

TENDER

for

SUPPLY, INSTALLATION, INTEGRATION, COMMISSIONING AND MANAGING OF IIT (BHU), VARANASI CAMPUS WIDE LOCAL AREA NETWORK (WIRED AND WI-FI)

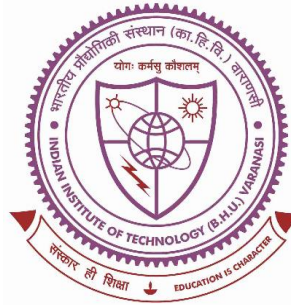
in

IIT(BHU), Varanasi

Tender No.: IIT(BHU)/IPCell/2016-17/Networking/1202

Tender Date: 07.01.2017

Last Date of Submission: 31.01.2017



**Indian Institute of Technology
(Banaras Hindu University)
Varanasi-221005**

E-mail: chair.lan@iitbhu.ac.in



**Advertised Tender Enquiry Documents
(NOTICE INVITING TENDER)**

On behalf of the Director, IIT (BHU) Varanasi, sealed item rate tenders from manufactures (or their -authorizedø dealers by submitting letters/certificates, in original, from the manufacturers that they have been authorized to quote in response to this NIT) of the following items are invited:

Sl. No.	Tender no.	Specifications & quantity of the item	Earnest Money Deposit (EMD)
1.	IIT(BHU)/IPCell/2016-17/Networking/1202 dated 07.01.2017	<p>Name of the Project: SUPPLY, INSTALLATION, INTEGRATION, COMMISSIONING AND MANAGING OF IIT (BHU), VARANASI CAMPUS WIDE LOCAL AREA NETWORK (WIRED AND WI-FI)</p> <p>Qty.: Complete Project on Turn-key Basis</p> <p>TECHNICAL BID (MUST be submitted in a separate SEALED envelope Super-scribed as TECHNICAL BID)</p> <p>Project Specification</p> <ol style="list-style-type: none">1. Technical Specifications for LAN: As per Annexure ó A2. Work Schedule As per Annexure ó B3. Manpower and Helpline Software As per Annexure ó C4. Reference BoQ As per Annexure ó D5. Mandatory Undertaking As per Annexure ó E <p>PRICE BID (MUST be submitted in a separate SEALED envelope Super-scribed as PRICE BID)</p> <ol style="list-style-type: none">6. Price Bid As per Annexure ó F (Also being provided in Excel, for details)	Rs. 25,00,000/-

The Tender Documents for items will be on two-Bid System consisting of Technical Bid and Price Bid. The Tender Documents will be submitted item-wise in two separate sealed covers clearly mentioning on the envelope the details of items for which bid is submitted. Any firm may bid for all items on turn-key basis against the purchase of Tender Document by clearly marking technical compliance on the Annexures A, B, C, D and E. Please note that non-compliance of Annexure ó E, SHALL amount to disqualification. The complete solution MUST be quoted item-wise in two bid cover enclosing single EMD with Technical Bid, for the whole project.

The Tender Document (non-transferable) along with detailed specifications, terms and conditions may be downloaded from the Institute website(www.iitbhu.ac.in/iitnotifications/purchase_enquiries/) or from Central Public Procurement Portal (CPPP)by the interested supplier along with payment of non-refundable Tender price as mentioned below. The Tender price may be paid in the form of Bank Draft drawn in favour of Registrar, IIT (BHU) payable at Varanasi.

- a) Price of Tender Document (Non-refundable): **Rs. 2000/-** (Rupees Two Thousand Only)
- b) Last date and time for receipt of Tender Document: **January 31, 2017 (up to 13:00 Hrs.)**.

The tender should be addressed to **The Registrar, IIT (BHU), Varanasi**, and should be delivered in person or sent by registered post / courier so as to reach the institute on / before the last date up-to 13:00 Hrs. No tender will be accepted after the due date and time.

- c) The tender will be opened on 31.01.2017 at **15:00 Hours** in the office of the **Head, Department of Electronics Engineering, IIT(BHU), Varanasi-221005**. All Tender Documents must be accompanied by the Bid Security / Earnest Money Deposit (Refundable) of **Rs.25,00,000/-(Rupees Twenty Five Lakhs only)**.The Earnest Money Deposit is to be paid in the form of Bank Draft in favour of the Registrar, IIT (BHU) payable at Varanasi. **The Bid Security / Earnest Money Deposit Bank Draft must be enclosed with Technical Bid in a separate sealed envelope**. The details of Bank Draft of Earnest Money Deposit must be endorsed on top of envelope containing Technical Bid.

The Institute shall not be responsible for any delay in receiving Bids/sending of Tender Document by post.

The Institute reserves the right to accept or reject any bid, without assigning any reason thereof. No correspondence in this regard will be entertained.

Earnest Money shall be forfeited in case it is found at any stage that information/particulars regarding supply of tendered item (s) is false.

Sd.
(Registrar)



**TENDER DOCUMENT
FOR
SUPPLY, INSTALLATION, INTEGRATION, COMMISSIONING AND MANAGING OF IIT
(BHU), VARANASI CAMPUS WIDE LOCAL AREA NETWORK (WIRED AND WI-FI)**

IMPORTANT DATES

BID REFERENCE	IIT(BHU)/IPCell/2016-17/Networking/1202 Dated : 07.01.2017
DATE OF COMMENCEMENT OF BIDDING	January 9th, 2017
DATE TIME & VENUE OF PRE-BID MEETING	January 18th, 2017 at 15:00 Hrs. in the Chamber of the Head, Department of Electronics Engineering, IIT(BHU), Varanasi-221005
LAST DATE AND TIME FOR RECEIPT OF BIDS	January 31st, 2017 (up to 13:00 Hrs)
ADDRESS FOR COMMUNICATION	The Registrar, Indian Institute of Technology (Banaras Hindu University) Varanasi – 221 005, U.P., INDIA
DATE, TIME & VENUE OF BID OPENING	31.01.2017 at 15:30 Hours Venue: Chamber of the Head, Department of Electronics Engineering, IIT(BHU), Varanasi-221005

IMPORTANT NOTE:

- 1. All the interested bidders are requested to send their queries/representation with proper justification, if any, through e-mail on chair.lan@iitbhu.ac.in before one day of Pre-Bid Meeting. No queries/representations will be accepted after Pre Bid Meeting. The Institute decision in this regard will be final.**
- 2. The bidder have to submit all the required supporting documents regarding essential pre-bid criteria alongwith their bid, failing which their bid shall not be considered for technical evaluation.**



**TENDER DOCUMENT FOR
SUPPLY, INSTALLATION, INTEGRATION, COMMISSIONING AND MANAGING OF IIT
(BHU), VARANASI CAMPUS WIDE LOCAL AREA NETWORK (WIRED AND WI-FI)**

INVITATION FOR BIDS

1. Sealed bids in two parts (techno commercial un-priced & Priced bids) are invited from eligible bidders for the following

Sl. No.	Tender No	Subject	Earnest Money Deposit (EMD)
1.	IIT(BHU)/IP Cell/ 2016-17/Networking/ 1202 dated 07.01.2017	<p>Name of the Project: SUPPLY, INSTALLATION, INTEGRATION, COMMISSIONING AND MANAGING OF IIT (BHU), VARANASI CAMPUS WIDE LOCAL AREA NETWORK (WIRED AND WI-FI)</p> <p>Qty.: Complete Project on Turn-key Basis</p> <p>TECHNICAL BID (MUST be submitted in a separate SEALED envelope Super-scribed as TECHNICAL BID)</p> <p>Specification of work</p> <ol style="list-style-type: none">1. Technical Specifications for LAN: As per Annexure ó A2. Work Schedule As per Annexure ó B3. Manpower and Helpline Software As per Annexure ó C4. Reference BoQ As per Annexure ó D5. Mandatory Undertaking As per Annexure ó E <p>PRICE BID (MUST be submitted in a separate SEALED envelope Super-scribed as PRICE BID)</p> <ol style="list-style-type: none">6. Price Bid As per Annexure ó F	Rs.25,00,000/ -

2. Interested eligible Bidders may obtain further information from and inspect the bidding documents at the office of **The Head, Department of Electronics Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi – 221 005, U.P., INDIA** or on IIT (BHU) website: www.iitbhu.ac.in/iitnotifications/purchase_enquiries/

3. Each set of bidding document can be **downloaded from the Institute website** by any interested eligible bidder on payment of the cost of tender document. The cost of bidding documents as indicated above should be submitted in the form of a Demand Draft in favour of the Registrar IIT (BHU) payable at Varanasi.

4. All bids must be accompanied by earnest money deposit as specified above and must be delivered to the Registrar IIT (BHU), Varanasi office up-to 13.00 Hrs of **the last date of receiving the tender document as specified.**

5. The Institute reserves the right to accept or reject any or all tenders either in part or in full without assigning any reasons thereof.

6. This Tender Document contains the following:

- A. Instructions to Bidders
- B. General conditions of contract (GCC)
- C. Tender form (Techno commercial un-priced Bid)
- D. Tender form (priced Bid)
- E. Check-list for Bid/Tender submission
- F. Bank guarantee form
- G. Declaration Certificate
- H. Technical specifications for the complete project

INSTRUCTIONS TO BIDDERS

1. Minimum Qualification (Essential Pre-Bid Eligibility criteria for OEM and System Integrators) for Eligible Bidders

A. Essential Pre Bid Criteria for Eligible Bidder (System Integrator)

- 1.1. This Invitation for Bids is open to all the authorized System Integrator to quote in response to this NIT.
- 1.2. The bidder should submit the single proposal for supply, installation, integration, commissioning and management of the Institute campus LAN consisting of active and passive network component.
- 1.3. The bidder should have minimum 5 years of experience for supply, installation, integration, commissioning and management of LAN Project.(Certified copies of Successful Work Completion Certificates on the letter head of concerned Institution clearly stating the nature of work to be submitted as proof.)
- 1.4. The Bidder should have an average annual turnover of Rs.70 Crore or more during the last 3 financial years. (CA certified copies regarding turnover to be submitted as proof)
- 1.5. The bidder should be ISO 9001, ISO 20000-1 & ISO 27001 certified. (Certified copies of currently valid certificates to be submitted as proof)
- 1.6. The bidder should have valid authorization certificate for this specific Tender from OEMs of both active and passive components of the LAN.
- 1.7. The bidder must have executed a single order of 5000 nodes or two orders of 4000 nodes of the quoted Active product of OEM, in last five years in one of the IITs or equivalent Educational Institution/University/Govt. Organization (Certified copies of successful work execution certificate clearly stating the no. of nodes in a single order to be submitted as proof).
- 1.8. All passive network components quoted by the bidder should be from a single OEM only. The OEM of passive components should provide UL/ETL certification for the full channel link. The Bidder should submit all the required standard reports and certificates of the passive materials failing which the bid will be disqualified. The OEM of passive component is required to provide the performance warranty of minimum 25 years from the date of commissioning the LAN.(Proper Certificate from OEM to be attached).
- 1.9. The bidder should have an experience in supply and execution of either one order of 5000 Nodes or two orders of 4000 nodes (for passive components) in one of the IITs or equivalent educational Institution/ University/Govt. Organisation.

B. Essential Criteria for OEMs of Active Components

- 1.10. The OEM for Active devices must be listed in Gartner Magic Quadrant (Leaders/Challengers)/ InfoTech Research (Champions) / Forrester wave (Leaders/ Strong Performers) in respective latest reports.(Listing in any of the three is compulsory for being eligible)
- 1.11. The OEM of the network product should have well established manufacturing plant/ Research & Development Lab in India or abroad.
- 1.12. All active network devices (Wired, Wireless) and Network Management System (NMS) quoted by the bidder should be from a single OEM only and it should be supported by Single NMS. The NMS should have the capabilities to support the existing Network, with single pane of glass. (The bidder should submit a certificate to this effect)
- 1.13. The OEM of active network devices to be quoted by the bidder should have local Technical Assistance Centre (TAC) support in India through a toll free number and Returned Materials Authorization (RMA) depot in India.
- 1.14. The OEM of active network devices to be quoted by the bidder should be present in the country from at least past 7 years.
- 1.15. The OEM whose active components are being quoted by the bidder should not be acquired and should have posted profit in last seven years.
- 1.16. All products being quoted should be available as on date with the OEM and should be publicly referenceable.

- 1.17. The OEM of passive network components to be quoted by the bidder should be present in the country from at least past 7 years. (The bidder should submit a certificate to this effect)
- 1.18.** All material to be procured by the bidder should be from an OEM, which has not been acquired/ or likely to be acquired by any other business entities during the period of last 5 years till the last date of bid submission. This is to ensure dependable and continuous support for the next 7 years as per warranty requirements and lifecycle of the network.

Essential Pre-Bid Eligibility Criteria for Passive OEM:

- 1.19. All passive network components quoted by the bidder should be from a single OEM only.
- 1.20. The OEM of passive components should provide UL/ETL certification for the full copper channel link (UL/ETL 4 connector test report) with at least 5 dB NEXT headroom also the individual copper components and fibre cable should be UL/ETL listed.
- 1.21. OEM of passive components should support copper channel for 6 connections with minimum 3dB NEXT headroom (UL/ETL report need to be submitted).
- 1.22. All the fibre cable should be band insensitive and single mode fibre cable should be band insensitive with zero/ low water peak construction.
- 1.23. The vendor /OEM should provide test reports generated from any testing software/ device for minimum 1000 nodes in support of experience to executing such requirement of margin (3 dB or higher) for Cat 6A and (6 dB or higher) for CAT 6 of NEXT (worst case) for entire frequency range specified in ISO/IEC 11801.
- 1.24. All passive components should be RoHS complied. Declaration of ROHS compliant should clearly be mentioned on data sheets of each Passive Components.
- 1.25. The Cat 6 Cable should be complied with IEC 60332-3-22 features for environment safety (UL/ETL/ABS report need to be submitted).

NOTE: THE BID OF THOSE BIDDERS WHO FAIL TO COMPLY WITH THE ABOVE ESSENTIAL CRITERIA WILL NOT BE CONSIDERED FOR TECHNICAL EVALUATION.

OR

IF REQUIRED, INSTITUTE MAY ASSIGN MARKS AGAINST EACH CRITERIA AND DEFINE A MINIMUM CUT OFF FOR QUALIFICATION FOR TECHNICAL EVALUATION OF BID.

- 1.2** Copies of valid Central/State VAT registration certificate, Service Tax Registration, Income taxclearance certificate, proof of manufacturing unit / dealership have to be submitted.

2. Cost of Bidding

The Bidder shall bear all costs associated with the preparation and submission of its bid, and "the Purchaser", will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

B. The Bidding Documents

3. Cost of Bidding Documents

Interested eligible bidders may download the bidding documents from the Institute website or from Central Public Procurement Portal (CPPP) as indicated in the invitation for bids. The cost of bidding documents should be submitted in the form of a Demand Draft for Rs.2000/- drawn in favour of the Registrar, IIT (BHU) payable at Varanasi.

