third-party authentication services (through RADIUS integration)  | Must Comply |  |
| Support for both SNMPv2 and SNMPv2c, providing in-depth visibility into the status of appliances   | Must Comply |  |
| Support for many SNMP MIBs, including the SNMPv2 MIB (RFC 1907), the Interfaces Group MIB (RFCs 1573 and 2233), the IP MIB (RFC 2011), and the Entity MIB (RFC 2737)   | Must Comply |  |
| Support for complete visibility into VPN connections with detailed per-tunnel statistics, including tunnel uptime, bytes and packets transferred, and more   | Must Comply |  |
| Real time monitoring of the firewall through the management console or through external syslog servers   | Must Comply |  |
| Accurate time stamping and numbering of syslog messages while supporting multiple syslog servers over either TCP or UDP as the transport protocol  | Must Comply |  |
| Should ensure critical messages are not lost under busy network conditions by providing message buffering locally on the appliance   | Must Comply |  |
| Fine-grain control over syslog messages through a variety of methods, including support for changing priority of syslog messages, the ability to disable specific syslog messages, enabling or suppressing logging on a per-ACL entry (ACE) basis, etc.  | Must Comply |  |
| Ability to import configuration and software files for rapid provisioning and deployment using Trivial File Transfer Protocol (TFTP), HTTP, HTTPS, or Secure Copy Protocol (SCP)   | Must Comply |  |
| Support for exporting configuration data through TFTP and SCP for off-device configuration storage   | Must Comply |  |
| Support for using both SSHv1 and SSHv2 to remotely manage the security appliances, providing improved compatibility with third-party SSH tools   | Must Comply |  |
| SCP (Secure Copy) support as another secure method for transferring files, such as configuration and software images, to and from the firewall appliance   | Must Comply |  |
| Ability to perform configuration rollback and offers the ability to store  | Must Comply |  |

|  |             |  |
|--|-------------|--|
| and use multiple configurations and software images in compact flash memory  |             |  |
| Prevention of unauthorized access to sensitive configuration data, certificates, and key material stored on the security appliance by automatically wiping flash memory contents if an asset recovery or password reset procedure occurs                                       | Must Comply |  |
| Schedule a reload on the appliance either at a specific time or at an offset from the current time, making it simpler to schedule network downtime and notify remote-access VPN users of an impending reboot   | Must Comply |  |
| Support for out-of-band management through a dedicated Fast Ethernet 10/100 management interface   | Must Comply |  |
| Packet Capturing for powerful troubleshooting capabilities by providing robust packet-capturing facilities on each interface. Support for several methods of accessing captured packets, including through the console, secure Web access, or a file exported to a TFTP server | Must Comply |  |
| For useful troubleshooting methods through support for IPv6 addresses and extended ICMP options, including data pattern, Don't Fragment (DF) bit, repeat count, datagram size, timeout interval, verbose output, and sweep range of sizes                                      | Must Comply |  |
| To provides a convenient method for alerting administrators when critical events are encountered, by sending e-mail alert messages to administrator defined e-mail addresses   | Must Comply |  |
| <b>3 years comprehensive warranty inclusive of all subscriptions etc.</b>  | Must comply |  |
| <b>Network Management System Software (NMS)<br/>All switches, UTM, and NMS should be of the same OEM</b>   | Must comply |  |

