NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA-769008 (ODISHA)

An Institute of National Importance under Ministry of HRD, GOI

NOTICE INVITING TENDER

Tender Notification No: NITR/TL/15-16/L/298   Dated 10.06.2015

The National Institute of Technology Rourkela invites sealed bids from the eligible bidders for the supply and implementation of **IP based DSLAMs.**

Last date of Submission of Bid**: 02.09.2015 at 03.00 PM**

Opening date of Bid: **02.09.2015 at 04.00 PM**

Details: http://www.nitrkl.ac.in/Jobs_Tenders/9Equipment/Default.aspx

Contact: (i) **Prof. S.K. Behera, PIC (TL)**; Ph: 0661-2462462; Email: skbehera@nitrkl.ac.in   **REGISTRAR**

National Institute of Technology, Rourkela-769 008, Odisha.
Department of Telephone Exchange

Tender Notification No.: NITR/TL/15-16/L/298   **Dated: 10.06.2015**

NOTICE INVITING TENDER

The National Institute of Technology, Rourkela (NITR) is an autonomous body under MHRD, GOI, imparting Technical Education and engaged in Research Activities. It is proposed to procure the following component for the departmental academic/research activities.

Sealed Quotations under two cover systems are invited for the following component subject to the following terms and conditions from the reputed manufacturers or their authorized dealers so as to reach this office on or before scheduled date and time. The technical cover will be opened on the same day in the presence of bidders or their authorized agents who may choose to be present.

Name of the Equipment: IP Based DSLAMs

Quantity required: 1 No**.**

EMD Amount: Rs.60, 000.00

Delivery: Within 3 months from the date of order

Performance Security to be given by: 5% of the total value on successful bidder after release of purchase order (in Rupees)

Warranty: Two years of comprehensive warranty from the date of installation, commissioning and acceptance by NITR.

Eligibility Criteria:

1.   Last Two years Balance Sheet to be submitted.

2.   Trade LIc. P Tax , VAT , Service Tax , CST ,ESI , P. Fund Registration documents

3.   Quoted products have good number of installation based in India for enterprise and Education institutions

4.   Tender specific authorization from OEM

Last Date of submission of Tender: **02.09.2015 at 03.00 PM**

Address for submission of Tender:

The Director, National Institute of Technology, Rourkela 769 008

With Kind Attention to: Prof. S.K. Behera, PIC, Department of Telephone Exchange.

Place, Date and time of opening of technical bid:

Telephone Exchange; **02.09.2015 at 04.00 PM**

Opening of price bid: Technically and commercially qualified bidders will be intimated later.

Note: The Institute shall not be responsible for any postal delay about non-receipt / non delivery of the bids or due to wrong addressee.

SECTION: 1 INSTRUCTION TO BIDDER: The bidder should give details of their technical soundness and provide list of customers of previous supply of similar items to Universities, Institutes or Government Departments/Undertakings/public sectors with contact details. The details of the agency/profile should be furnished along with the copy of all related documents.

1.1 Bids should be divided into two parts: <u>Cover 1</u>: Cover 1 should contain the following:

a. EMD by Demand **Draft drawn on any scheduled bank in favor of "The Director, NIT, Rourkela" payable at Rourkela** should be submitted. EMD shall bear no interest. Any bid not accompanying with EMD is liable to be treated as non-responsive and rejected.

b. Technical pamphlets

c. Detailed technical specifications

d. The agency should furnish copy of license certificate for manufacture/supply of the item.

e. The agency should furnish Income Tax PAN Number

f. Warranty period offered for the tendered item to be specified. If the warranty period is not conforming to the schedule of requirements given in the bid document, the bid is liable to be treated as non-responsive and rejected.

g. Duly filled up technical questionnaire, if any

h. Duly filled up deviation schedules to technical specification

i. Copy of orders completed during the last five years along with the list of customers.

j. If the prices are revealed in the cover 1, the offer will be summarily rejected

k. Commitment for quick service in case of any breakdown.

l. List of spares and consumables to be supplied

m. Details about service centres and number of service engineers available in each centre in India.

1.2 The cover 1 shall be superscribed as "Technical Bid" duly indicating the Tender reference No. and the due date of opening.