4. Content of Bidding Documents

4.1 The goods required, bidding procedures and contract terms are prescribed in the bidding documents. In addition to the Invitation for Bids, the bidding documents include:

- (a) Instruction to Bidders (ITB);
- (b) General Conditions of Contract (GCC);
- (c) Schedule of requirements;
- (d) Tender form (technical bid).
- (e) Tender form (financial bid)

4.2 The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or submission of a bid not substantially responsive to the bidding documents in every respect will be at the Bidder's risk and may result in rejection of its bid.

5. Amendment of Bidding Documents

5.1 At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the bidding documents by amendment.

5.2 All prospective bidders who have received the bidding documents will be notified of the amendment in writing, which will be binding on them.

5.3 In order to allow prospective bidders reasonable time within which to take the amendment into account in preparing their bids, the Purchaser, at its discretion, may extend the deadline for the submission of bids.

C. Preparation of Bids

6. Language of Bid

The bid prepared by the Bidder, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser shall be written in English language.

7. Documents Comprising the Bid

7. Techno commercial un-priced bid and priced Bids: The bids are to be submitted in two parts in separate sealed envelopes by mentioning i.e. Techno commercial un-priced bid and priced Bids.

- (a) Techno commercial un-priced bid along with Earnest Money Deposit (EMD) as shown in invitation to bids shall be submitted in the form of a demand draft of Nationalised Bank

drawn in favour of the Registrar, IIT (BHU) payable at Varanasi. If the EMD is not received along with the technical bid, such bid will not be considered. The samples (if required) of all the items shown in the schedule of requirements of each tender should also accompany the techno commercial un-priced bid in a separate sealed envelope.

(b) Priced bid.

7.2 Techno commercial un-priced bid:The Techno commercial un-priced bid prepared by the bidder shall be provided in the following Model Response format:

Model Response format

- (a) Standing of each Bidder Manufacturer/Dealer and past experience in supply of the material (certificates to be enclosed), proof of manufacturing Unit/Dealership alongwith all the documents required for proving the credentials regarding the fulfilment of essential pre-bid criteria.
- (b) List of other Govt. Departments, Public Sector units and Central Autonomous Bodies for which the bidder is supplying material or having the similar type of contracts and a certificate regarding the satisfactory performance of the contract.
- (c) Copy of the audited balance sheet of the vendor for the previous financial year indicating the turnover in supply of the relevant materials/service.
- (d) Details of Permanent Account Number and latest income tax clearance certificate.
- (e) Details of S.T. No. along with a copy of certificate to be attached.
- (f) Submission of samples if required, for all items indicated in the schedule of requirements. The make of items proposed to be supplied should be indicated in the format of the schedule of requirements and submitted along with the techno commercial un-priced bid without indicating the pricing components.
- (g) Willingness to execute all orders which are placed to meet emergency requirement on priority basis. The Bidder shall note that standards for workmanship, material and equipment, and references to brand names designated by the Purchaser in the schedule of requirements are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalogue numbers in his bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

7.3 Priced Bid

The priced bid shall comprise the techno commercial bid along with the price component indicating the Unit prices for each and every item indicated in the schedule of requirements.

- (a) The prices quoted must be net per unit as shown in the Schedule and must include all charges for delivery at the designated stores.
- (b) The rate must be stated for each item separately both in words and figures. If there is a discrepancy between the price quoted in word and figures the higher price quoted will be treated as final.
- (c) The price quoted by the tenderer should be exclusive of Excise Duty & Sales Tax. However, the Excise Duty & Sales Tax payable should be quoted separately in the schedule enclosed. The Institute will provide the valid exemption certificate.

- (d) Quoted prices should be firm and inclusive of octroi, freight and forwarding charges, handling charges, loading and unloading charges, and insurance charges etc.
- (e) The prices once accepted by the Institute shall remain valid till the successful execution of the order and till supplies is fully effected and accepted or 12 months from the date of acceptance of tender whichever is later. The Institute shall not entertain any increase in the rates during the period. However, in the event there is a reduction or increase in Government levy/duties during the period of execution of the order, the rates shall be suitably adjusted with effect from the date notifying the said reduction or increase in the Government levy/excise duty. The quantity given in the Annexures are approx. Project requirements. However, payment will be made on actual basis and may be reduced or increased by 50%.

NOTE

1. THE TWO BIDS (BOTH TECHNO COMMERCIAL UNPRICED BID) ALONG WITH EARNEST MONEY DEPOSIT (EMD) AND THE PRICED BID SHOULD BE SUBMITTED SEPARATELY FOR FULL PROJECT.

2. CONDITIONAL BIDS WILL NOT BE ACCEPTED

8. Bid Prices

- 8.1** The Bidder shall indicate on the Schedule of requirements, the unit prices of the goods it proposes to supply under the Contract and enclose it with the priced bid.
- 8.2** Prices indicated on the Price Schedule shall be entered separately in the following manner:
 - (i) The prices quoted must be net per unit as shown in the schedule of requirements and must include all charges for delivery at the designated stores.
 - (ii) Any Indian duties, VAT / Sales and other taxes which will be payable on the goods if this Contract is awarded;
- 8.3** Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account.

9. Bid Currencies

Prices shall be quoted both in Indian Rupees and in US Dollars (\$) only. In case of direct import the prices may be indicated in the US Dollars (\$). The Institute may, at its discretion, arrive at approximate Rupee equivalent on the basis of exchange rate on the date of opening of price bid. The Institute shall refer the exchange rate as available on RBI reference rate archive on the date of Financial Bid opening for conversion of foreign currency into INR for comparison purpose.

10. Period of Validity of Bids

- 10.1** Bids shall remain valid for **180** days after the date of bid opening prescribed by the Purchaser. A bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.
- 10.2** In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. A Bidder may refuse the request without forfeiting its EMD. A Bidder granting the request will not be required nor permitted to modify the bid.
- 10.3** Bid evaluation will be based on the bid prices without taking into consideration the above modifications.

D. Submission of Bids

11. Sealing and Marking of Bids

11.1 The outer envelope containing Techno commercial un-priced bid along with EMD, and priced bid shall be addressed to The Registrar, Indian Institute of Technology (Banaras Hindu University), Varanasi ó 221 005, U.P.,INDIA and shall indicate tender number and due date.

11.2 The inner envelope shall indicate the name and address of the bidder, tender number due date and contents i.e. òTechno commercial un-priced bid along with EMDö and òPriced bidö.

11.3 If the outer envelope is not sealed and marked as required, the Purchaser will assume no responsibility for the bid's misplacement or premature opening.

12. Deadline for Submission of Bids

12.1 Bids must be received by the Purchaser at the address specified not later than the time and date specified in the Invitation for Bids. In the event of the specified date for the submission of Bids being declared a holiday for the Purchaser, the Bids will be received up-to the appointed time on the next working day.

12.2 The Purchaser may, at his discretion, extend this deadline for submission of bids by amending the bid documents in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

13. Late/Delayed Bids

Any bid received by the Purchaser after the deadline for submission of bids prescribed by the Purchaser, pursuant to Clause 5 of invitation of bids will be rejected and/or returned unopened to the Bidder.

14. Modifications and Withdrawal of Bids

14.1 The Bidder may modify or withdraw its bid after the bid's submission, provided that written notice of the modification or withdrawal is received by the Purchaser prior to the deadline prescribed for submission of bids.

14.2 The Bidder's modification or withdrawal notice shall be prepared, marked and dispatched in a sealed envelope. A withdrawal notice may also be sent by telex or cable or fax but followed by a signed confirmation copy, post marked not later than the deadline for submission of bids.

14.3 No bid may be modified subsequent to the deadline for submission of bids.No documents will be accepted in support of essential pre-bid criteria after the last date of submission of bids.

14.4 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiry of the period of bid validity specified by the Bidder on the bid form. Withdrawal of a bid during this interval may result in the Bidder's forfeiture of its EMD.

E. Bid Opening and Evaluation of Bids

15. Opening of Techno commercial un-priced Bids

The purchaser will open all techno commercial un-priced bids in the first instance.

16. Clarification of Bids

16.1 During evaluation of the bids, the purchaser may, at its discretion, ask the Bidder for clarification of its bid. The request for clarification and the response shall be in writing and no change in price or substance of the bid shall be sought, offered or permitted.

16.2 No Bidder shall contact the purchaser on any matter relating to its bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Institute it should be done in writing.

16.3 Any effort by a Bidder to influence the purchaser in its decisions on bid evaluation, bid comparison or contract award decisions may result in rejection of the Bidder's bid.

17. Evaluation of Techno commercial un-priced Bid

17.1 Prior to the detailed technical evaluation, the purchaser will determine the substantial responsiveness of each bid. A substantially responsive bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviations and meets all the essential pre-bid criteria. If any bidder does not meet the essential pre-bid criteria as laid down in the Instruction to Bidders, then his bid will be summarily rejected. No documents will be accepted in support of essential pre-bid criteria after the last date of submission of bids.

17.2 The purchaser will reject a bid determined as not substantially responsive.

17.3 The bidders may be called for discussion and may be allowed to modify their technical bids to suit the organization's requirement. The idea is to arrive at a threshold level of acceptability above which all the bidders shall be treated on par. Those whose technical specifications do not reach the threshold level of acceptability shall be rejected as technically unsuitable. The price bids of the bidders who finally emerge as technically acceptable shall be opened, evaluated and the contract awarded to the lowest evaluated bidder.

17.4 The bidders short-listed by the purchaser based on meeting the essential pre-bid criteria and detailed evaluation regarding satisfying the technical criteria laid down in this tender document may be called for detailed discussions with a team selected for the purpose, at a specified date, time and venue, if needed.

18. Opening of Priced Bids

18.1 The Purchaser will open the Priced Bids of only those bidders who meet the essential pre-bid criteria and whose techno commercial un-priced bids have been found to be substantially responsive.

18.2 The priced Bids of the technically qualified bidders shall be opened by the tender committee.

19. Evaluation and Comparison of priced Bids

19.1 Arithmetical errors will be rectified on the following basis: If there is a discrepancy between words and figures, whichever is the higher of the two shall be taken as bid price. If the Vendor does not accept the correction of errors, its bid will be rejected

19.2 Bidders shall state their bid price for the payment schedule outlined in the Clause 14 of General Conditions of Contract. Bids will be evaluated on the basis of this base price. Bidders are, however, permitted to state an alternative payment schedule and indicate the reduction in bid price they wish to offer for such alternative payment schedule. The purchaser may consider the alternative payment schedule offered by the selected Bidder but it may not be binding on the purchaser.

19.3 The purchaser, at its option may ask some more bidders to match the rates of the lowest bidder for creating parallel suppliers.

20. Purchasers right to accept any bid and to reject any bid or all bids

The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of Contract, without thereby incurring any liability to the

affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Purchaser's action.

21 Award Criteria

Subject to Clause 19, the purchaser will award the Contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined as the best evaluated bid provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

22. Notification of Award

Prior to the expiration of the period validity, the purchaser will notify the successful Bidder in writing by letter or by fax, to be confirmed in writing by speed post or hand delivered letter, that its bid has been accepted.

23. Factors Affecting the Award of Supply

23.1 The bidder should have its own Contract support facilities. The support facilities should be fully owned and managed by the bidder.

23.2 Conformity with the Request for Bid/Tender required and conditions.

23.3 The assessment based on the response to Model Response Outline.

23.4 The assessment of the capability of the bidder to meet the terms and conditions.

23.5 The bidders must have executed similar orders, for which the bidder is quoting, as indicated in clause 1 for Govt./Semi-Govt./Autonomous Organizations.

23.6 The cost and the discount offered, if any.

24. Fall clause

24.1 The price quoted by the supplier should not be higher than the maximum retail price, if any, for the stores and the same shall not be higher than the price usually charged by the supplier for stores of the same nature, class or description to any other purchaser.

24.2 The price charged for the stores supplied under the contract by the supplier shall in no event exceed the lowest price at which the supplier sells the stores of identical description to any other person during the period till performance of all supply orders placed during the currency of the contract is completed. If at any time during the period the supplier reduces the sale price of such stores or sells such stores to any other person including his dealers at a price lower than the price chargeable under the contract, he shall forthwith notify such reduction or sale to the purchaser and the price payable under the contract for these items of stores supplied after the date of coming into force of such reduction or sale shall stand correspondingly reduced.

24.3 If it is discovered that the supplier has contravened the above conditions, then without prejudice to any other action which might be taken against him, it shall be lawful for the purchaser to (a) revise the price at any stage so as to bring it in conformity with sub-clause(i) above, or (b) to terminate the contract and purchase the items of stores at the risk and cost of the supplier and in that event the provisions of Clause 28 of General Conditions of Contract shall, as far as possible, be applicable or recover the loss.

GENERAL CONDITIONS OF CONTRACT (GCC)

1. Definitions

In this Contract, the following terms shall be interpreted as indicated:

- (a) "The order" means the agreement entered into between the Purchaser and the Supplier including all the attachments and appendices and all documents incorporated as per notification of award.
- (b) "The Contract Price" means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations;
- (c) "The Goods" means all the items, which the Supplier is required to supply to the Purchaser under the Contract;
- (d) "Services" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services training and other obligations of the Supplier covered under the Contract;
- (e) "GCC" means the General Conditions of Contract contained in this section.
- (f) "The Purchaser" means the organization purchasing the Goods i.e. IIT (BHU), VARANASI.
- (g) "The Purchaser's country" is India.
- (h) "The Supplier" means the individual or firm supplying the Goods and Services under this Contract.
- (i) "Day" means calendar day.

2. Application

These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

3. Standards

The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned Institution.

4. Use of Contract Documents and Information

- 4.1 The Supplier shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.
- 4.2 The Supplier shall not, without the Purchaser's prior written consent, make use of any document or information except for purposes of performing the Contract.
- 4.3 Any document, other than the Contract itself, shall remain the property of the Purchaser and shall be returned (in all copies) to the Purchaser on completion of the Supplier's performance under the Contract if so required by the Purchaser.

5. Patent Rights

The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in India.

6. Submission of the bids.

- 6.1** All bids complete in all respect must reach the purchaser within the last date and time of receipt of bid. No extension shall be allowed for any reason what so ever. Late tenders/delayed bids and tenders received without earnest money etc. shall be rejected.
- 6.2** Tender documents are available for sale with the purchaser. Interested bidders may purchase the tender documents on payment of the cost there of. The purchaser shall not be liable for either non-receipt of the tender document or for delay in receipt of tender document.

7. Inspections and Tests

- 7.1** The Purchaser or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the Purchaser.
- 7.2** The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery and/or at the Goods final destination. If conducted on the premises of the Supplier or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data shall be furnished to the inspectors at no charge to the Purchaser.
- 7.3** Should any inspected or tested Goods fail to conform to the specifications, the Purchaser may reject the goods and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Purchaser.
- 7.4** The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at Project Site shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to the Goods shipment.
- 7.5** Nothing in GCC Clause 7 shall in any way release the Supplier from any warranty or other obligations under this Contract.