## Annexure – VII

**NOTE: The bid documents are not transferable and the firm's seal and signature of the authorized official must appear on all papers and envelopes submitted.**

| INSTRUCTION TO BIDDERS & Terms & Conditions   | Marks / Conditions       |
|---|--------------------------|
| <b>Bid Submission:-</b>   |                          |
| <b>01.</b> Bid shall be submitted in THREE PARTS, viz. (i) EMD and Tender Fee should be in form of account payee Demand Draft/Bankers' Cheque/ Bank Guarantee in favour of Registrar, NIT Patna payable at Patna, (ii) Technical Bid and (iii) Financial Bid, in three separate properly wax sealed covers indicating the type of Bid; and all these bids shall be again put in to a single similar sealed cover. Address of the firm submitting the tender and the officer to whom the tender is addressed, must appear distinctly on both the inner sealed covers, indicating also on each envelop EMD/TECHNICAL BID/FINANCIAL BID as may be applicable | Must Comply              |
| <b>02. In the part relating to Technical Bid, the OEM/Bidder must provide the followings :-</b>   |                          |
| (a) Details of the technical features of the offered equipment vis-à-vis specification as per Annexure – I-VI;  | Must Comply              |
| (b) Bidder, either manufacturer or its authorised dealer, should be an ISO 9001 certified company.  | <b>08 marks</b>          |
| (c) Standard Technical literature on each of the items offered, also available on OEM's website, to validate that the quoted items are factory standard machine of the quoted brand;  | <b>05 marks</b>          |
| (d) Authorisation certificate specific to this tender in case of dealer/s for each required item;   | <b>07 marks</b>          |
| (e) Bidder who has ever been blacklisted or been punished or been given holiday or debarred etc. by any Government or Semi Government Organisation / Undertaking or PSU or similar organisation shall have negative marking of minimum of 10 marks from their overall score. Bidders must submit an affidavit along with their technical bid enumerating complete detail. All declarations required vide this tender shall be in shape of affidavit only.   | <b>Negative 10 marks</b> |
| (f) List of reputed organizations/Institutions, where similar orders have been executed (copies of the purchase/work order to be enclosed);   | Must Comply              |
| (g) Bidder to enclose past experience of<br>- similar work order / performance report by customer   | <b>05 marks</b>          |
| (h) Bidder must have a registered sales & service office in Patna. Bidder to enclose adequate proof to this effect.   | <b>10 marks</b>          |
| (i) Up-to-date Sales Tax clearance certificate ( <i>for Bidders outside the State of Bihar</i> )/VAT registration certificate ( <i>for Bidders from within the State of Bihar</i> ) of the FIRM will have to accompany the tender to be submitted;  | <b>10 marks</b>          |
| (j) Copy of PAN must be submitted of FIRM / Company along with the Technical Bid;   | Must Comply              |
| (k) Banker's details of tendering FIRM / Bidder should be clearly mentioned;  | Must Comply              |
| (l) Latest Solvency Certificate for Rs. 50,00,000/-(fifty lacs) from the banker of the Bidders to be submitted, not prior to 31.06.2010.  | <b>05 marks</b>          |
| (m) Details of nature and maximum period of <b>Warranty</b> offered by the OEM/Bidder;  | Must Comply              |
| (n) Earnest Money (EMD) of <b>Rs 4,00,000.00 (four lac)</b> , in the form of Demand Draft / Bankers' Cheque/Bank Guarantee only, in favour of Registrar, NIT Patna payable at Patna, will have to be enclosed with <b>EMD Bid only</b> , failing which the offer will be summarily rejected.  | Must Comply              |
| (o) A copy of the Price bid, <b>WITHOUT MENTIONING THE PRICES</b> , will have to be provided as part of the Technical Bid document.   | Must Comply              |
| (p) The Technical Compliance Sheet and brochure of quoted items as required in this tender should be duly signed by the Manufacturer and bidder.  | Must Comply              |
| (q) This is a turnkey based tender. Single vendor / bidder system. Bidder must quote for all items  | Must Comply              |
| The marking will be done for each and every required item. Financial Bid of only those items will be opened in which the bidder has qualified as per above marking system.  | Must Comply              |
| The bidder should not un necessarily quote for higher version, because given specification has been formulated keeping in view the requirement of this Institute. Therefore, offered higher version will be evaluated by NIT Patna and may lead to disqualification of such bid(s).   | Must Comply              |
| <b>NO PARTIAL COMPLIANCE OF ANY TERMS, SPECIFICATION, etc. PERMITTED. PARTIAL COMPLIANCE WILL LEAD TO REJECTION.</b>  | Must comply              |
| If in any annexure there are two or more items (a, b, c or so on), the bidder has to score minimum 40 marks in each item to technically qualify for Financial opening.  | Must comply              |
| This is a tender invitation for turnkey based requirement. Therefore bidder must quote and qualify for all required items, failing which the offer will be rejected   | Must comply              |