1.3 Cover 2: Cover 2 should contain the following Cover 2 shall contain Price only and shall be superscribed as **"Price Bid"** duly indicating the Tender Reference No. and the due date of opening. Each Cover shall be sent in a double sealed cover. The inner covers (Cover 1 and Cover 2) should be sealed individually with the sellers distinctive seal and super scribed with the tender reference no. and due date of opening. Both the inner covers shall be placed in a **common outer cover** which shall also be sealed with seller's distinctive seal and super scribed with the tender reference no. and due date of opening. Mention "Kind Attention: Prof. S.K. Behera, PIC (TL)", and submit at the address given in the Notice Inviting Tender.

Cover 1 will be opened on the scheduled date and time mentioned in the tender enquiry.

Cover 2 of the technically and commercially qualified bidders alone will be opened on a date which **will be intimated later to those bidders only**.

2. The agencies should submit their rate as per the format given in Section 3 of the Notice Inviting Tender in this cover. Rate should be quoted in foreign currency for imported items and in Indian Rupee for indigenous items. The rate should be quoted both in words and figures. All the pages of the bid should be signed affixing the seal. All corrections and overwriting should be initialled.

3. The tender will be acceptable only from the **manufacturers or its authorized supplier**.

4. The bid shall be in the format of price schedule given in Section 3. The contract form as per format given in section 4 shall be submitted. Incomplete or conditional tender will be rejected.

5. Details of quantity and the specifications are mentioned in technical specifications appended to this Tender.

6. The item to be used is strictly according to the specification and subject to test by the Institute/concerned authorities. It must be delivered and installed in good working condition.

7. The Institute reserves the right to cancel or reduce the quantity included in the schedule of requirements at any time after acceptance of the tender with a notice. The Contractor/Supplier shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the work/supply in full but he did not derive in consequence of the foreclosure of the whole or part of the works.

8. **Performance Security** of 5% of the contract value in terms of Bank guarantee of any scheduled banks shall be given by the successful bidder for the total period up to three months beyond the warranty period.

9. **Release of EMD**: The EMD shall be released after receipt of performance security from successful bidder.

10. **Validity of bids:** The rate quote should be valid for a minimum of 90 days. No claim for escalation of rate will be considered after opening the Tender.

11. **Imports**: In case, goods are to be imported, the Indian agent should furnish authorization certificate by the principles abroad for submission of the bid in response to this Notice Inviting Tender.

12. **Clarification of Tender Document:** A prospective bidder requiring any clarification of the Tender document may communicate to the contact person given in this notice inviting tender.

13. *Amendment of tender document:* At any time prior to the last date of receipt of bids, Institute may for any reason, whether at its own initiative or in response to a clarification requested by prospective bidder, modify the Tender document by an amendment.

14. L. D. of the institute (Back side of POs)

15. This institute is liable to pay Customs Duty in concessional rate under Notification No. **39/96 dated 23rd Jul 1996 & Amended by 60/96 dt. 22nd Aug 1996** and exempted of Excise Duty under Notification No. **10/97 Central Excise dated 01 Mar 1997**. However, prices should be quoted indicating clearly customs/Excise Duties. If agreed, the necessary exemptions certificate may be provided.

16. *The Institute may at its own discretion extend the last date for the receipt of bids.*

17. The bids shall be written in English language and any information printed in other language shall be accompanied by an English translation, in which case for the purpose of interpretation of the bid, the English translation shall govern.

18. The Institute reserves the right of accepting any bid other than the lowest or even rejecting all the bids without assigning any reasons therefore. The decision of the Director is final in all matters of tender and purchase.

19. The bidder should give the following declaration while submitting the Tender.

20. Any other details required may be obtained from the contact person given in the notice inviting tender during the office hours.

DECLARATION

I/we have not tampered/modified the tender forms in any manner. In case, if the same is found to be tampered/modified, I/we understand that my/our tender will be summarily rejected and full Earnest Money Deposit (EMD) will be forfeited and I/we am/are liable to be banned from doing business with NIT, Rourkela and /or prosecuted.

Signature of the Bidder:…………………………………………………………………

Name and Designation:...

Business Address:……………………………………….…….....................................

……………………………………………………….……………...

………………………………………………………………………...

Place:

Date: **Seal of the Bidder's Firm**

SECTION: 2

CONDITIONS OF CONTRACT

1. The rates should be quoted in Indian Rupee FOR NIT, Rourkela for supply within India.

2. In case of import both CIF and / or FOB rate should be quoted.

3. The Institute is eligible for excise duty exemption and concession customs duty.

4. The rate quoted should be on unit basis. Taxes and other charges should be quoted separately, considering exemptions if any.

