Print

Basic Details

Organisation Chain	University Department||Jammu University||Centre for IT Enabled Services and Management		
Tender Reference Number	JU/CIT/21/279 dt 07.04.2021		
Tender ID	2021_UDJK_122041_1		
Tender Type	Open Tender	**Form of contract**	Item Rate
Tender Category	Goods	**No. of Covers**	2
General Technical Evaluation Allowed	No	**ItemWise Technical Evaluation Allowed**	No
Payment Mode	Offline	**Is Multi Currency Allowed For BOQ**	No
Is Multi Currency Allowed For Fee	No	**Allow Two Stage Bidding**	No

Payment Instruments

Offline	S.No	Instrument Type
	1	Demand Draft
	2	Fixed deposit

Cover Details, No. Of Covers - 2

Cover No	Cover	Document Type	Description
1	Fee/PreQual/Technical	.pdf	Tender for supply, installation and commissioning of Network Infrastructure at University of Jammu
		.pdf	Scanned copy of Tender forms(Techno Commercial Un-priced Bid) and Tender Acceptance Letter)
		.pdf	Scanned copy of proof for submission of Earnest Money Deposit
		.pdf	Scanned copy of written confirmation authorizing the signatory of the Bid to commit the Bidder
		.pdf	Scanned copy of documentary evidence establishing the Bidders eligibility to bid
		.pdf	scanned copy of doc. evidence the goods and related services are of eligible origin
		.pdf	scanned copy of documentary evidence that the goods and services conform to bidding documents
		.pdf	Scanned copy of any other document required in the tender document
		.pdf	Technical Bid

	2	Finance	.xls		Bill of quantities

Other Important Documents

S.No	Category	Sub Category	Sub Category Description	Format/File
1	Certificates Details	PAN	Permanent Account Number	
2	Certificates Details	Sales Tax / VAT	Sales Tax / VAT	

Tender Fee Details, [Total Fee in ₹ * - 0.00]

Tender Fee in ₹	0.00		
Fee Payable To	Nil	Fee Payable At	Nil
Tender Fee Exemption Allowed	No		

EMD Fee Details

EMD Amount in ₹	7,00,000	EMD through BG/ST or EMD Exemption Allowed	No
EMD Fee Type	fixed	EMD Percentage	NA
EMD Payable To	Registrar, University of Jammu	EMD Payable At	Jammu

Work /Item(s)

Title	Tender for the Supply, Installation and Commissioning of Network Infrastructure at University of Jammu		
Work Description	Tender for the supply, installation and commissioning of network infrastructure at the University Campus of University of Jammu		
Pre Qualification Details	Please refer Tender documents.		
Independent External Monitor/Remarks	NA		
Tender Value in ₹	NA	Product Category	Computer-H/W	Sub category	NA
Contract Type	Tender	Bid Validity(Days)	180	Period Of Work(Days)	84
Location	University of Jammu	Pincode	180006	Pre Bid Meeting Place	University of Jammu
Pre Bid Meeting Address	Department of Physics, University of Jammu	Pre Bid Meeting Date	10-Jun-2021 01:30 PM	Bid Opening Place	University of Jammu
Should Allow NDA Tender	No	Allow Preferential Bidder	No		

Critical Dates

Publish Date	09-Apr-2021 04:00 PM	Bid Opening Date	13-Jul-2021 04:00 PM
Document Download / Sale Start Date	10-Apr-2021 02:00 PM	Document Download / Sale End Date	12-Jul-2021 02:00 PM
Clarification Start Date	15-Apr-2021 11:00 AM	Clarification End Date	07-Jun-2021 04:00 PM
Bid Submission Start Date	15-Apr-2021 02:00 PM	Bid Submission End Date	12-Jul-2021 02:00 PM

Tender Documents

NIT Document

S.No	Document Name	Description	Document Size (in KB)
1	Tendernotice_1.pdf	JU networking tender document	2162.14

Work Item Documents

S.No	Document Type	Document Name	Description	Document Size (in KB)
1	BOQ	BOQ_235718.xls	Bill of Quantities for the networking tender	317.50