8. Consequences of rejection

If in the event the stores are rejected by the purchaser at the destination and the supplier fails to make satisfactory supplies within the stipulated period of delivery, the purchaser will be at liberty to:

- (a)** Allow the supplier to resubmit the stores in replacement of those rejected, within a specified time without any extra cost to the purchaser or
- (b)** Reject the material, which shall be final and binding on the contractor.
- (c)** Procure the rejected materials of comparable quality from the open market/Govt. stores and the supplier shall be liable to pay the difference in price over the RC prices or get the amount adjusted from the outstanding bills of the supplier, if any or EMD.

9. Packing

- 9.1** The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

9.2 The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract including additional requirements, in any subsequent instructions ordered by the Purchaser.

10. Delivery and Documents

10.1 The Supplier shall make delivery of the Goods within 60 days from the placement of purchase order in pursuance of the notification of award. The purchase order would be placed after assessing the requirements on quarterly basis. However, the supplier shall also arrange to execute all orders on priority basis which would be placed to meet any emergent requirements.

10.2 In case the purchaser decides to conclude parallel rate contracts, then the requirements would be split on different firms on equitable basis as per the discretion of the purchaser.

10.3 The delivery of Stores shall be affected at the premises of the Institute free of all delivery charges and within the stipulated time and as may be elucidated in the confirmed order, accompanied by a delivery challan. No extension of time for delivery of Stores shall normally be accorded.

Time and date of delivery – the essence of the contract:The time for and the date of delivery of the stores stipulated shall be deemed to be of the essence of the contract and delivery must be completed NOT later than the date(s) specified in Work Schedule (Annexure B).

11. Insurance

The Goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery. The insurance shall be obtained by the suppliers in an amount equal to 110% of the value of the goods from ðwarehouse to warehouseö (final destinations) on ðall risksö basis including war risks and strikes.

12. Transportation

Where the Supplier is required under the Contract to transport the Goods within India defined as Project site, transport to such place of destination in India including insurance, as shall be specified in the Contract, shall be arranged by the Supplier, and the related cost shall be included in the contract Price.

13. Warranty

13.1 The Supplier warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that all Goods supplied under this Contract shall have no defect arising from design, materials or workmanship or from any act or omission of the Supplier that may develop under normal use of the supplied Goods in the conditions prevailing in India.

13.2 This warranty shall remain valid for at least 12 months (or as specified) after the Goods or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the Contract, unless specified otherwise.

13.3 The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.

13.4 Upon receipt of such notice, the Supplier shall with all reasonable speed, repair or replace the defective Goods or parts thereof, without any extra cost to the Purchaser.

13.5 If the Supplier, having been notified, fails to remedy the defect(s) within a reasonable period, the Purchaser may proceed to take such remedial action as may be necessary, at the

Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

14. Payment

14.1 The Purchaser will release all due payments to the supplier as per the following terms:

- a) 70% of Contract price including duties and taxes against **actual/ complete supply** of materials within 30 days. Next 10% of contract price shall be released after inspection of the materials and satisfactory installation and at the start of **Work Schedule # 9 - Pre Go-live and User Testing Phase and satisfactory performance.**
- b) Final 20% of payment shall be released **ONLY** after compliance of **Work Schedule # 12 - Acceptance of LAN implementation and submission of Performance Bank Guarantee (PBG) equivalent to 10% of contract price in the specified format.**

14.2 The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and the Services performed, and by documents, submitted pursuant to GCC Clause 10, and upon fulfilment of other obligations stipulated in the contract.

15. Prices

The prices charged by the bidder should be inclusive of freight charges, insurance upto IIT (BHU) for supplies of equipment and materials. However, the applicable taxes should be clearly specified individually. Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not vary from the prices quoted by the Supplier in his bid.

The applicable road permit (way bill) any other permit/form/exemption certificate shall be provided by Purchaser as and when required.

The purchaser shall make all payments in Indian Rupees (INR), unless otherwise agreed between the supplier and purchaser.

16. Change Orders

16.1 The Purchaser may at any time, by written order given to the Supplier, make changes within the general scope of the Contract in any one or more of the following:

- (a) Drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
- (b) The method of shipping or packing;
- (c) The place of delivery; and/or
- (d) The services to be provided by the Supplier.

16.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the Supplier's receipt of the Purchaser's change order.

17. Contract Amendments

Subject to GCC Clause 16, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

18. Assignment

The Supplier shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

19. Subcontracts

The Supplier shall notify the Purchaser in writing of all subcontracts awarded under this Contract if not already specified in the bid. Such notification, in his original bid or later, shall not relieve the Supplier from any liability or obligation under the Contract.

20. Delays in the Supplier's Performance

20.1 Delivery of the Goods and performance of the Services shall be made by the Supplier in accordance with the time schedule specified by the Purchaser as per GCC clause 10.

20.2 If at any time during performance of the Contract, the Supplier or its sub-contractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may, at its discretion, extend the Supplier's time for performance with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of the Contract.

20.3 Except as provided under GCC Clause 23, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of penalty pursuant to GCC Clause 21, unless an extension of time is agreed upon pursuant to GCC Clause 20.2 without the application of liquidated damages.

21. Penalty

Subject to GCC Clause 23, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty, a sum equivalent to 1% of contract price per week or part thereof subject to a and the maximum deduction is 10% of the contract price of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance. Once the maximum is reached, the Purchaser may consider termination of the Contract pursuant to GCC Clause 22.

22. Termination for Default

22.1 The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part:

- (a) If the Supplier fails to deliver any or all of the Goods within the period(s) specified in the purchase order, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 20; or
- (b) If the Supplier fails to perform any other obligation(s) under the Contract.
- (c) If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

-For the purpose of this Clause:

“Corrupt practice” means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

“Fraudulent practice: a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition;”

22.2 In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 22.1, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Services similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess costs for such similar Goods or Services. However, the Supplier shall continue the performance of the Contract to the extent not terminated.

23. Force Majeure

23.1 Notwithstanding the provisions of GCC Clauses 20 & 21, the Supplier shall not be liable for imposition of liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

23.2 For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

23.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

24. Termination for Insolvency

The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the Purchaser.

25. Termination for Convenience

25.1 The Purchaser, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.

25.2 The Goods that are complete and ready for shipment within 30 days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices.

26. Resolution of Disputes

26.1 The Purchaser and the supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

26.2 If, after thirty (30) days from the commencement of such informal negotiations, the Purchaser and the Supplier have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms as specified below. These mechanisms may include, but are not limited to, conciliation mediated by a third party, adjudication in an agreed national or international forum, and national or international arbitration.

26.3 In case of Dispute or difference arising between the Purchaser and a supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996.

27. Governing Language

The contract shall be written in English language. Subject to GCC Clause 28, English language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in the same language.

28. Applicable Law

28.1 The contract shall be governed by the Law of Contract for the time being in force.

28.2 Irrespective of the place of delivery, the place of performance or place of payment under the contract, the contract shall be deemed to have been made at the place from which the acceptance of tender has been issued.

28.3 Jurisdiction of Courts: The courts of the place from where the acceptance of tender has been issued shall alone have jurisdiction to decide any dispute arising out of or in respect of this contract.

28.4 One month notice will be given by either party for termination of Contract during the tenure of Contract for breach of Clause or otherwise.

29. Taxes and Duties

Suppliers shall be entirely responsible for all taxes, duties, license fees, octroi, road permits, etc., incurred until delivery of the contracted Goods to the Purchaser.

30. Performance Security:

(i) Successful bidder have to furnish **10%** of the order value as a performance security in the shape of Bank Draft/ Fixed Deposit Receipt / Bank Guarantee drawn in favour of the Registrar, Indian Institute of Technology (BHU) valid for a period of 60 days beyond the end of all warranty period / obligations. The Bank Draft / Fixed Deposit Receipt / Bank Guarantee should be issued from a nationalised bank in India.

(ii) Earnest Money Deposit will be refunded to the successful bidder after **Work Schedule # 12 - Acceptance of LAN implementation** and receipt of Performance Security.

12. The Institute Reserves The Right To:

- i.** Increase or decrease the quantity of the item(s) as per requirement.
- ii.** Reject the quotation in absence of not furnishing the documentary evidence in respect of Trade Tax Registration (C.S.T./U.P.T.T/VAT.), Income Tax and Trade Tax clearance certificates together with the performance of supplies in various branches/institutions.
- iii.** Reject the quotation in the event of non-furnishing the authentic documentary evidence in respect of Testing reports / Performance report of the concerned Govt. Organization / Institutions about the products being manufactured and marketed. The performance test of the product can be conducted at Institute level also for which charge will have to be borne by the suppliers.
- iv.** Reject the supplies already made, if not found up to the mark. Thorough checking may be adopted to test the correctness of the supply. In such an event further action may call to conform or discard the supply.
- v.** To reject any addition/alteration in respect of local dealerships intimated by the Principals after consideration of the case by the committee appointed by the Institute for the purpose.
- vi.** The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part:

- (a) If the Supplier fails to deliver any or all of the Goods within the period(s) specified in the purchase order, or within any extension thereof granted by the Purchaser.
- (b) If the Supplier fails to perform any other obligation(s) under the Contract.
- (c) If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

For the purpose of this Clause:

“Corrupt practice” means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

“Fraudulent practice: a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition;”

To reject any or all the offers without assigning any reasons thereof.

All disputes are subject to “*Varanasi Jurisdiction*” only.

The decisions of the Institute in all respect shall be final and binding on all. Kindly note that we attach great significance to the list of the organizations of repute where a firm is on rate contract, therefore please enclose certified photocopies of the rate contract.

Please ensure that your offer is complete in all respect as no further clarifications shall be sought from you and reaches us within the last date mentioned above. **The Institute shall not be responsible for any postal delay / loss in transit etc.**

Please mention our reference number and due date on the sealed envelope, otherwise your quotation may not be entertained.

A checklist (list documents to be attached) with proper signature, seal and date should be enclosed with tender document for verification; otherwise the proposal will not be entertained.

Sd.

*Indian Institute of Technology,
(Banaras Hindu University)*

NOTE: 1-While arranging the Tender Documents, check list should be placed on TOP.

TENDER FORM

(Techno commercial un-priced Bid)

(On the letter head of the firm submitting the bid)

Tender No. _____

To

The _____

Dear Sir,

1. I/We hereby offer to supply the items as listed in the schedule to this tender hereto/portion thereof as you may specify in the acceptance of Tender at the price given in the said Schedule and agree to hold this offer open for a period of 180 days from the date of opening of the tender. I/we shall be bound by a communication of acceptance issued by you.

2. I/We have understood the Instruction to bidders and Conditions of Contract in the form as enclosed with the invitation to the tender and have thoroughly examined the specifications quoted in the Schedule hereto and am/are fully aware of the nature of the goods required and my/our offer is to supply the goods strictly in accordance with the specifications and requirements.

3. A crossed Bank Draft in favour of the Registrar, IIT (BHU) for Rs. _____ (Rupees _____ only) as Earnest Money is enclosed. The Draft is drawn on _____ ..Bank payable at Varanasi

4. The following have been added to form part of this tender.

(a) Samples of items quoted for, as per instructions provided in the schedule of requirement.

(b) Schedule of requirements, quoting the make only duly signed and stamped.(without indicating price)

(c) Income Tax clearance certificate.

(d) Copy of last audited balance sheet.

(e) Copy of Valid Central/State sales tax registration certificate.

(f) Copy of relevant major purchase orders valuing more than Rs. 20000/- executed during last two years for Govt. Departments., PSUs & Central Autonomous bodies..

(g) Proof of manufacturing Unit, dealership certificate/general order suppliers.

(h) Statement of deviations from financial terms & conditions, if any.

(i) Any other enclosure. (Please give details)

5. We undertake to execute all orders which have been placed to meet emergent requirements on priority basis.

6. Certified that the bidder is: A sole proprietorship firm and the person signing the bid document is the sole proprietor/constituted attorney of the sole proprietor,

Or

A partnership firm, and the person signing the bid document is a partner of the firm and he has authority to refer to arbitration disputes concerning the business of the partnership by virtue of the partnership agreement/by virtue of general power of attorney.

Or

A company and the person signing the document is the constituted attorney.

(NOTE: Delete whatever is not applicable. All corrections/deletions should invariably be duly attested by the person authorized to sign the bid document).

7. We do hereby undertake that, until a formal notification of award, this bid, together with your written acceptance thereof shall constitute a binding contract between us.

Yours faithfully,
(Signature of bidder)

Dated this day of _____

Address: _____

Telephone: _____

FAX _____

E-mail _____

Company seal

CHECKLIST FOR BID/TENDER SUBMISSION

The following check-list must be filled in and submitted with the bid document:

Pre-qualification Bid

- | | |
|--|-----------------|
| 1. Was the bid document issued to you? | Yes/No |
| 2. Have you attached the techno commercial un-priced bid form duly filled in appropriately? | Yes/No |
| 3. Have you attached a copy of a compliance list against the technical Specification (for each point)? | Yes/No |
| 3. Have you attached a copy of the last three years audited balance sheet and profit & loss statement of your firm and all the documents required to prove your pre-qualification credentials? | Yes/No |
| 4. Have you attached the details of the income tax clearance certificate, proof of manufacturing unit/ dealership letter and copy of Central/State sales tax registration certificate. | Yes / No |
| 5. Have you attached the copies of relevant work orders from Govt. Deptt. /PSUs and Central Autonomous Bodies. | Yes / No |
| 6. EMD: Have you submitted EMD asked for- | Yes/No |
| 7. Have you enclosed the schedule of requirement indicating the make offered without indicating the pricing components along with the techno commercial un-priced bid. | Yes/No |
| 8. Have you submitted the bids both techno commercial un-priced and priced bid separately for each tender? | Yes/No |
| 9. Have you enclosed the statement of deviations from financial terms and conditions, if any? | Yes/No |
| 10. Have you enclosed compliance statement form? | Yes / No |
| 11. Have you enclosed duly signed Annexure – E Mandatory Undertaking? | Yes / No |

Priced Bid:

- | | |
|---|--------|
| 1. Have you signed and attached the priced bid form. | Yes/No |
| 2. Have you attached the schedule of requirements duly priced | Yes/No |
| 3. Have you attached the Declaration / integrity pact (as applicable) | Yes/No |
| 4. Have you provided the price bid in CD in price bid envelope | Yes/No |

The guarantee shall be irrevocable and shall remain valid up to (This date should be 6 months after execution of the order). If any further extension of this guarantee is required the same shall be extended to such required period (not exceeding one year) on receiving instruction from M/s..... on whose behalf this guarantee is issued.

In witness whereof the Bank, through its authorized officer has set its hand and stamp on this day of at witness (Signature)

WITNESS

(Signature).....