5. Rate quoted should be inclusive of Testing, commissioning and installation of equipment and training. In this bid the components should be shown categorically.

6. Payment: No advance payment will be made. Payment will be made only after the supply of the item in good and satisfactory condition and receipt of performance security (if applicable) by the supplier. In case of imports, the payment will be made through LC and performance security need to be submitted before LC commitment (if applicable).

7. Guarantee and Warrantee period should be specified for the complete period mentioned in this tender document.

8. Period required for the supply and installation of item should be mentioned in this tender document.

9. In case of dispute, the matter will be subject to Rourkela, Orissa Jurisdiction only.

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SECTION: 3

PRICE SCHEDULE

[To be used by the bidder for submission of the bid]

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1. Component Name   :

2. Specifications (confirming to Section 5
of Tender document – enclose
additional sheets, if necessary)   :

3. Currency and Unit Price   :

4. Quantity   :

5. Item cost (Sl.No.3 & Sl.No.4)   :

6. Taxes and other charges   :

(i) Specify the type of taxes and
duties in percentages and also in
figures   :

(ii) Specify other charges in figures   :

7. Warranty period should be mentioned
in Technical and Financial bid   :

8. Delivery Schedule   :

9. Name and address of the firm for
placing purchase order   :

10. Name and address of Indian authorized
agent (in case of imports only)   :

Signature of the Bidder: …..…………………………………………………………

Name and Designation: …………………………………………………………………

Business Address: …………………………………………………………………

…..………………………………………………………………

…..………………………………………………………………

Place:

Date: **Seal of the Bidder's Firm**

SECTION: 4

CONTRACT FORM

[To be provided by the bidder in the business letter head]

1. (Name of the Supplier) hereby abide to deliver the ………………… by the delivery schedule mentioned in the tender document for supply of the items if the purchase order is awarded.

2. The item will be supplied conforming to the specifications stated in the tender document without any defect and deviations.

3. Warranty will be given for the period mentioned in the tender document and service will be rendered to the satisfaction of NIT, Rourkela during this period.

Signature of the Bidder: …..……………………………………………………………

Name and Designation: …………..…………………………………………………

Business Address: …………………………………………………………………

…..……………………………………………………………

…..……………………………………………………………

Place:

Date: **Seal of the Bidder's Firm**

SECTION: 5

DETAILED TECHNICAL SPECIFICATION

1. The design of the proposed equipment shall be based on advanced system architecture and ready for future development, so fiber and copper access shall be supported in the same equipment. It should support full configured with xDSL cards and full configured with GPON cards with minimum upgradability to 1000ports or more with combination of both.

2. The proposed equipment solutions offered shall comply, but not limited to the following International Standards:

   1) ITU-T G.652: Characteristics of a single-mode optical fiber and cable.

   2) ITU-T G.703: Physical/electrical characteristics of hierarchical digital interface.

   3) ITU-T G.704: Synchronous frame structures used at 1544, 6312, 2048, 8448 and 44 736 Kbit/s hierarchical levels.

   4) ITU-T G.823: The control of jitter and wander within digital networks which are based on the 2048 Kbit/s hierarchy.

   5) ITU-T G.983.4: A broadband optical access system with increased service capability using dynamic bandwidth assignment.

   6) ITU-T G.984.1: GPON General Characteristics.

   7) ITU-T G.984.2: GPON Physical Media Dependent (PMD) layer specification.

   8) ITU-T G.984.3: GPON Transmission convergence layer specification.

   9) ITU-T G.984.4: GPON ONT management and control interface specification.

   10) IEEE 802.1ad Provider Bridges.

   11) IEEE 802.1ag Ethernet OAM.

   12) IEEE 802.1D Spanning Tree Protocol.

   13) IEEE 802.1p VLAN prioritization.

   14) IEEE 802.1Q VLAN tagging.

   15) IEEE 802.1w Rapid Spanning Tree Protocol of at least 8 ports, based on port-based, address-based, and round robin.

   16) IEEE 802.3 10 Mbps Ethernet.

   17) IEEE 802.3u 100 Mbps Fast Ethernet.

   18) IEEE 802.3ad Ethernet Link Aggregation.

   19) IEEE 802.3ae 10 Gigabit Ethernet.

   20) IEEE 802.3z Gigabit Ethernet.

   21) IEEE 802.3x Flow Control.

   22) IETF RFC 2131: DHCP.

   23) IETF RFC 2132: DHCP Options.