**03. In the part relating to Price Bid, the OEM/Bidder must provide the following:-**

- (a) Quantity, basic price (against item-wise details of specifications of each of the offered items);
- (b) Prices of each of the optional accessories, as required by specifications and may be relevant for offered equipment, will have to be specifically stated in the quotation:
- (c) Central / Sales Tax/ VAT should be indicated separately, item wise. Price to be quoted inclusive of all taxes, ED, VAT etc. in the given format.
- (d) Installation, warranty, delivery & commissioning charge (including Service Tax), should be included in the basic rate of quoted items, if any. Delivery shall be F.O.R. NIT, Patna.
- (e) Freight & insurance charge should be included in the basic rate of quoted items, if any.
- (g) Annual Maintenance contract (**AMC**) rate (after expiry of warranty period) is to be clearly indicated – preferably in both comprehensive and non-comprehensive terms, *failure to which the offer may not be considered even if it turns out at the lowest price.*

**Other Instructions:-**

1. **Rates:** Rates quoted should be on F.O.R., NIT Patna, on Door Delivery basis.
2. **Validity:** Quoted rates must valid for 180 days.
3. **Warranty/Guarantee:** The material be quoted with a minimum comprehensive warranty / Guarantee for the period as defined in this document against each item. During the period of warranty, the Bidder will have to post minimum two dedicated certified Hardware engineers in the campus of NIT, of which one should be CCNA certified.
4. **EMD:** In form of DD / Bankers' Cheque/Bank guarantee in favour of '**Registrar, NIT Patna**' payable at '**Patna**'.
5. **Delivery:** Unless otherwise stated delivery of goods at NIT Patna, will have to be maximum within 60 days from the date of issue of the Purchase Order. All aspects of safe delivery shall be the exclusive responsibility of the OEM/Bidder.
6. **Rate of AMC:** Annual Maintenance Contract rate (after expiry of warranty period) is to be clearly indicated (for equipment only). The selected supplier/s is to ensure regular availability of spares.
7. **Late and delayed Tenders:** Late and delayed tender will not be considered. In case any unscheduled holiday occurs on prescribed closing/opening date the next working day shall be the prescribed date of closing/opening.
8. **Ground for Rejection of Tender:** The tenders are liable to be rejected if any of the fore going conditions are not complied with. The tender should be complete in all respects and duly signed wherever required. Incomplete and unsigned offer will not be accepted.
9. **Payment Terms:-** (a) *Annexure / Schedule wise 98%* payment will be released immediately after receiving of materials in store in good condition & satisfactory installation (b) 2% of the supply price after the receipt of audit report of the relevant year..