Name in (Block letters)

Designation

(Staff Code No.).....

(Bank's common Seal)

Official address:

Attorney as per power of Attorney No.

Date:

DECLARATION

1. I, ----- Son /Daughter of Shri -----
----- Proprietor/Partner/CEO/MD/Director/ Authorized

Signatory of M/s. ----- am competent to sign this declaration and execute this tender document.

- 2. I have carefully read and understood all the terms and conditions of the tender and hereby convey my acceptance of the same.
- 3. The information / documents furnished along with the above application are true and authentic to the best of my knowledge and belief.
- 4. I/ we/ am are well aware of the fact that furnishing of any false information/ fabricated document would lead to rejection of my tender at any stage besides liabilities towards prosecution under appropriate law.
- 5. Each page of the tender document and papers submitted by my Company is authenticated, sealed and signed, and I take full responsibility for the entire documents submitted.

----- Signature of the Authorized Person

Date: -----

Place: -----

Full Name: -----

Company Seal: -----

SCHEDULE OF REQUIREMENTS

1. Technical Specifications for LAN:
As per Annexure ó A
2. Work Schedule
As per Annexure ó B
3. Manpower and Helpline Software
As per Annexure ó C
4. Reference BoQ
As per Annexure ó D
5. Mandatory Undertaking
As per Annexure ó E

PRICE BID

(MUST be submitted in a separate SEALED envelope Super-scribed as PRICE BID)

6. Price Bid
As per Annexure ó F

TENDER FOR

TECHNICAL COMPLIANCE STATEMENT

(To be submitted by bidder duly filled on Annexure A, B, C, D and E)

S.No.	Main Item	Specification	Whether the instrument complies with the required specification (Yes / No / Better)	If no or better specification, then provide your comment accordingly
1.		<i>Technical Specifications for LAN (Annexure – A)</i>		
2.		<i>Work Schedule (Annexure – B)</i>		
3.		<i>Manpower and Helpline Software (Annexure – C)</i>		
4.		<i>Reference BoQ (Annexure – D)</i>		
5.		<i>Mandatory Undertaking (Annexure – E)</i>		
6.	Services	<i>As per Work Schedule (Annexure B)</i>		
7.	Warranty	<i>As per Note 7 and 8 of Price Bid (Annexure F)</i>		
8.	A.M.C.	<i>After completion of warranty period</i>		
9.	Miscellaneous, if any			

The above compliance statement form is only indicative and can be modified according to requirements of the bidder.

Date :

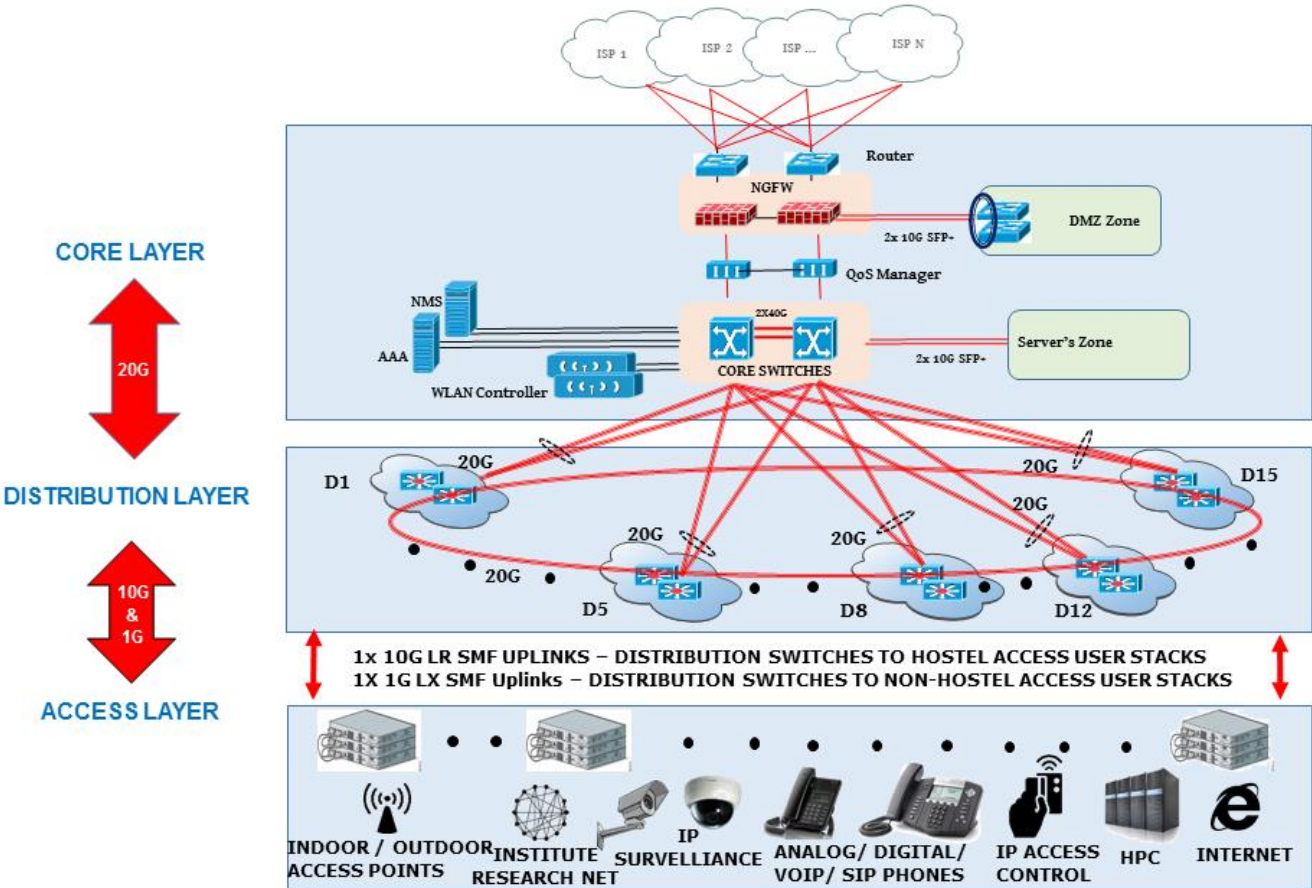
Signature of the Authorised Official with Seal

TECHNICAL SPECIFICATIONS FOR LAN

This document consists of the Tender's Technical Specifications and Mandatory Compliance Standards, as have been desired as minimum, for the IIT (BHU) Local Area Network

By all means and scope, this is binding on the bidders, to follow the design. Further, bidders may suggest optional components as add-on features along with quoting respective costs, as an additional offer, which, however shall not be the mandatory part of this tender.

Network Schematic:



Mandatory General Compliance

Complete network including Active Devices **MUST** be able to run in full capacity under normal ambient temperature, humidity, restarts due to power failures and with non-artificial cooling, as may prevail within IIT (BHU) Campus. An explicit undertaking and statement **MUST** be incorporated in solution

Broad Guidelines for Network Implementation

1. Complete network has to be implemented in star topology using exclusive rings for each active device in fail-safe, high-availability configuration, except access switches. Network requires to create HA connections to core from day 1 and only create options of HA at other location, wherein passive work required would be completed as part of this tender
2. For Core to Distribution Star Network, window cut OFC (with one tube, 12 core per distribution point), along with 12 core armoured OFC up to the switch should to be used with industry grade joint enclosure, as per specifications.
3. For the Distribution to Distribution ring, 24 Core 4-tube OFC in Ring Topology should be used.
4. For Distribution to Access stacks, window cut OFC (with one tube, 06 core per access switch), along with 06 core unarmoured OFC up to the switch should to be used with industry grade joint enclosure.
5. There will be 01 physical LAN, implemented as per specifications under this project, exclusively dedicated for High Speed Internet Access on IIT (BHU) Campus LAN. By using remaining redundant fibre strands in respective tubes, additional passive work for creating physical LANs will be configured from day 1, between Core to all Access Switches for future use such as (i) Analog and IP Telephony (ii) Biometrics and Access Control (iii) Video/ IP Surveillance (iv) HPC (v) Institute Research Net (IoT/ Fog/ Mist etc.) etc.
6. Bidder **MUST** quote detailed bill of material along with **OEM part-codes** for each products in the technical bid.
7. Financial bid shall be opened only for successful bidders post technical bid evaluation.
8. The bidder **MUST** submit step-by-step schedule of work with complete details, in the technical bid.
9. During on-site implementation, the bidder **MUST** seek formal technical approval of the step-by-step implementation plan, from the Chairman, Institute Networking Committee, before actual execution of the work.
10. The bidder shall also provide progress report of the execution of work, as permitted under item # 9 (as above), with full details, through the designated Project Coordinator.
11. Preparation of the documentation and its informal, day-to-day verification by the Chairman, Institute Networking Committee shall be a continuous process throughout the tenure of work implementation.
12. The solution should eventually deliver all specifications and features as desired, as and where deliverable, without any non-compliance
13. All quoted products must be available with the OEM, on the date of bidding with publicly referenceable links from their website.

Aggregation Service Router

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Router should be a modular aggregation platform. It should support broadband aggregation for voice, video, data, and mobility services with QoS scaling to a large number of queues per device.	
2	Router should have 4 nos. of 10/100/1000 Base-T ports and 2 nos. SFP based ports.	
3	Router should have at least 1 open slots for additional LAN/ WAN modules other then asked ports.	
4	Router should have 2x10 Gigabit SFP+ ports from day 1	
5	Router should have minimum 8 GB RAM from day 1.	
6	Router should have DES, 3DES and AES Standards through dedicated encryption module/processor. Should support IPSec with IKEv2 and Suite-B Encryption	
7	Router shall have hot swappable 1:1 redundant internal power supply	
8	Router should have a minimum performance of 15 Mpps and 10 Gbps of bandwidth, Scalable to 20 Gbs in future .	
9	Router should support static Routes, OSPFv2, OSPFv3, BGP4, MBGP, BFD, Policy based routing, IPv4 and IPv6 tunnelling, MPLS LDP, MPLS L3VPN, MPLS L2VPN , MPLS TE, FRR Link & Node Protection, LDP, MPLS Static label, MPLS VRF-aware static labels, LDP - Session Protection, LDP - Graceful Restart, MPLS L2VPN Pseudo wire Redundancy with TE/FRR protection, Support for QinQ to Ethernet/VLAN Ethernet/IP interworking, MPLS VPN - Carrier Supporting Carrier (CsC), CsC with IPv4 BGP label distribution (RFC 3107)	
10	Router should support IGMP v1/v2/v3 and PIM multicast routing	
11	Should support other IP Services like GRE tunnel, IPv4 tunnel, IPv6 tunnel, Virtual Router Redundancy Protocol (VRRP), Network Address Translation (NAT), Access Control Lists (ACLs)	
12	Shall have 802.1p class of service, IP differentiated service code point (DSCP) and IP precedence,	
13	Routers should support marking, classification, policing and shaping, Hierarchical QoS for Traffic Management inspections, QoS classification with TCP Application traffic. The router shall provide up to 16k queues for deployment of per-user per-application per-port QoS.	
14	Router should support SSHv2, SNMPv2c, SNMPv3, NTPv3 and NTPv4	
15	Routers should support AAA using RADIUS and TACACS+	
16	Support for accounting of traffic flows for network planning and security purposes. Router shall provide application recognition through analysis of flows.	

17	Support for accounting of traffic flows for network planning and security purposes. Router shall provide application recognition through analysis of flows.	
18	Router should support monitoring of network traffic with application level insight with deep packet visibility into web traffic, RTP-Based VoIP traffic and cRTP	
19	Router shall have traffic load balancing capability on dual WAN Links based on based on advanced criteria, such as reachability, delay, loss, jitter and bandwidth utilization.	
20	Router / Router's Operating System should be tested and certified for EAL 4 or above under Common Criteria Certification	
21	Router should be IPv6 Certified/IPv6 logo ready	
22	Router should have direct OEM TAC support and hardware replacement warranty for 5 Years.	

Next Generation Firewall (NGFW)

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	The UTM solution should be Hardware based, Reliable, purpose-built security appliance with hardened operating system that eliminates the security risks associated with general-purpose operating systems. The delivered network security should be hack-proof, intrusion-free, cyber-crime detectable CERT-IN and Institute's Computer Assets and Information Technology (CAIT) Policy compliant and updated for the whole period of contract.	
2	Should support 1:1 high availability and stateful failover.	
3	Should have minimum 6 x 10G supporting SFP+ interfaces & 8 x 1G BaseT RJ45 ports to cater to connectivity from multiple service providers and load balance them.	
4	The Firewall should have ultra-low latency (~ < 5 micro seconds).	
5	The Firewall should support IPSEC & SSL VPN, inbound and outbound both. The IPSEC VPN should deliver at least 20 Gbps throughput to ensure connectivity with Multiple colleges / University catering to Data / Voice traffic over IPSEC tunnel.	
6	The Firewall should be able to handle very high concurrent sessions like 20 Million or above and at least 400,000 of new sessions per second.	
7	The solution should support Virtualization with 10 Virtual contexts scalable to 250 to help University use the logical Firewalls for internal / student projects run isolated with each other.	
8	The proposed solution should have integrated IPS module with at least 10Gbps of throughput for deep pack inspection of traffic and also should be able to inspect encrypted SSL traffic.	
9	The solution should have at least 5 Gbps of Threat Protection throughput and the so that the entire traffic is scanned before reaching the end user. The antivirus engine should be able to inspect the encrypted traffic like HTTPS, SMTPS, POP3s , IMAPs, FTPs etc.	
10	The proposed system should have integrated Web Content Filtering solution which can be used to block any unwanted sites / category of sites to adhere to University IT guidelines.	
11	The Firewall & IPSEC VPN module shall belong to product family which minimally attain Internet Computer Security Association (ICSA) Certification or equivalent	
12	The proposed system should have modules/Licenses for integrated Web Content Filtering along with IPS, Application Control, Antivirus / Malware Protection & Antispam.	
13	Proposed solution should be an Appliance/Virtual Machine based solution. In case of Virtual Machine based, required server must be quoted by bidder.	
14	Should have direct OEM TAC support and hardware replacement warranty for 5 Years.	

Quality of Service (QoS) Manager

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Proposed solution should be a hardware appliance. It should be able to control the bandwidth on both in-bound and out-bound sides of the connection for at least 12000 users, in a single appliance.	
2	The equipment must provide at least FOUR 1Gbps Ports and One dedicated Management port. The equipment must support expansion module up to at least 2 separate network segment and should be scalable to support 10Gb Bandwidth shaping in future.	
3	The reporting and graphing function must be integrated in the equipment, without any add-on or external device. The precision must be down to minute level and traffic data must be stored on the device locally as well as storable in remote storage back-up. User/ group wise reporting, shaping policies and control must be same device.	
4	Should support TCP Rate Control. It must also support Web/Web 2.0 application/ operations shaping and controls.	
5	Should support Per Flow Limits and peak reporting	
6	Should support fail-close in the event of power outage, software or hardware failure.	
7	Web/URL category shaping and controls and must support peak reporting.	
8	Must support anomaly detection and DDoS protection. Must also support Real-time URL class updates and dynamic portions.	
9	Should Support centralized management and reporting	
10	Should have direct OEM TAC support and hardware replacement warranty for 5 Years.	