   24) IETF RFC 2236: Internet Group Management Protocol, V2.

   25) IETF RFC 2933: Internet Group Management Protocol Management Information Base.

   26) IETF RFC 3046: DHCP Relay Agent Info Option (Option 82).

   27) IETF RFC 3376: Internet Group Management Protocol, V3.

3.1 System Architecture

3.2.1 Chassis Characteristics:

1. Front-access cabinet shall be supported.
2. Shall work on DC power supply (48V DC is mandatory) and (n+1)power supply redundancy should be supported.
3. Conformity to international specifications for security, EMC, environment, etc

3.2.2 Architecture Characteristics:

1. The switching fabric capacity shall approach to 960Gbps bi-directional and specify the packet forwarding rate.
2. The bandwidth of slot to switch fabric shall be 20GE in order to avoid the traffic congestion.
3. At least 4 number of 10GE uplink interfaces shall be available
4. Considering the reliability, the proposed equipment shall support the link aggregation between different uplink cards that in service slots
5. The proposed equipment shall support the cascading function based on GE and 10GE interface, and the protection function for the cascading also must be considered.
6. Specify the redundant components of the proposed product, and which components are redundant or can be able as redundancy.
7. All cards of the equipment shall *support hot-swappable.*
8. The proposed equipment shall support software uninterrupted upgrade for main control cards.
9. Software roll-back to the old version shall be supported.

3.2 Uplink Interfaces

1 The proposed equipment shall support following **uplink** interfaces:

The proposed equipment shall support optical 1GE interface and state no. of ports per card. Please specify the range of the optics available. The physical distance reach and optical link budget of each type of interface shall be stated in submission.

- *1000 Base TX; according to IEEE 802.3ab*
- *1000 Base SX; according to IEEE 802.3z*
- *1000 Base LX; according to IEEE 802.3z*

The proposed equipment shall support optical 10 GE interface and state no. of ports and connector type per card. Please specify the range of the optics available. The physical distance reach and optical link budget of each type of interface shall be stated in submission.

10GBASE-ER/EW, according to IEEE 802.ae

10GBASE-LR/LW, according to IEEE 802.ae

2   The uplink interface shall support link aggregation and the mode as below can be configurable.
1) Load balancing
2) Active and standby
3   The proposed equipment shall support the following protocol for ring topology with other networks equipment.
1) STP
2) RSTP
3) MSTP
4   The proposed equipment shall support E1 and STM-1 interfaces by Native TDM mode.
1) The proposed equipment shall support 16 E1 interfaces per service card.
2) The proposed equipment shall support 2 STM-1 interfaces.

3.3 Service Interface

3.3.1 DSL

This section contains questions about DSL line cards:

1   The equipment shall support ADSL/ADSL2/ADSL2+ functionality.
2   The equipment shall support VDSL2 functionality. It shall support all profiles. 8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a
3   The equipment shall support SHDSL functionality, including G.SHDSL.BIS defined in ITU-T G.991.2 ANNEX F/G.
4   The MSAN shall support 64 ports ADSL2+ per card with splitter inside.
5   The proposed equipment shall support 64 ports VDSL2 per card with MELT inside.
6   The proposed equipment shall support 64 ports VDSL2 per card with splitter inside.
7   Combo card which can provide POTS and ADSL2+ in one card is mandatory. It should be no less than 48 ports / card.
8   The VDSL2 card shall support 50M bandwidth for each port without convergence. Please specify the port number of each VDSL2 card and bandwidth between main control card and VDSL2 card.
9   ADSL2+ and VDSL2 card shall support physical retransmission (G.INP) function to enhance the Experience of IPTV.
10   G.SHDSL card shall support MELT function.
11   G.SHDSL card shall support wetting current function.
12   G.SHDSL card shall support setting ATM/EFM working mode based on port
13   Forline test, line assurance of copper wire, guaranteeing line services and meeting the demands on fault location in service running, the VDSL2/ADSL2+ board shall support DLM/DSM.
14   The equipment shall support various profiles defined in TR-165.

3.3.2 Voice & Leased Line

This section contains questions about voice function:

1. The proposed equipment shall support POTS interface which shall be in compliance with the requirements for Z interface described in ITU-T Q.522.
2. The proposed equipment shall support ISDN interface which shall be in compliance with ISDN BRI standards which accord to ITU-T G.906 and G.961 standard.
3. The proposed equipment shall support ISDN interface which shall be in compliance with ISDN PRI standards which accord to ITU-T G.962 standard.
4. The proposed equipment shall support H.248, MGCP and SIP protocol.
5. The proposed equipment shall support maximum 1024 lines of POTS per shelf.
6. The proposed equipment shall support H.248 Over UDP and SCTP
7. The proposed equipment shall support SIP Over UDP, SCTP and TCP.