Latest Corrigendum List

S.No	Corrigendum Title	Corrigendum Type	View
1	Extension of Date	Date	

Tender Inviting Authority

Name	Director CITES and M, University of Jammu
Address	University of Jammu

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Basic Details

Organisation Chain	University Department||Jammu University||Centre for IT Enabled Services and Management
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		.pdf	scanned copy of doc. evidence the goods and related services are of eligible origin
		.pdf	scanned copy of documentary evidence that the goods and services conform to bidding documents
		.pdf	Scanned copy of any other document

			required in the tender document
		.pdf	Technical Bid
2	Finance	.xls	Bill of quantities

Other Important Documents

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1	Certificates Details	PAN	Permanent Account Number	
2	Certificates Details	Sales Tax / VAT	Sales Tax / VAT	

Tender Fee Details, [Total Fee in ₹ * - 0.00]

Tender Fee in ₹	0.00		
Fee Payable To	Nil	Fee Payable At	Nil
Tender Fee Exemption Allowed	No		

EMD Fee Details

EMD Amount in ₹	7,00,000	EMD through BG/ST or EMD Exemption Allowed	No
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Contract Type	Tender	Bid Validity(Days)	180	Period Of Work(Days)	84
Location	University of Jammu	Pincode	180006	Pre Bid Meeting Place	University of Jammu
Pre Bid Meeting Address	Department of Physics, University of Jammu	Pre Bid Meeting Date	22-Apr-2021 12:00 PM	Bid Opening Place	University of Jammu
Should Allow NDA Tender	No	Allow Preferential Bidder	No		

Critical Dates

Publish Date	09-Apr-2021 04:00 PM	Bid Opening Date	04-May-2021 12:00 PM
Document Download / Sale Start Date	10-Apr-2021 02:00 PM	Document Download / Sale End Date	30-Apr-2021 04:00 PM
Clarification Start Date	15-Apr-2021 11:00 AM	Clarification End Date	19-Apr-2021 04:00 PM
Bid Submission Start Date	15-Apr-2021 02:00 PM	Bid Submission End Date	30-Apr-2021 04:00 PM

Tender Documents

NIT Document

S.No	Document Name	Description	Document Size (in KB)
1	Tendernotice_1.pdf	JU networking tender document	2162.14

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1	BOQ	BOQ_235718.xls	Bill of Quantities for the networking tender	317.50

Tender Inviting Authority

Name	Director CITES and M, University of Jammu
Address	University of Jammu

UNIVERSITY OF JAMMU

TENDER FOR SUPPLY, INSTALLATION AND COMMISSIONING OF

NETWORK INFRASTRUCTURE

AT UNIVERSITY CAMPUS of UNIVERSITY OF JAMMU

Tender Document

Tender Number: CIT/JU/21/279
Dated: 07/04/2021

1. Disclaimer:

All information contained in this Tender Document document provided/ clarified is in the good interest and faith. This is not an agreement and this is not an offer or invitation to enter into an agreement of any kind with any party. Though adequate care has been taken in the presentation of this TENDER document, the interested firms shall satisfy it-self that the document is complete in all respects. The information published in this document is not intended to be exhaustive. Interested respondents are required to make their own enquiries and assumptions wherever required. Intimation of discrepancy, if any, should be given to the specified office immediately. If no intimation is received by this office by the date mentioned in the document, it shall be deemed that the TENDER document is complete in all respects and firms submitting their bids are satisfied that the TENDER document is complete in all respects. The University reserves the right to reject any or all of the applications submitted in response to this TENDER document at any stage without assigning any reasons whatsoever. The University reserves the right to change/ modify/ amend any or all of the provisions of this TENDER document without assigning any reason.

2. Introduction:

The University intends to upgrade its network infrastructure with latest technology of higher throughput and scalability.

3. Notice Inviting Bid:

S. No	Subject	Description
1	Bid Inviting Authority	Director, Centre for IT Enabled Services and Management
2	Requirement	Selection of System Integrator/OEM for the Supply, installation and commissioning for the Upgradation of Campus LAN and WI-FI of New University Campus,
3	Mode of Bid	Through e-tendering mode using two Bid System – Technical and Financial
4	Bid Evaluation Criteria (Selection Method)	Least Cost Based Selection (LCBS) (L1)
5	Websites for downloading TENDER, Corrigendums, Addendums etc.	https://www.jktenders.gov.in; https://www.jammuuniversity.ac.in
6	Bid Document/Tender Fee	NIL