WLAN Controller

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Must be compliant with IEEE CAPWAP for controller-based WLANs or equivalent feature and it should be appliance based.	
2	WLC should support IPv4 and IPv6 including IEEE 802.11a, 802.11b, 802.11g, 802.11d, WMM/802.11e, 802.11n, 802.11ac standards.	
3	WLC must have minimum 2 x 10G SFP+ of uplink interfaces.	
4	WLC should support up to 1500 Access points and up to 20000 Devices in a single chassis. It should be scalable to 3000 AP's through single appliance or through cluster with single interface management of all WLC's. It should also support AP license migration from one WLC to another, in case of future upgradation.	
5	WLC Must provide Active: Active with 1+1 and N+1 redundancy. The controllers shall be implemented in HA mode.	
6	WLC should provide air-time fairness between these different speed clients ó slower clients should not be starved by the faster clients and faster clients should not adversely affected by slower clients.	
7	WLC Must support an ability to dynamically adjust channel, power settings and airtime, based on the RF environment.	
8	WLC should support L2/L3 discovery for AP's.	
9	Should support adhere to the strictest level of security standards, including 802.11i Wi-Fi Protected Access 2 (WPA2), WPA, 802.1X with multiple Extensible Authentication Protocol (EAP) and 802.1x Authentication.	
10	Controller should support WIDS/WIPS includes rogue AP detection, classification and automatic containment feature and prevention for DOS attacks.	
11	WLC should support L2/L3/L4 Access Control and L2 Client Isolation so User cannot access each other's devices. Isolation should have option to apply on AP or SSID's	
12	Controller/System should support Access Control based on Identity/Role/ Device/Time or Application.	
13	Must support client roaming in L2/L3 networks and also across controllers.	
14	Controller should support integrated or External AAA servers including Microsoft AD and Linux based open source AAA.	
15	The Controller/System should support L7 Application/OS/Device finger printing and device type based policies i.e allow or deny, Bandwidth rate limit, VLAN mapping	
16	Wireless Network should support deep packet inspection for all user traffic	

	across Layer 4-7 network to analyses information about applications usage.	
17	The controller/System should be able to raise critical alarms by sending an email and/ or SMS.	
18	Per SSID or dynamic Per user bandwidth Rate Limiting	
19	Support advanced multicast features and WMM support to provide best performance on Video applications and should have	
20	Controller/ System should have BYOD features and should support integrated/ and external captive portal integration.	
21	System should provide a web-based application that allows non-technical staff to create Guest accounts with validity for fixed duration like hours or days and restricted to number of devices. Password to guest should be shared over Email and SMS (SMS gateway services shall be provided by Campus).	
22	Proposed solution should be an Appliance based solution.	
23	Should have direct OEM 24x7 TAC support with Software upgrade and NBD Advanced hardware replacement warranty for 5 Years.	

Authentication, Authorization, and Accounting (AAA)

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Proposed AAA solution should be an Appliance based solution.	
2	Proposed solution must support integration and security for both wired and wireless infrastructure. It should be ready to handle 3000 users and 6000 concurrent Devices from day1 and scalable for up to 6000 users and 12000 Devices. Devices are mixture of guest users, institute staff, machine endpoints.	
3	AAA should support BYOD with Self-service authorization and device provisioning via open network.	
4	It must allow for Machine Authentication (or an appropriate alternative) by AD-joined Windows laptops/tablets allowing wireless connection before user logon.	
5	The Solution should have detailed reporting capabilities in conjunction with NMS based on sharing contextual sharing between AAA and NMS. AAA must issue certificates to mobile devices like Tabs/iPads - to allow machine authentication for non-AD joined devices.	
6	The proposed solution should have Built-in user database with per device/user credential management and should also provide Seamless backend integration with RADIUS, AD, LDAP	
7	Solutionshould be Threat-Centric and conduct scan test for vulnerability assessment of Endpoint devices and control access based on endpointø threat score Solutionshould be Threat-Centric and conduct scan test for vulnerability assessment of Endpoint devices and control access based on endpointø threat score.	
8	Proposed solution should address (but not limited to) the below requirements: Intuitive user/device management and Unified device visibility and reporting Self-service 802.1X and guest access. Should also have option for MAC authentication for selective devices and Social Login. Integrated AAA server with key policy definitions. Should also support integration with external AAA server and CA server.	
9	AAA should be able to integrate with existing user databases like Microsoft AD/LDAP/Certificate Authority	
10	It should be scalable to enforce device-specific settings for antivirus, firewall and OS patches, passcodes, NAC, proxies	
11	It should be able to enforce custom user and device privileges	
12	It should have direct OEM 24x7 TAC support with software upgrade and NBD Advanced hardware replacement warranty for 5 Years.	

Network Management System (NMS)

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	NMS shall be able to monitor and configure 1000 devices (should be proposed against the proposed devices) and should have scalability to manage up to 2000 devices in future. NMS shall be able to manage both wired and wireless networks in single pane of glass management.	
2	NMS should be scalable to provide Deep application visibility using AVC, NetFlow/Sflow, NBAR or packet inspection to recognize a wide variety of applications and SNMP.NMS should be able to provide Network topology.	
3	NMS solution should deliver pinpoint visibility into the who, what, when, where, and how of wireless access through its own data collection and key integrations. It should support spatial / floor mapping; integrated location-based tracking of client	
4	Should provide a customizable at-a-glance summary of all discovered devices and existing network switches to proactively identify problem areas and help prevent network downtime. The network has to be manageable at Network Operations Center (NOC) and through secured browser.	
5	Should be able to discover, configure, monitor, manage, and deploy configurations to dynamically update groups of devices.	
6	Should allow flexible definitions of administrator roles and responsibilities with RBAC (Role based Access Control) for different teams.	
7	Should enable performance management by providing customizable dashboards and historical data visibility	
8	Should be able to generate reports designed to summarize utilization of and traffic patterns on network interfaces.	
9	<p>Should allow administrators to track device configuration changes, enabling viewing, retrieval, and restoration of configuration files, and monitoring of configuration drift for troubleshooting purposes.</p> <p>The system design should provide access to only authorized users, RBAC and by using Secure Digital Certificates to completely trace back an individual user, in case of Cyber Crime or any other cyber investigation, as per the Computer Assets and Information Technology (CAIT) Policy of IIT (BHU).</p>	
10	Should have direct OEM 24x7x365 TAC support with software upgrade and NBD Advancedhardware replacement warranty for 5 Years.	

CORE SWITCH

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	The proposed Switch should be a chassis based and have minimum 4 interface slots and 2 supervisor slots.	
2	Switch should have 48x 1/10G SFP+ Ports, 48x 1G / 10G Base-T RJ45 and 8x 40 Gig QSFP+ Ports spread across two cards.	
3	All Fiber Transceiver module to be provided fully populated with Single Mode 10G Transceiver	
4	Switch should have minimum 2 TB per interface slot throughput on Day 1. Switch should be scalable to support additional 96 x10G Ports or 48 x 40G Ports or 8 x100G Ports at line rate performance	
5	The proposed line-cards must have non-blocking and wire-speed performance for all packet sizes for IPv4 & IPv6 traffic and should have distributed forwarding architecture.	
6	Should have redundant and replaceable Supervisor / CPU, Management Modules, Replaceable Fabric Modules/ Power Supply and Fans to provide full redundancy and high availability. The performance of the switch should not degrade in case of any failure.	
7	Chassis should support 100G interface line-cards for future connectivity requirement without any replacement in hardware configuration.	
8	Switch should have IPv4 & IPv6 static routes, OSPF, OSPFv3, PBR, PIM-SM / DM, BGP and VRF.	
9	Should support Layer 2 protocols 802.1d, 802.1s, 802.1w and 802.3ad.	
10	Switch should support minimum 8 hardware queues per port for applying various traffic prioritization through QoS.	
11	Switch should support minimum 2K ACL's, 4K Multicast and 8K Unicast Routes for IPv4 and IPv6.	
12	Should support Port Security and RADIUS / TACACS+ integration.	
13	Should be upgradable to support OpenFlow or equivalent functionality, to support SDN (Software Defined Networking). The SDN functionality shall be native to switch.	
14	Should have NetFlow / sflow to support 64K entries functionality for traffic monitoring.	
15	The proposed switch should be IPv6 logo certified. Desirable: EAL2/ NDPP/NDcPP certification.	
16	Should have direct OEM 24x7x365 TAC support with software upgrade and NBD Advanced hardware replacement warranty for 5 Years.	

DISTRIBUTION SWITCH

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Should have minimum 12x 1/10G SFP+ Ports with additional 4x10G SFP+ ports for dual uplink to Core in HA and Distribution Ring.	
2	Switch should support stacking with dedicated stacking ports and 120 Gbps of stacking bandwidth additional to above mentioned data and uplink ports.	
3	Switch should have Operating Temperature of 0-45 Degree Centigrade	
4	Switch access ports should be fully populated with 1G Single Mode transceiver and uplinks with 2x10G Single Mode Transceivers	
5	The proposed interfaces must have non-blocking and wire-speed performance for all packet sizes for IPv4 & IPv6 traffic and should have distributed forwarding architecture.	
6	Should have redundant internal Power Supply and Fans.	
7	Switch should have IPv4 & IPv6 static routes, OSPF, OSPFv3, PBR and PIM-SM / DM.	
8	Should support Layer 2 protocols 802.1d, 802.1s, 802.1w and 802.3ad.	
9	Switch should support minimum 8 hardware queues per port for applying various traffic prioritization through QoS.	
10	Switch should support SP Queuing, minimum 2K ACL's, 4K Multicast and WRED/WTD. Network OS, 8K Unicast Routes, IPv4 and IPv6 compliant.	
11	Should support Port Security and RADIUS / TACACS integration.	
12	Should be upgradable to support OpenFlow or equivalent functionality, to support SDN (Software Defined Networking). The SDN functionality shall be native to switch	
13	Switch should support port security, DHCP snooping, Dynamic ARP inspection, IP Source guard, BPDU Guard, Spanning tree root guard. Ipv6 RA guard .	
14	Should have NetFlow/sflowto support 32K entries functionality for traffic monitoring.	
15	The proposed switch should be IPv6 logo certified. Desirable: EAL2 / NDPP / NDcPP certification.	
16	Should have direct OEM 24x7x365 TAC support and hardware replacement warranty for 5 Years.	

48 PORTS LAYER 2 ACCESS SWITCH

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Should have minimum 48x 10/100/1000 BaseTPoE/PoE+ RJ45 Ports (minimum 370W) plus 2x 1/10G BaseX SFP+ Ports populated with 1G SFP. Switch would use 1G uplinks on day 1 and be upgradable to 10G operations in future.	
2	Should have dedicated 48 Gbps of stacking bandwidth (excluding uplink ports) proposed with stacking cable. Stacking should support upto 8 Stacking members	
3	Switch should have Operating Temperature of 0-45 Degree Centigrade	
4	Switch should support External/Internal Redundant Power Supply	
5	The proposed interfaces must have non-blocking and wire-speed performance for all packet sizes for IPv4 & IPv6 traffic and should have distributed forwarding architecture.	
6	Should support Layer 2 protocols IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z, 802.3az, 802.3af, 802.3at.	
7	Switch should have IPv4 & IPv6 static routes from day 1	
8	Switch should have minimum 1K ACLs and 1K IPv4 and IPv6 multicast groups.	
9	Switch should support minimum 8 hardware queues per port for applying various traffic prioritization through QoS. Switch should support SP Queuing and WRED/WTD	
10	Should support 802.1x authentication, Port Security and RADIUS / TACACS integration.	
11	Should be upgradable to support OpenFlow or equivalent functionality, to support SDN (Software Defined Networking). The SDN functionality shall be native to switch	
12	Should have NetFlow / sFlow functionality for traffic monitoring.	
13	Switch should support port security, DHCP snooping, Dynamic ARP inspection, IP Source guard, BPDU Guard, Spanning tree root guard and IPv6 First Hop Security.	
14	The proposed switch should be IPv6 logo certified. Desirable: EAL2/NDPP/NDcPP certification.	
15	Should have direct OEM 24x7x365 TAC support with software update and NBD Advanced hardware replacement warranty for 5 Years.	

24 PORTS LAYER 2 ACCESS SWITCH

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Should have minimum 24 x 10/100/1000 BaseTPoE/PoE+ RJ45 Ports (minimum 370W) plus 2x 1/10G BaseX SFP+ Ports populated with 1G SFP. Switch would use 1G uplinks on day 1 and be upgradable to 10G operations in future.	
2	Should have dedicated 48 Gbps of stacking bandwidth (excluding uplink ports) proposed with stacking cable. Stacking should support upto 8 Stacking members	
3	Switch should have Operating Temperature of 0-45 Degree Centigrade	
4	Switch should support External/Internal Redundant Power Supply	
5	The proposed interfaces must have non-blocking and wire-speed performance for all packet sizes for IPv4 & IPv6 traffic and should have distributed forwarding architecture.	
6	Should support Layer 2 protocols IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z, 802.3az, 802.3af, 802.3at.	
7	Switch should have IPv4 & IPv6 static routes from day 1	
8	Switch should have minimum 1K ACLs and 1K IPv4 and IPv6 multicast groups.	
9	Switch should support minimum 8 hardware queues per port for applying various traffic prioritization through QoS. Switch should support SP Queuing and WRED/WTD.	
10	Should support 802.1x authentication, Port Security and RADIUS / TACACS integration.	
11	Should be upgradable to support OpenFlow or equivalent functionality, to support SDN (Software Defined Networking). The SDN functionality shall be native to switch	
12	Should have NetFlow / sFlow functionality for traffic monitoring.	
13	Switch should support port security, DHCP snooping, Dynamic ARP inspection, IP Source guard, BPDU Guard, Spanning tree root guard and IPv6 First Hop Security.	
14	The proposed switch should be IPv6 logo certified. Desirable: EAL2 /NDPP / NDcPP certification.	
15	Should have direct OEM 24x7x365 TAC support with software update and NBD Advanced hardware replacement warranty for 5 Years.	