10. **Entry Tax:** Entry tax, if applicable will **not** be borne by us (generally @4% or as applicable on FOR NIT-Patna value).
11. TDS as applicable shall be deducted at source from the Bill.
12. NIT Patna reserves the right to reject any articles / services found defective, damaged and or not of the desired quality and specification. Decision of NIT will be final.
13. Any loss or damage caused to the article in transit is to be made good by the supplier free of cost within reasonable time.
14. Agency desiring to obtain Notice Inviting Tender by post or courier must send a demand draft of required amount + Rs 50.00 postal charges in favour of the Registrar, NIT Patna payable at Patna along with self-addressed A4 size cloth envelop.
15. Postal or Courier delay will not be considered and tender received late will be rejected. Similarly, NIT Patna shall not be responsible of any delay in tender sent by post or courier on the request of Bidder.
16. Security Deposit / EM can be forfeited in case of non supply / part supply / delayed supply of material unless permitted by NIT Patna.
17. No escalation in respect of materials, labor, custom duties, freight etc. will be allowed in any shape.
18. A declaration should also be furnished by the agency that they will supply the original product of the manufacturing company. In case of supply of duplicate product suitable action will be taken against the agency including forfeiture of EM/ Security Deposit.
19. Since the supply, installation, commissioning is critical time bound; the tender will be evaluated and awarded on turnkey basis. Bidder must qualify for each item separately or their offer will be rejected. It essentially means that if bidder fails to qualify in any one item, the bid offer will be technically rejected.
20. The rates should be quoted and legibly written both in words and Figures. In case of corrections, the same must be attested by the bidder with full signature; however no overwriting is permissible. Manufacturer's pricelist, wherever applicable, should be submitted with the bid.
21. In case of any discrepancy between words and figures, in financial bid, the rates in words shall be accepted as correct.
22. The bids shall be opened in the Registrar's office on the date and time given in the enquiry letter. The Bidders may send their authorised representative to attend the Bid opening, if they so desire. In the event of the bid opening date being declared holiday for the NIT Patna, the bids will be opened at the appointed time and place on the next working day.
23. The Bidder has to sign in full at all pages of the bidding document.
24. The supply must be completed within 60 days from the date of awarding the work order.
25. The institute may like conduct site inspection of goods, where applicable.

26. The Institute reserves absolute right to accept or reject any or all the Tenders / Quotations on whole or in part without assigning any reason thereof.
27. The Bidder must not unnecessarily quote for higher specifications or versions, because given specification has been formulated keeping in view the requirement of the Institute. Therefore, offered higher version will be evaluated by NIT and may lead to disqualification of such offer / tender.
28. **Evaluation of Technical Bids:** Technical Bids (a) as mentioned in Annexure VII & (b) as mentioned in Annexure I, II, III, IV, V, VI will be evaluated and ranked by the award of marks. Each Annexure from I to VII is of 50 marks each. The evaluation shall be on the following given criteria (Marking details has been given against each such terms and or component) :
29. The offers which do not meet the required technical terms (Annexure VII) will be summarily rejected, from any further consideration;
30. Annexure I to VI, in Technical Specification sheet, the components where evaluation marks is not given or mentioned “must comply” means that these are minimum required component, failing which the offer will be summarily rejected without any further consideration.
31. The Bidder has to obtain minimum 40 marks in Annexure VII and 40 marks in each Annexure I to VI and in its sub annexure separately, to be technically qualified. The Bidder with the highest score would be the L1 Bidder. Financial Bid of Bidders not scoring 40 in each of annexure I to VI and in its sub annexure separately, and 40 in Annexure VII will not be opened. This also means that the Bidder must qualify in both Annexure VII on one part and Annexure I to VI (and its sub annexure) on another part together. However in the items where all the parameters compliance is mentioned in the Specification, there the bidder has to comply all the required parameters.
32. **Termination for default:** Default is said to have occurred:-
- a) If the supplier fails to deliver any or all of the services within the time period(s) specified in the purchase order or any extension thereof granted by NIT Patna.
  - b) If the supplier fails to perform any other obligation(s) under the contract
  - c) If the Bidder, in either of the above circumstances, does not take remedial steps within a period of 30 days after receipt of the default notice from NIT Patna (or takes longer period in spite of what NIT may authorize in writing), NIT Patna may terminate the contract / purchase order in completely or in part and forfeit the EMD. In addition to above, NIT Patna may at its discretion also take the following actions: NIT Patna may procure, upon such terms and in such manner, as it deems appropriate, goods similar to the undelivered items/products and the defaulting supplier shall be liable to compensate NIT Patna for any extra expenditure involved towards goods and services to complete the scope of.
33. **Applicable Law:**
- a) The contract shall be governed by the laws and procedures established by Govt. of India, within the framework of applicable legislation and enactment made from time to time concerning such commercial dealings/processing.
  - b) All disputes are subject to exclusive jurisdiction of Competent Court and Forum in Patna, India only.
  - c) Any dispute arising out of this purchase shall be referred to the Registrar NIT Patna, and if either of the parties hereto is dissatisfied with the decision, the dispute shall be referred to