3.4 L2 Functions

1. The proposed equipment shall support the following features:

   Mapping of subscriber VLAN to a common service VLAN

   Translate/re-write subscribers VLAN ID to another VLAN ID

   VLAN switching

   Mapping of the subscriber traffic based on the IEEE 802.1p priority tagging to a specific VLAN

   Mapping of the subscriber traffic based on the IEEE 802.1Q VLAN ID to a specific VLAN

   Mapping of the subscriber traffic based on the combination of IEEE 802.1p and 802.1Q tagging to a specific VLAN

   Mapping of the subscriber traffic based on IP TOS bit to a specific VLAN
2. The proposed equipment shall support Ethernet Jumbo Frame. The maximum frame size supported shall be stated clearly.
3. The proposed equipment shall be able to support the following subscriber's access methods, but not limited to:

   DHCP

   DHCP option 82/60

   PPPoE

   Static IP
4. The proposed equipment shall support IP policing at the network and subscriber end.

5. The proposed equipment at minimum shall support Ethernet 802.1p and IP TOS bit prioritization.

6. The proposed equipment and its Management System shall be able to support bandwidth provisioning up to 64 kbps granularity.

7. The proposed equipment shall support Dynamic Bandwidth Allocation (DBA) mechanism to allow optimum bandwidth utilization on each PON interface. The proposed equipment must support NSR and SR mode in DBA.

8. The proposed equipment shall support port based network access control authentication method (IEEE 802.1x). The activation of this function shall be supported both on the global mode (for all ports) and local mode basis (up to the physical port level), so the mixed configuration between 802.1x enable and 802.1x disable ports within OLT can be flexibly configured according to the service scheme.

9. The proposed equipment shall support DHCP relay. Multiple DHCP relay instance shall be supported to accommodate multi services in multi provider environment.

10. The proposed equipment shall support ARP proxy function for security and scalability purpose. Multiple ARP proxy instances shall be supported to accommodate multi services in multi provider environment

11. The proposed equipment shall support basic OAM features such as loop back, remote diagnostic, Continuous Check and Link Trace complies with IEEE 802.1ag.

12. The proposed equipment shall support port-mirroring function for trouble shooting, monitoring, and tracing purpose

13. The proposed equipment shall support the follow traffic classification policy

    Based on VLAN

    Based on Ethertype

    Based on VLAN+Ethertype

    Based on CoS

    Based on VLAN+ CoS

    Based on SVLAN+CVLAN

    Based on GEM port +CoS

14. *The proposed equipment shall support the following VLAN switching policy,*

1:1 and N:1 VLAN translation

Add SVLAN based on CVLAN tag

Add SVLAN based on CVLAN tag and priority

Switch from CVLAN to port+SVLAN+CVLAN

Switch from SVLAN+CVLAN to SVLAN+CVLAN

15. *The proposed equipment shall support interwork in board or between boards which is based on Smart VLAN.*

3.5 QOS

1. The proposed equipment shall support various quality of services (QoS) and traffic prioritization for service differentiation. The mechanism of QoS and traffic prioritization in every part (OLT, ONT, etc) of the proposed equipment shall be explained in detail. The proposed equipment shall support the following:

   1) Trusted connectivity where the QoS setting/traffic prioritization configured by customer can be preserved.

   2) Un-trusted connectivity where the QoS setting,traffic prioritization configured by customer can be overwritten by the proposed equipment.

   3) The detail Downstream and Upstream QoS and traffic prioritization mechanism supported inclusive of the hardware queue available for each direction. A minimum of 8 hardware queues shall be supported at both directions. The OLT shall implement some queuing mechanism to manage the hardware queue such as SP, WRR, etc.

2. The proposed equipment shall support traffic classification, traffic streams can be classified by:

   Physical port.
   Ethernet Type (IPoE and PPPoE encapsulation types).
   CVLAN.
   CVLAN+802.1p priority.
   CVLAN+ Ethernet Type.
   Dual-VLAN tags (SVLAN+CVLAN).

3. The proposed equipment shall support HQoS function, which includes:

   CAR based on one service stream.
   CAR based on several service streams.
   CAR based on SVLAN.