INDOOR ACCESS POINTS

S.N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Wall/Ceiling mounted Wi-Fi access-point suitable for indoor use with at least 2 10/100/1000Mbps Ethernet ports supporting standard 802.3af/at POE+.	
2	802.11ac AP should operate in 2.4 GHz (450 Mbps or more) and 5 GHz simultaneously and capable of minimum 1.7Gbps on 5 Ghz for 802.11ac clients supporting minimum 4x4 MIMO with 4 spatial streams. It must support minimum 3 concurrent MU-MIMO users.	
3	Should support minimum 16x BSSID per AP. Should have Operating Temperature of 0-40 Deg Centigrade	
4	The access point should be capable of performing security scanning and serving clients on the same radio. It should be also capable of performing RF analysis and security scanning using same radio.	
5	Must support minimum 22dbm of transmit power in both 2.4Ghz and 5Ghz radios and minimum 3dB antenna gain. AP should support 20MHz, 40MHz and 80MHz channel size.	
6	AP should support band steering and load balance across bands and AP's.	
7	Security mechanisms should be in place to protect the communication between the Access Point controller and the Access Points.	
8	The access point should support WPA2 enterprise authentication and AES/CCMP encryption.	
9	AP should support 802.11k for Radios Resource management and 802.11r for fast roaming.	
10	Implement Wi-Fi alliance standards WMM, 802.11d, 802.11h and 802.11e and should support VoWLAN	
11	AP must support L7 Application Identification and spectrum analysis functions	
12	AP should support Minimum -90dB Receiving sensitivity. AP should support Receiver sensitivity Threshold to reduce noise reception in the AP to increase SNR and performance	
13	802.11 a/b/g/n/ac wave 2 functionality certified by the Wi-Fi alliance, Should be plenum rated (UL2043), and RF transmission power should be approved by WPC.	
14	Should have direct OEM 24x7x365 TAC support with software update and NBD advanced hardware replacement warranty for 5 Years.	

OUTDOOR ACCESS POINTS

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Wall/Ceiling/Poll mounted Wi-fi access-point suitable for outdoor use with at least 1 10/100/1000Mbps Ethernet ports supporting standard 802.3af/at POE+. Should have additional SFP port for direct fiber termination if required.	
2	802.11ac AP should operate in 2.4 GHz (450 Mbps or more) and 5 GHz simultaneously and capable of minimum 1.3Gbps on 5 Ghz for 802.11ac clients supporting minimum 3x3 MIMO with 3 spatial streams. It must support minimum 3 concurrent MU-MIMO users.	
3	Should support minimum 16x BSSID per AP. Should have Operating Temperature of 0-55 Deg Centigrade	
4	The access point should be capable of performing security scanning and serving clients on the same radio. It should be also capable of performing RF analysis and security scanning using same radio.	
5	Must support minimum 29dbm of transmit power in both 2.4Ghz and 5Ghz radios and minimum 3dB antenna gain. AP should support 20MHz, 40MHz and 80MHz channel size.	
6	AP should support band steering and load balance across bands and AP's.	
7	Security mechanisms should be in place to protect the communication between the Access Point controller and the Access Points.	
8	The access point should support WPA2 enterprise authentication and AES/CCMP encryption.	
9	AP should support 802.11k for Radios Resource management and 802.11r for fast roaming.	
10	Implement Wi-Fi alliance standards WMM, 802.11d, 802.11h and 802.11e and should support VoWLAN	
11	AP must support L7 Application Identification and spectrum analysis functions	
12	AP should support Minimum -90dB Receiving sensitivity. AP should support Receiver sensitivity Threshold to reduce noise reception in the AP to increase SNR and performance	
13	802.11 a/b/g/n/ac wave 2 functionality certified by the Wi-Fi alliance, Should be IP67 rated and RF transmission power should be approved by WPC.	
14	AP should support up to 100-mph sustained winds and up to 165-mph wind gusts	
15	Should have direct OEM 24x7x365 TAC support with software update and NBD advanced hardware replacement warranty for 5 Years.	

OTDR (Optical time-domain reflectometer) with all accessories

S. N.	SPECIFICATION	Compliance YES/NO
1	Wavelength	1310 ± 20
		1550 ± 20
2	Dynamic Range at 20us (dB)	39/37
3	Event dead zone (m)	0.8
4	Attenuation dead zone (m)	3.5
5	Distance Range (km)	0.1, 2.5, 5, 10, 20, 40, 80, 160, 260, 400
6	Pulse width (us)	5, 10, 30, 50,100, 275, 500,1000, 2500, 10 000, 20 000
7	Linearity (dB/dB)	± 0.03
8	Loss threshold (dB)	0.01
9	Loss resolution (dB)	0.001
10	Sampling resolution (m)	0.04 to 5
11	Sampling points	Up to 256 000
12	Distance uncertainty (m)	± (0.75 + 0.0025 % x distance + sampling resolution)
13	Measurement time	User-defined (60 min maximum)
14	Typical real-time refresh (Hz)	3
15	Stable source output power ^P (dBm)	-2.5
16	Visual Fault Locator	Should be supplied along with OTDR
16.a	Class of Laser	Class 2
16.b	Operation (Hz)	2 to 4
16.c	Wavelength (nm)	630 to 645
16.d	Emitter type	Laser
16.e	Power output (typical) (mW)	0.6
16.f	Distance range a (typical) (km)	5
16.g	Operation mode	Pulsed and CW
17	Optical Power Meter	Should be supplied along with OTDR
17.a	Calibrated wavelengths (nm)	830 nm, 850 nm, 980 nm, 1300 nm, 1310 nm, 1450 nm, 1490 nm, 1550 nm, 1590 nm and 1625 nm.
17.b	Power range (dBm)	26 to 650
17.c	Detector Type	GeX
17.d	Uncertainty (%)	± 5 % ± 10 nW
17.e	Display resolution (dB)	0.01, From 26 dBm to 635 dBm.
17.f	Automatic offset nulling range	Power > 625 dBm
17.g	Tone detection (Hz)	270/1000/2000
18	Laser safety	Class 2
19	Display	7 in (178 mm) outdoor-enhanced touchscreen, 800 x 480 TFT
20	Processing & Reporting	USB data transfer
21	Interface	USB A main - 2 Nos, RJ-45 LAN 10/100 Mbit/s
22	Connectivity	Flexible connectivity USB, mobile, and VNC configurations
23	Inspection Probe	OTDR should support inspection probe

24	Screen Capture	The platform should support screen capture feature	
25	Battery LED	Battery indication LED should be available	
26	General Features	The OTDR module should be Support intelligent and dynamic application that turns complex OTDR trace analysis into a one-touch task.	
		The OTDR should automatically perform link recognition, and should be able to set the optimal parameters and launch multiple acquisitions and multiple analyses at multiple wavelengths	
		The OTDR should be able to set test parameters with ready-to-use intelligence.	
		The OTDR should support a simplified link mapper which should provide a straightforward view of the fiber under test, with clear icons and pass/fail verdicts.	
		The OTDR should be able to give actual results with end-to-end visual assessment of link, complete with event characterization and fiber status.	
27	Storage	2 GB internal memory (20 000 OTDR traces, typical)	
28	Batteries	Rechargeable lithium-polymer battery	
29		12 hours of operation	
30	Power	Power supply AC/DC adapter, input 100-240 VAC, 50-60 Hz, 9-16 V DCIN 15 Watts minimum	
31	Temperature	Operation -10 to 50 deg C , Storage -40 to 70 deg C	
32	Size (HxWxD)	200 mm x 155 mm x 68 mm	
33	Light Weight	1.29 Kg or lesser	
34	Warranty	5 Year	

Optical Fiber Fusion Splicer

(with all accessory including window cutting tools and diamond cutter)

S.No.	Technical Specifications		Compliance (Yes / No)
1	Applicable Fiber		
	(i) Material	Silica Glass	
	(ii) Fiber Type	SMF ,MMF ,DSF,NZ-DSF & others	
	(iii) Cladding Diameter	80- 150μm	
	(iv) Coating Diameter	0.1 ~ 1.0mm	
	(v) Cleave Length	8-16 mm (0.25 mm), 16mm (except 0.25mm)	
2	Standard Performance		
	(i) Splice loss (Typical)	SMF- 0.02 dB 0.01 dB NZDSF- 0.04 dB MMF- DSF- 0.04 dB	
	(ii) Splice Cycle Time	7 sec (quick mode)	
	(iii) Return Loss (Typical)	More than 60 dB	
3	Splice program	100 user modes	
4	Heating	10 heating modes	
5	Alignment Method	Core/Cladding /Intentional Axis Shift /Attenuation control	
6	Splice Data Storage	2000 Splices	
7	Tension Test	1.96N-2.25N	
8	Splice Method	Digital Analysis Core Alignment System	
9	Universal position clamp (for front and rear view)	Should be available	
10	Fiber Magnification	Should be available upto 300X with single microscope and upto 150X with dual microscope display	
11	Monitor Display	5.0ö Color High Resolution Display and 90° bi-directional view,	
12	Simultaneous Dual Image display	Should be available	
13	Attenuation splicing	Up to 20dB	
14	Startup Self Inspection	Should be available	
15	Automatic arc test	Should be available	
16	V Groove Illumination	Should be available	

17	Machine should have easy view of Environment information in home screen (Current Temperature and Pressure) to test/check ARC conditions as per required variation in atmosphere	Should be available	
18	Rugged Fiber Cleaver	To be supplied with the machine	
19	Fiber Cleaver should have facility to automatic reset after cleaving	Should be available	
20	Harsh weather conditions adaptability	Should be available	
21	Software Upgrade Via USB	Should be available	
22	Operating temperature	-10 to 50° C	
23	Operating humidity	Up to 95% RH (Non Condensing)	
24	Storage Temperature	- 40 to 80° C	
25	Altitude	upto 5000 m	
26	Ac power supply unit	100-240V 50/60 Hz	
	(i) DC Battery Pack (Option)	10.5-14 V	
	(ii) Interfaces	USB Master Port & COM	
	(iii) Splice and heat cycles	More than 170 cycles in a single battery charge	
	(iv) AC Adopter & Charger	10.5-14V	
	(v) Electrode Life	3500 arcs	
27	Warranty	5 Years	

Broad Guidelines for OFC Laying in Outdoor

All Optical Fibre etc. in Outdoor and Indoor must be freshly laid, in PLB HDPE (50mm outer diameter) pipes at a minimum depth of 250 cm, leaving 30 meter coil in Core, every distribution point and aggregation point, for Optical Fibre Cable using Horizontal Directional Drilling (HDD - also called as the trench less technology or micro-tunnelling) and laying of Optical Fibre Cable using the cable blowing method. No previous cabling work should be utilized. In case of road crossing, the Optical fibre cable shall be laid at a depth of 1.5 m through HDPE pipe encased in RCC pipes which shall extend three meters on either side of the end road to take care of any future expansion. Route and Joint indicators should be used to indicate underground OFC using a small brass/steel plate (15 X 15 cm) with all the offset/route details embedded on it. In the rodent prone areas Optical Fibre cable joint closures should be applied with BHC 10% dust (Benzene Hydro chloride 10%) to prevent rodent & termite damage. The method suggested is 10% dust of 1 kg is to be mixed in an approximate 2 kg of sand and applied around the optical fibre cable joint enclosures.

In case of further details on the laying, digging etc., it should be done as per latest BSNL National Tender Standards.

Passive OEM Compliance

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	ANSI/TIA/EIA 568-B Commercial Building Telecommunications Cabling Standard 6 March 2001	
2	ANSI/EIA/TIA-569-A Commercial Building Standard for Telecommunications Pathways and Spaces - February, 1998	
3	ANSI/EIA/TIA-606 Administration Standard for the Telecommunications Infrastructure of Commercial Buildings - February, 1993	
4	ANSI/TIA/EIA-607 Commercial Building Grounding and Bonding Requirements for Telecommunications - August, 1994	
5	Warranty - 25 Years Performance Warranty	
6	Service Labor Cost to be included in warranty Certificate (Warranty Certificate sample copy to be attached)	
7	All Passive Copper & Fibre cable with Components should be from same OEM only	
8	Passive OEM should present in India for more than 15 Years	
9	Need to Attach all Passive Item Datasheets for ensuring 100% Compliance	
10	Need to submit Single Passive OEM MAF only	

Cat 6 UTP Copper Cable LSZH (Zero/ Low Smoke Zero Halogen)

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Construction: U/UTP, 4 twisted pairs 305 Mtr. Reel	
2	Conductor: Solid Copper / Annealed bare copper	
3	Primary Insulation : Solid Polyethylene / HDPE	
4	Filler ó Cross / Bisector	
5	Sheath : LSZH 332.1 (Low Smoke Zero Halogen)	
6	Nominal O.D.: 1.045 + 0.02mm	
7	Nominal O.D: 6.1mm	
8	Minimal Wall: 0.55mm	
9	NVP: 67%	
10	D.C. Resistance : 9.38 ohm/100m	
11	Tested up to 250MHz or above	

Cat 6 Patch Panel 24 Port

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Material - Cold Rolled Steel (CRS) / Phosphor bronze with nickel plating Connector	
2	Graphite Grey Powdercoat / Powdercoated metal framework	
3	24 port configurations. Each jack should have spring loaded shutter inside the jack for 100% dust free environment.	
4	Allow for a minimum of 750 plug mating cycles or more	
5	Should individually replaceable I/Os	
6	Have port identification numbers on the front of the panel.	
7	Should have self-adhesive, clear label holders (transparent plastic window type) and white designation labels with the panel, with optional color labels / icons.	
8	Should have integrated rear cable management shelf (Cable support Bar) / Removable rear cable management tray	
9	Standards: TIA/EIA-568-C.2 Component Compliant	

Cat 6 UTP Copper Patch Cord 1/2/3/5 Mtr.

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Category 6 Equipment cords	
2	The work area equipment cords shall, at a minimum comply with proposed ANSI/TIA/EIA-568-C.2 Commercial Building Cabling Standards Transmission Performance Specifications for 4 pair 100Ω Category 6 Cabling.	
3	Should be UL / CSA Certified/ listed	
4	Conductor size: 24 AWG stranded bare copper	
5	Nominal outer diameter: 5.9mm or better	
6	Jacket: LSOH / LSZH	
7	Temperature range: - 20°C to + 60°C	
8	Operating life: Minimum 750 insertion cycles	
9	Contact material: Copper alloy	
10	Contact plating: 50µö Gold/100µöNickel	
11	ISO/IEC 60603-7-4 and FCC 47 Part 68/ EIA-TIA 568C.2	
12	Fire Propagation tests: LSOH Sheath	
13	Max voltage: 150 VAC (max)	
14	Max. Current : 1.5A @ 25°C	
15	Operating temperature: -20°C to +60°C	

Cat 6 Jack Information Outlet

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Category 6, EIA/TIA 568-C.2 ö 250MHz	
2	All information outlets for 100 Ω, 22-24 AWG copper cable shall: Use insulation displacement connectors (IDC)	
3	Allow for a minimum of 200 re-terminations without signal degradation below standards compliance limits.	
4	Be constructed of high impact, flame-retardant thermoplastic with color and icon options for better visual identification.	
5	Should have spring loaded integrated shutter / Dust Cover	
6	Should have Terminator cap	
7	ETL / UL Certified / Listed	
8	Datagate / Keytone Jack / Jack	

Faceplate / Wall Plate

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Single, Dual & Square plate, 86mmx86mm	
2	Write on labels in transparent plastic window ó supplied with plate	
3	Screw hole covers ó to be supplied with plate	
4	Plug in Icons ó Icon tree ó to be supplied with plate	
5	With or Without dustcover	
6	Should be able to support variety of jacks ó UTP, STP, Fiber, Coax etc.	