the decision of an Arbitrator, who should be acceptable to both the parties, to be appointed by the Director of the Institute. The decision of such Arbitrator shall be final and binding on both the parties.

Registrar  
NIT – Patna

# NATIONAL INSTITUTE OF TECHNOLOGY PATNA

(An Institute under Ministry of HRD, Govt. of India)

ASHOK RAJPATH, PATNA-800005 (BIHAR)

---

## ANNEXURE – VIII

### FINANACIAL BID

| Sl. No | Name of the Items                        | Brand | Model | Per Unit Basic Cost Rs. | Taxes Rs. | Total Per unit cost, Rs. inclusive of Taxes, Installation, Warranty, F.O.R. NIT Patna In figures & words | Quantity | Total cost inclusive of Taxes, Installation, Warranty, F.O.R. NIT Patna Rs. |
|--------|--|-------|-------|-------------------------|-----------|--|----------|---|
| 01     | Desktop (As Per Annexure I)              |       |       |                         |           |  | 372      |   |
| 02     | Server Type "A" (As Per Annexure II – a) |       |       |                         |           |  | 06       |   |

|    |  |  |  |  |  |  |    |  |
|----|--|--|--|--|--|--|----|--|
| 03 | Server Type<br>"B" (As Per<br>Annexure II –<br>b)    |  |  |  |  |  | 02 |  |
| 04 | Rack (As Per<br>Annexure II –<br>c)                  |  |  |  |  |  | 01 |  |
| 05 | Projector (As<br>Per Annexure<br>III – a)            |  |  |  |  |  | 06 |  |
| 06 | Digital<br>Presenter (As<br>Per Annexure<br>III - b) |  |  |  |  |  | -  |  |

|    |  |  |  |  |  |  |    |  |
|----|--|--|--|--|--|--|----|--|
| 07 | UPS Type “80 KVA” (As Per Annexure IV – a) |  |  |  |  |  | 01 |  |
| 08 | UPS Type “20 KVA” (As Per Annexure IV – b) |  |  |  |  |  | 03 |  |
| 09 | UPS Type “10 KVA” (As Per Annexure IV – c) |  |  |  |  |  | 01 |  |
| 10 | UPS Type “05 KVA” (As Per Annexure IV – d) |  |  |  |  |  | 04 |  |

|    |   |  |  |  |  |  |    |  |
|----|---|--|--|--|--|--|----|--|
| 11 | UPS Type<br>"600 VA" (As<br>Per Annexure<br>IV – e)     |  |  |  |  |  | 80 |  |
| 12 | Laser Printer<br>Type "A" (As<br>Per Annexure<br>V – a) |  |  |  |  |  | 14 |  |
| 13 | Laser Printer<br>Type "B" (As<br>Per Annexure<br>V – b) |  |  |  |  |  | 01 |  |
| 14 | Laser Printer<br>Type "C" (As<br>Per Annexure<br>V – c) |  |  |  |  |  | -  |  |

|    |   |  |  |  |  |  |    |  |
|----|---|--|--|--|--|--|----|--|
| 15 | Switch Type<br>“A” (As Per<br>Annexure VI<br>– a) |  |  |  |  |  | 01 |  |
| 16 | Switch Type<br>“B” (As Per<br>Annexure VI<br>– b) |  |  |  |  |  | 02 |  |
| 17 | UTM (As Per<br>Annexure VI<br>– c)                |  |  |  |  |  | 01 |  |

Signature of tenderer