3.6 Multicast Functions

This section contains questions about multicast functions supported by the GPON.

1. Indicate if the equipment supports IGMP V.2 (RFC 2236)
2. Indicate if the equipment supports IGMP V.3 (RFC 2933)

3. The proposed equipment shall support the IGMP Proxy and IGMP Snooping functions.
4. The proposed equipment need carry out IGMP proxy function at network side of the GPON in order to decrease the pressure on the multicast router.
5. The proposed equipment shall support IGMP quick leave functionality and support zapping time of less than 1 second.
6. The proposed equipment shall support Controlled Multicast and support to configure the user-profile by NMS or OSS.

3.7 Security and Reliability Functions

1. System should support the following security functions:

   MAC address filtering

   ☐ IP address filtering

   ☐ MAC address anti-spoofing

   IP anti-spoofing

   ☐ Ethernet Access List

   IP Access List

   ☐ Limitation of broadcast storms

   ☐ Limitation traffic of ARP packet

   ☐ Blocking of user-to-user flows

   ☐ Limitation of MAC address per port

   ☐ Dynamic binding MAC address with port and IP

   MAC address anti-transfer

   ☐ Other

2. The proposed equipment shall support ring-detection function in order to prevent loop-back in user side
3. The proposed equipment shall be provided with 1+1 redundant network interface. The redundant (i.e. standby) network interface shall automatically take over from the primary (i.e. live) network interface when the latter fails. The duration of protection switching shall be less than 50ms. Details of this implementation shall be provided.

3.8 Access and Subscriber Management Functions

1. The Equipment proposed shall support PPPoE connection methods.
2. The Equipment proposed shall support DHCP connection methods.
3. The vendor must specify in detail whether carry out the DHCP relay function in accordance with RFC 3046 or a part of this RFC.
4. The equipment shall support IEEE 802.1x for Access Control.
5. Please indicate the number of PPPoA and PPPoE sessions that are supported by the equipment.

6. The equipment shall support PPPoA/PPPoE and IPOA/IPOE auto conversion.
7. The equipment proposed shall support DHCP option 82, DHCP option 60 and PPPoE+ (PPPoE intermediate relay agent). Please describe which sub-options are used and how their values are determined.

Spares: Commitments to supply spares for at least 10 years to be ensured.

INSTALLATION AND COMMISSIONING:

The instrument to be installed tested and commissioned by representative of supplier in India at premises to the satisfaction of user.

AFTER SALES SERVICE:

1. Product support for period of minimum five years after warranty period, to be ensured by vendor/supplier.

2. Relevant software/hardware information in case of updating of the model of the supplied system should be provided.

3. Minimum two year comprehensive warranty should be offered.

TRAINING:
The supplier should provide the training on the site of installation.

Vendor should take all necessary responsibility to quote for configuration to suit all the above applications.

Additional Commercial Terms and Conditions

1) Name and address of the vendor:

2) Model of the IP-DSLAM offered:

3) Offered price:

4) Principal and the country of origin:

5) Warranty (2 years comprehensive warranty) from the date of installation, commissioning and acceptance by NITR.

6) Minimum numbers of orders within last 5 years in Indian institutes: Minimum 10 of similar equipment.

7) Availability of spares (at least 10 years from the date of installation):

8) No. of installations of the offered model in India with the list of users (name of the end user, e-mail address etc.) should be furnished in details:

9) No. of trained engineers stationed at Kolkata/Bhubaneswar:

10) Response Time to attend any breakdown (desirable: within 24 hours)

11) Mean Time to rectify the problem (desirable: within 3 working days)

12) Installation: Vendor to arrange for installation as per the specifications. NIT-R will provide empty space with electrical points. All the other infrastructural facilities to run the instrument, viz., DC supply with 4Hrs backup and air conditioning will have to be provided by the vendor. Installation of all the units as specified in the tender documents should be completed by qualified experts from the manufacturers end and not by their representatives, within 30 days of arrival of the equipment at NIT-R. During installation those experts will also train few Faculty, Engineer, Technical assistant and Technician of NIT-R.

13) Installation site preparatory works like site testing, necessary electrical & civil works (if any) have to be supervised by the vendor.

14) Installation certificate will be signed after satisfactory observation of the performance of the installed system after complete installation.

15) Up gradation of the software for the next 10 years free of cost.

16) All the necessary documents including operation manuals of the equipment and other accessories as specified in the Tender have to be supplied in printed version and soft version.