96 Core, Outdoor Loose Tube Armoured, 9/125µm, OS2 Type Fibre Cable

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Number of Tubes: 8	
2	Central Strength Member: Fibre Reinforced Plastic (FRP)	
3	Fibre Protection (Tubes): Polybutylene Terephthalate (PBT)	
4	Water Blocking: Thixotropic Gel (Tubes), Petroleum Jelly (Interstices)	
5	Core Wrapping: Polyethylene Terephthalate Tape/ Polyestere	
6	Double HDPE Sheathed : Inner Sheath: HDPE Outer Sheath HDPE (UV Stabilized)	
7	Armoring: Corrugated Steel Tape Armour Tape	
8	Max. Bending Radius-Full load: 20D or More	
9	Max. Crush Resistance-Short Term: 4000 N/10cm or More	
10	Max. Tensile Strength-Short Term: 3500N or More	
11	Operating Temperature Range: Storage Temperature Range: -20°C - +70°C, -20°C - +70°C	
12	Physical Characteristics Mode Field Diameter @ 1310 nm : 9.2±0.4 µm; Cladding Diameter: 125±1.0 µm	
13	ISO.IEC 11801 - 2nd Edition, type OS2; AS/ACIF S008;/ AS/NZS 3080/ ITU-T REC G 652D spec for Zero / Low Water Peak fibre; supports 10G+ data applications IEC 60793/60794-1 / Telcordia (BELLCORE) GR 20 STDS, TIA/EIA 568-C.3 / EIA 455, ROHS	

24 Core / 12 Core, Outdoor Single Sheathed, Armoured, 9/125µm, OS2 Type Fibre Cable

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Number of Tubes: 4 (min) for 24 Core, Uni tube for 12 Core	
2	Central Strength Member: Fibre Reinforced Plastic(FRP) / Ribbon central tube	
3	Fibre Protection (Tubes): Polybutylene Terephthalate (PBT)/ PBTP	
4	Water Blocking: Thixotropic Gel (Tubes), Petroleum Jelly (Interstices)	
5	Core Wrapping: Polyethylene Terephthalate Tape	
6	Peripheral Strength Member: Two Steel wires / FRP Rods/ Steel Strength Rods	
7	Armouring: Corrugated Steel Tape Armour Tape (Thickness > 0.15mm)	
8	Sheath : UV Stabilized Polyethylene (HDPE)	
9	Max. Crush Resistance-Short Term : 2000N/10 cm or More	
10	Max. Tensile Strength-Short Term : 1500N or More	
11	Operating Temperature range : -20°C --+70°C	
12	Mode Field Diameter @ 1310nm : 9.2 + 0.4 m, Cladding Diameter : 125 + 1.0 m	
13	Max. Attenuation; At 1310 nm: 0.35 dB/km; At 1550 nm: 0.22 dB/km	
14	Bandwidth : > 1GHz-Km at 1310nm	
15	<p>Specifications</p> <p>ISO.IEC 11801 - 2nd Edition, type OS2; AS/ACIF S008; /ITU-T REC G 652D spec for Zero/ Low Water Peak fibre</p> <p>AS/NZS 3080, /EIA/TIA 568-C.3 IEC 60793/60794, /TIA 568, /EIA 455 / ANSI/ICEA S-87-640</p>	

144-288 Port 4U – 19” Rack Mount Specification Grade Fiber Enclosure

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Base & Drawer Unit: 16 Gauge Cold Rolled Steel / CRCA Top: 16 Gauge Power Coated Aluminum	
2	Thickness: 1.5mm (.060)	
3	Finish: Black Powder Paint	
4	Cable Spools: Thermoplastic UL94V-O	
5	Should accommodate 24 Fibre Pak/Adapter Plates/ fully loaded, which allow multiple fibre connector options, with all essential accessories	
6	Accommodates up to 12 Universal Splice Trays, each with a 12 or 24 splice capacity/ included with LIU	
7	Externally mounted cable strain relief bracket mounts to accommodate cable routing from above or below the enclosures. Strain relief is done outside the enclosure to assist in termination/ Cable Glands	
9	Hook and Loop style features incorporated in top and bottom of rear of the enclosure to assist in cable strain relief and slack management	
10	Two sets of cable spools included for fibre slack storage	
11	Lightweight, lockable, and removable aluminum hinged front and rear doors provide security and allow for easy entry to the enclosure for authorized personnel	
12	Labelling field incorporated on hinged, drop-down metal front door for easy access and fibre Identification.	

FIBER PATCH PANELS – RACK MOUNT 12 / 24 /48 / 96 PORTS

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Material - Powder Coated Cold Rolled Steel CRS/ Aluminium/ CRCA	
2	Have sufficient slots accommodate Quad LC adapters individually/ Fully loaded	
3	Should have fiber management provision inside	
4	Have earthing lugs and other accessories.	
5	Provide self-adhesive, clear label holders (transparent plastic window type) and white designation labels with the panel, for front panel labeling.	
6	Management rings within the system to accommodate excess fibre cordage behind the through adapters and maintain fibre bend radius/ Cable Glands	
7	Fiber panel should be Rack mountable or Wall mountable (as required)	
8	Rugged steel construction in graphite finish	

LC Quad/ Duplex ADAPTORS

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	All LC adaptors should be Quad type SM	
2	Adapters should be snap/ screw mount for easy insertion and removal.	
3	Should have integrated shutter/ dust cover for protection against dust	

OPTICAL FIBER EQUIPMENT CORDS (MINIMUM 3 METER) LC LC SM

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Jacket should be LSZH sheath	
2	Connector: Zirconia ceramic ferrule	
3	Cable: 9/125, MM OS2	
4	Strength member: aramid yarn	
5	900µm tight buffer diameter	
6	As per EIA / TIA	

OPTICAL FIBER PIGTAILS, 1.5 MTR LC SM 9/125 µm

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Factory polished, tested and serialized	
2	Cable: 900um Buffered	
3	LC type Single	
4	Sheath :LSZH	

12 Core fibre Indoor 9/125µm SM OS2 Type Optical Cable

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Cable should be made of 900 m tight buffered optical fibres	
2	Fibre Identification: Colour Coded	
3	Fibre Insulation: Coloured Nylon	
4	Reinforcing: Aramid Yarns	
5	Sheath ó LSZH	
6	Diameter (Nominal): 6 Core 5.6mm	
7	Mass (Nominal): 6 Core 38 kg/km or more	
8	Max. Tensile Strength-Short Term: 0.6kN	
9	Operating Temp. Range: -10°C to +60°C	
10	Crush Resistance-Short Term: 1.0 kN/100mm	
11	Core Diameter: 9.2±0.4 µm; Cladding Diameter: 125±2.0 µm	
12	ISO/IEC 11801:2002 - 2nd Edition, Type OS2; AS/ACIF S008; AS/NZS 3080:2003, IEC 60332-1; OS2 -STD ITU-T-652D	

42U Racks

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	Dimension: The maximum dimension of the rack should be 800W X 42U X 1000D (mm)	
2	Basic Structure: Frame Of sturdy 1.5mm frame section construction, consisting of sixteen folded rolled hollow frame section punched in 25mm DIN pitch pattern. All profile edges are radiused. The corners are stiffened with welded zinc die-cast corner connectors, gland plates in 3 parts, which are removable and interchangeable	
3	Doors: 1.5mm sheet steel Glass Door, with foamed seal polyurethane gasket, square section tubular frame with punching in DIN pitch pattern, rod-type 4 point lock system and Key inserts to DIN 43668 (with single door: hinge fitting r/h or l/h freely selectable on site). Hinges with captive hinge pins, door opening angle 130° to VDI, can be retrofitted for 180°. Enclosure fitted with 2 sets of 19° angles, pairs of depth rails (73 X 23mm rails) fitted with swivel spring load lock handles.	
4	Rear Door: 1.5mm sheet steel perforated door, with foamed-on seal, with 3 point locking mechanism ergo - form handle system.	
6	Roof panel: with foamed-on seal, removable. Vented roof plate with option of having cable entry provision from top.	
7	Load Carrying Capacity: 1000KG Static Load, Seismic Rated Zone-4 Certified	
8	Surface finish: Sheets cleaned, degreased, phosphate, electro- Dip coat primed and electro statically powder coated with textured Polyester paint RAL 7035..	
9	Supply Include: Floor Standing Rack, Front and rear perforated doors, screw fixed side panels, top and bottom covers with cable entry, castor wheels, 4 fan with fan tray and thermostat, , PDU 6 Point, 5A Universal- 2No., 1 Fix Tray, Keyboard Tray, earthing kit and 5 Nos of 1U open MS Cable manager with PVC Loops. Swivel handles on front and rear doors.	
10	Approvals: The product should be approved by the following approved organizations: UL, Underwriters Laboratories /USA	

12U Racks

S. N.	TECHNICAL SPECIFICATION	COMPLIED (YES / NO)
1	The rack and its accessories should be made of CRCA Sheet of gauge minimum 1.5mm steel frame folded from one piece and welded, rear panel with Countersunk holes for wall mounting brackets. With 2 pair of 19ø Mounting angles Mounted in the front and rear.	
2	The depth of the rack should be 600D and fitted with front door. The front door should be fitted with good quality transparent glass	
3	Doors, 2 mm sheet steel, surface mounted, with foamed-in seal, Perforated vertical mounting rails on both sides, screw fixed hinges Which can be changed for left-hand or right-hand door hanging (for Single door enclosures), 130ø opening angle which can be retrofitted For 180ø in accordance with VDI, cam Lock with double-bit insert in accordance with DIN 43668.	
4	Painting: Nano Ceramic Coated, electro-dipcoat primed to 20 microns and powder coated with Textured polyester RAL 7035 to 80 to 120 microns	
6	The rack should be equipped with one-shelf panels of size 400mm to house data Communication equipment's. And the racks should have proper cable / Power Management systems	
7	The housing should be equipped with two cooling Axial fan Self-starting: shaded pole motor operating at 230V AC Controlled via thermostat. The fan Air throughput, unimpeded air flow: 55/66 m ³ /h, Noise level: 46/49 dB (A) with 6-Way PDU (5A Universal - 2No.), LED-Light Bar and fully Uniquely Lockable and glass front door, Mounting hardware (Set of bolts and nuts -20 pcs)	
8	The Rack should conform to all IS standards DIN 41491, DIN 41494 and IEC 297 and UL Listed.	
9	Two cable managers of 1U size should be supplied along with 12U Racks.	
10	Protection category: IP to IEC 60 529	

WORK SCHEDULE

S.N.	Scope of Work (Campus wide LAN)	Time Line* (Week wise)	Compliance (Yes/ No)	Remarks (if any)
1	Supply of Items: Materials other than Active Devices	0 – 16		
2	Supply of Items: Active Devices			
3	Laying of Outdoor OFC cables etc.			
4	Laying of Indoor OFC and cables etc.			
5	Installation & configuration of Active Devices etc.	17 - 22		
6	Installation & configuration of Indoor and Outdoor Passive components			
7	Installation & configuration of software components and hardware integration			
8	Complete network configuration, testing and opening of Help-line Portal			
9	Informal Go-live and User Testing Phase	23 - 27		
10	Documentation verification			
11	Formal Go-live of LAN	28		
12	Acceptance of LAN implementation	36		

* The counting of Week starts from the day of issue of Work Order.

CAMPUS LAN INSTALLATION AND OPERATIONS STAFF & HELPLINE SOFTWARE

Team Member	Qualification	Qty.	Type	Deployment from	Deployment till
Project Manager	B.E./B.C.A./M.C.A. with minimum 10 years of relevant experience and with CCIE or CCNP equivalent certification	1	Onsite	Within 20 days of release of WO	End of Contract Period
Project Implementation and Coordination Team	B.E./B.C.A./M.C.A. with minimum 04 years of relevant experience and with CCNP or CCNA or equivalent certification	05	Onsite	Within 20 days of release of WO	Till Go-live
Network team members ó HELPDESK	B.E./B.C.A./M.C.A. with minimum 04 years of relevant experience and with CCNP or CCNA or equivalent certification	05	Onsite	From the date of Informal Go-live and User Testing Phase	End of Contract Period
Helpdesk Coordinator	Graduate with min. 3 Yrs. of relevant experience in handling end user complaint calls, Call logging and mobilization of Helpdesk resources	02	Onsite	From date of Go-live	End of Contract Period

Note:

1. Sitting infrastructure for the Helpline Office for the Networking team will be provided by the Institute.

Helpline software

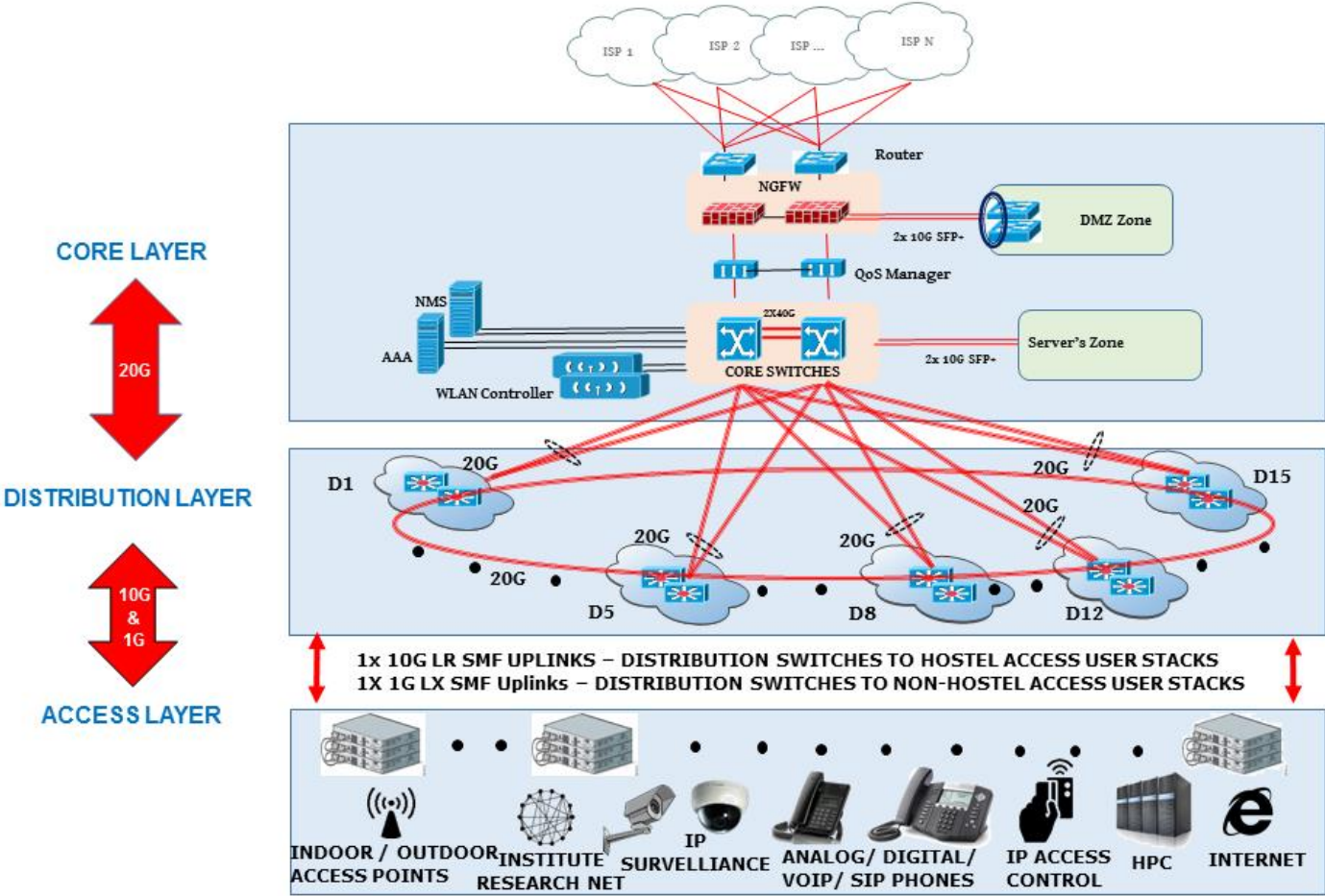
The bidder has to provide relevant software for Helpline Desk, for totally automated registration, progress monitoring, redressal and escalation of User and Administrative complaints and troubleshooting of the entire campus LAN. This software deployment should be under administrative control of the Institute and database has to be secured and ensured for its integrity.

REFERENCE BILL OF QUANTITY (BOQ)

This document consists of the Bill of Quantity, as a reference for the Project Work under. The network schematic is also shown below. The BoQ includes any and every item, as required under this project work. Further, the scope of the work will be from the ISP end to the User End (hereafter called -End-to-Endø) to ensure the completeness of the project. All items should comply Annexure ó A.

Further, any item if sought necessary by an individual bidder, SHOULD BE proposed as Additional Items under Miscellaneous Category, along with its Price Quote. This -Additional Itemsø however, shall not be a part of the Price Bid Evaluation.

Network Schematic:



<u>BOQ FOR ACTIVE COMPONENTNETS</u>				
S.No.	Part Code	Product Description	Unit	Qty.
1		Aggregation Service Router	No.	2
2		NGFW with required optics	No.	2
3		Quality of Service (QoS) Manager with required optics	No.	2
4		Core Switch with required optics	No.	2
5		Distribution Switch with required optics	No.	30
6		24 Ports POE+ Layer 2 Access Switch with required optics	No.	86
7		48 Ports POE+ Layer 2 Access Switch with required optics	No.	140
8		AAA	No.	2
9		NMS	No.	2
10		WLAN Controller	No.	2
11		Indoor Access Point (With strong coverage of inside the each Hostel rooms & Departments)	No.	650
12		Outdoor Access Point (With coverage in open area in the Hostels, Grounds and Departments)	No.	50
13		OTDR with all accessories	No.	02
14		Optical Fibre Fusion Splicer with all accessories	No.	02
15		2.0 T Air Conditioner (For Core Switch)	No.	02
16		UPS (For Core, Distribution, Aggregation and Access Switches with SNMP monitoring, SMF Batteries and with 60 min. backup at Full Load) a) 02 x 10 kVA On-line UPS for Core Switch b) 05 x 2 kVA Off-line UPS for Distribution Switch c) 25 x 2 kVA Off-line UPS for Aggregation Switch d) 150 x 1 kVA Off-line UPS for Access Switch	No.	Per Unit Cost against specified quantity and specifications
17		Miscellaneous (if any) (Submit details and justifications)		

BOQ FOR PASSIVE COMPONENTS

S.No.	Part Code	Product Description	Unit	Qty.
SUPPLY FOR PASSIVE COMPONENTS				
1		CAT6 UTP LSZH Cable Box (305 Mtrs roll) average 55 Mtrs.per Node	Box	1200
2		Single port Cat 6UTP Dustproof Jack Shuttered with British style Face plate	Nos.	9000
3		Surface mount box	Nos.	9000
4		24 Port, Cat 6 UTP Jack Panel (Unloaded) Cold Rolled Steel	Nos.	400
5		Single port Cat 6 UTP dustproof jack Shuttered for Patch Panel side	Nos	9000
6		1U Horizontal cable manger	Nos.	200
7		1 Meter Dual Ended Mounting UTP Cat6patch Cord LSZH	Nos.	9000
8		2 Meter Dual Ended Mounting UTP Cat6patch Cord LSZH	Nos.	5000
9		3 Meter Dual Ended Mounting UTP Cat6 Patch Cord LSZH	Nos.	4000
SUPPLY FOR OPTICAL FIBER COMPONENTS				
10		96 core Outdoor armored cable - SM (OS2) Double HDPE Sheath	Mtrs	40,000
12		24Core Outdoor armored cable -SM (OS2)	Mtrs	15,000
13		12 Core Outdoor armored cable -SM (OS2)	Mtrs	15,000
14		12 Core Indoor armored cable -SM (OS2)	Mtrs	15,000
15		96 Port Rack Mount FMS loaded with splice Tray and cable spool	Nos	10
16		48 Port Rack Mount LIU loaded with Splice Tray and Cable spool	Nos.	5
17		24 Port Rack Mount LIU loaded with Splice Tray and Cable spool	Nos.	10
18		12 Port Rack Mount LIU loaded with Splice Tray and Cable spool	Nos	10
19		Pigtail LC SM (OS2) Simplex-1.5 Mtr	Nos.	1500
20		144-288 Port Joint Enclosure Used in Aggregation Building for OFC maintenance Pit	Nos	5

21		LC duplex Adaptors/ Couplers	Nos	300
22		LC to LC Fiber Duplex patch cord (OS2),3 Mtrs	Nos.	1500
25		12 Port Rack Mount LIU loaded with Splice Tray and Cable spool	Nos.	10
26		Pigtail LC MM SM Simplex-1.5 Mtr	Nos.	100
28		LC duplex Adaptors/ Couplers	Nos.	30
29		LC to LC Fiber Duplex patch Cord (OM3), 3Mtrs	Nos.	100

SUPPLY FOR OTHER COMPONENTS & Rack				
30		1" PVC Conduit Medium with necessary fixtures	Mtrs	40000
31		1.5" PVC Conduit Medium with necessary fixtures	Mtrs.	25000
32		25mm Casing Capping	Nos.	7500
33		32mm Casing Capping	Nos.	6000
34		19" 42 U Floor Mount rack with necessary accessories	Nos.	10
35		19" 12 U Wall Mount rack with necessary accessories	Nos.	200
36		Rack mounting hardware/kit for mounting active and passive component in rack (Pack of 10)	Nos.	50
37		OFC route marker concrete	Nos.	1500
38		ISI mark Class-B 50MM GI Pipe	Mtrs	4000
39		ISI mark HDPE pipe (1.5 inch)	Mtrs	4000
40		ISI mark Class-B 75MM GI Pipe	Mtrs	4000
41		Velcro Tie 15 Mtr Roll	Nos.	50
42		Cable Tie 100 mm size (Pkt of 100)	Nos.	50

BOQ FOR SERVICES AND SUPPLY OF MATERIALS			
SL NO	DESCRIPTION	UOM	Qty CURRENT
1	50mm PLB Duct for Laying OFC	Mtr	12000
2	40mm PLB Duct for Laying OFC	Mtr	10000
3	Couplers for 50MM PLB Duct	Nos.	500
4	50mm GI Pipe for Crossing Roads and Bridges (Lump sum)	Mtr	1000
5	Coupler/Bend for 50MM GI Pipe (Lump sum)	Nos.	200
6	Casing Capping 25MM	Nos.	64309
7	25mm PVC Conduit with Accessories	Mtr	5000
8	32mm PV Conduit with Accessories	Mtr	5000
9	50mm PVC Conduit with Accessories	Mtr	2000
10	25mm Reinforced PVC Flexible with Accessories (Lump sum)	Mtr	500
11	25mm GI Flexible with Accessories (Lump sum)	Mtr	500
12	Soft Soil Digging, Laying of 50mm GI Pipe and Refilling (Lump sum)	Mtrs	1000
13	Hard Soil Digging, Laying of 50mm GI Pipe and Refilling (Lump sum)	Mtrs	2000
14	Road Cutting, Laying of GI Pipe and Repairing (Lump sum)	Mtrs.	1000
15	Trenchless Digging and Laying 1-2 Nos. 50mm PLB Duct	Mtrs.	20000
16	Cable Chamber	Nos.	200

MANDATORY UNDERTAKING

To,
The Chairman,
Institute's Networking Committee,
IIT (BHU),
Varanasi (U.P.) 221 005

Tender Ref. No.

Sub: **UNDERTAKING BY THE BIDDER**

Dear Sir,

We, M/sí hereby confirm that we have carefully examined the existing computer network of IIT (BHU) 09 Hostels, which have been recently upgraded on Cisco Wired and Wireless Devices.

We clearly understand that if we receive the work order as solicited under the above referred Tender, we will be fully capable of implementing all the policies and features to be provided under this work order for all over the IIT (BHU) Campus LAN including these recently upgraded 09 hostels. In case of any performance related issue or feature discrepancy observed in these 09 Hostels which is not at par with the newly proposed IIT (BHU) Campus LAN, we undertake to modify, if necessary, the existing LAN of 09 Hostels, both in terms of architecture, feature and policy implementation under information and approval of the Chairman, Networking Committee of IIT(BHU), Varanasi. Further, the decisions taken and recommendations made by the Institute Networking Committee in this connection SHALL BE fully binding and acceptable to us.

We also ensure that the technical and spare part support for the quoted items shall be provided for a period of at least 7 years from the date of successful installation.

We look forward to ensure our absolute competency and capability to implement a successful IIT (BHU) Campus LAN, as solicited.

Thanking you,

Yours Sincerely,

Place: í í í í í í ..

Date: í í í í í í ..

(Name and signature of the Authorized Signatory)

M/sí í í í í í í í í í í í í ..í í í í í í í
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PRICE BID

(To be submitted in a Separate Sealed Envelope)

**(by using the Excel Sheet uploaded separately on the Institute Website in soft copy in CD and in
duly signed hard copy, both)**

(Super-scribed as Price Bid on a separate envelope)

Quote for Price Bid Evaluation:

(To be opened only after Essential Pre-Bid Criteria evaluation and Technical Bid Evaluation)

S. N.	Item	Qty	Rate	Price
1	Aggregation Service Switches	2		
19	Campus LAN Installation and Operations Staff & Helpline software	As per Annex. C		
20	Complete Network Documentation and Configuration back-up (both in hard and soft copy)	As per BoQ		
21	Complete Network Management Training for Institute Networking Staff (Three 6-day live with documented learning material with recorded videos)	As per BoQ		
22	OFC Laying, digging etc. : Outdoor, Indoor (As per Annexure A & D)	As per BoQ		
23	Extended Services as per Note # 8 (as below) for 4 th year (Payable in 4thYear)	Complete network		
24	Extended Services as per Note # 8 (as below) for 5 th year (Payable in 5thYear)	Complete network		
25	Miscellaneous (if any) (Submit details and justifications)			
	TOTAL PRICE (INR)			
12	Hostels, Grounds and Departments)	50		
13	OTDR	02		
14	Optical Fibre Fusion Splicer	02		
15	Passive Components including laying	As per Annexure A & Annexure D		
16	2.0 T Air Conditioner (For Core Switch)	02		
17	UPS (For Core, Distribution, Aggregation and Access Switches with SNMP monitoring, SMF Batteries and with 60 min. backup at Full Load) 02 x 10 kVA On-line UPS for Core Switch 05 x 2 kVA Off-line UPS for Distribution Switch 25 x 2 kVA Off-line UPS for Aggregation Switch 150 x 1 kVA Off-line UPS for Access Switch	Per Unit Cost against specified quantity and specifications		
18	Supply, installation, configurations (and reconfigurations, updates and modifications), integration, commissioning and operations starting from go-live and till the end of contract period	Complete network		

NOTE:

- The bidder needs to ensure smooth integration with existing recently upgraded 9 hostels with centralized user policy enforcement and management for both wired and wireless users across the campus. The details of the active devices are:
 - Make (Model) : CISCO (WS-C2960X-48LPD-L) ITEM – Access Switch Qty. 85**
 - ACCESS POINTS 6 CISCO MAKE CISCO AIR-CAP3702I-D-K9 (802.11A/B/G/N/AC), CONTROLLER BASED WIRELESS ACCESS POINT QTY. 220
 - AP CONTROLLER LICENSE 6 CISCO MAKE, 50 AP ADDER LICENSE FOR THE 5508 Wireless Controller Qty.5

The Institute intends to protect the investment made recently for upgrading its 9 hostels. Thus, it is essential for the bidders to maintain the terms and conditions cited in the mandatory undertaking Annexure 6E.

Existing upgraded hostels (9) switches and Access Points quantity not included in the above BOQ. Aggregation Switches with optics may be purchased later by IIT BHU if required for smooth integration.

2. Bidder needs to provision necessary Spares for each category to meet the uptime SLA.
3. All Optical Fibre etc. in Outdoor and Indoor must be freshly laid, in PLB HDPE, as specified in Annexure A.
4. Bidder shall ensure the availability of Network grade electrical wiring (Earthing etc.). Further, if needed, the bidder shall implement such wiring in consultation with the Networking Committee, at a cost which may be considered by the Institute as additional to this Tender.
5. Bidder needs to provision minimum Campus LAN Installation and Operations Staff in the Campus for managing day to day call activities / troubleshooting, as per Annexure - D.
6. All active devices and hardware items MUST be quoted with 5 Years comprehensive warranty and direct OEM 24x7 Technical Assistance Call (TAC) support (NBD).
7. Extended Services for 4th and 5th year at par with Note # 7 (as above), Payable in respective years). Further, this price SHALL BE valid till expiry of respective years.
8. All the building switches (Core, Distribution, Aggregation and Access) MUST have redundant fibre connectivity to provide high availability.
9. Minimum fibre uplink back bone should be as follows:
 - Core to Core uplinks ó 4 x 40G QSFP+
 - Core to Distribution uplinks ó 2 x 10G QSFP+
 - Distribution to Distribution Ring ó 2 x 10G QSFP+
 - Distribution to Hostel Building Access Switches Uplinks - 2 x 1G SFP
 - Distribution to Non - Hostel Building Access Switches Uplinks - 2 x 1G SFP

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