7	Bid Security and Mode of Payment	**EMD of Rs. 7,00,000.00 through Bankers cheque/Demand Draft in favour of Registrar, University of Jammu.**
8	Start/ End Date for the submission of Bids	Start Date: 09.04.2021 End Date : 30.04.2021
9	Pre Bid clarification last date and time	19.04.2021 4.00 pm
10	Submission of Online Banker's Cheque/ Demand Draft for Tender Fee, Bid Security, and Processing Fee*	The Bidder shall submit the scanned copies of EMD/tender Fee receipt along with the Technical Bid. However, the bidder has to submit original documents of EMD / Tender fee by or before 30.04.2021
11	Date/ Time/ Place of Technical Bid Opening	CITES&M 04.05.2021
12	Date/ Time/ Place of Financial Bid Opening	Will be notified later to the Technically qualified bidders
13	Date and Time to seek Query/Clarification on the TENDER	via email on from 15.04.2021 to 19.04.2021
14	Bid Validity	180 days from last date for submission

4. Objective and Scope of Work:

In order to create IT Infrastructure at Supply, installation and commissioning for the Upgradation of Campus LAN and WI-FI of New University Campus, the University plans to upgrade Wired and Wireless (Wi-Fi) Networking infrastructure using state of the art networking equipment.

The following summarizes the scope of work.

A. To Implement Wired and Wireless Networking at multiple buildings in University of Jammu.
B. To supply, install and commission all the components mentioned as per the technical and financial bid and to carry out the work besides integration with existing IT Infrastructure.
C. To supply, install and commission structured cabling Network as per BOQ and anything over and above as per actual need at the time of implementation.

D. Successful bidder will be responsible to rollout the Network including Network Management and handover to University.
E. Successful Bidder to provide detailed connectivity diagram (Physical and Logical) including: Raceway/pathway diagram, Cable and Fiber patching details, Naming and labeling details, Cable scanning and test results.
F. Successful Bidder will carry penta-scanning of each and every node of the Network.
G. Bidders shall refer to the section on specifications for detailed scope of work.
H. Detailed Specification of Components needed as per enclosed Data. Financial Bid as per Annexure.

5. **General Terms and Conditions**

   a. The bids under Two-Bid System will consist of two parts as per following details:-
   a)   Technical bid consisting of all technical details along with terms and conditions and EMD (Earnest Money Deposit), in the form of FDR issued from any Nationalized / Scheduled commercial bank in favour of Registrar, University of Jammu. Price bid indicating price for the items / services mentioned in Financial Bid as per the BOQ. In stage-one, only the Technical Bids shall be opened and evaluated. In stage-two, the Price bids of only the technically qualified and acceptable offers will be opened, for further evaluation.

   b. The documents referred in Checklist and its Annexures thereof of this Tender forms the Technical Bid Evaluation criteria. All documents pertaining to the same as mentioned therein may be signed and stamped by the bidder and uploaded as Technical Bid on e-Tendering portal.

   c. The successful bidder will have to deposit 3% of the total value of supply as Security Money in the form of Performance Bank Guarantee in favour of Registrar, University of Jammu, within 30 days of the receipt of the confirmed order. PBG will be refunded after completion of the warranty period/period specified or will be adjusted in case of violation of terms and conditions laid down in this tender.

   d. Conditional offer will not be accepted.

   e. It will be the sole responsibility of the bidder(s) that its bid should be uploaded on time on e-tendering portal.

   f. Necessary corrigendum(s), if required, will be issued at any stage. Any corrigendum will be published on our website www.jammuuniversity.ac.in and http://www.jktenders.gov.in Bidder(s) must be in touch with our websites for corrigendum(s). It will be sole responsibility of the bidder(s)s that they will go through the corrigendum(s) published, if any, and submit its tender accordingly

   g. The compatibility of all the networking components is the essence of this tender for efficient working of the network, hence bidders shall essentially quote all Switches, Controllers, Wireless equipment and NMS of one make for network. Similarly, Bidders are requested to do a survey and understand the existing Network of Government Buildings of UNIVERSITY OF JAMMU for smooth Integration with proposed network. Survey can be done any day with prior requisition sent via email to directorit@jammuuniversity.ac.in supported by contact person email and phone number of intending person. In case no requisition is received or survey is not carried out and in future it is noticed that there are any integration challenges, then bidder will be responsible for the same. Hence if any extra material will be needed because of this laxity then its expenses will be borne by the bidder.

   h. All pre-bid queries regarding the tender must be submitted to https://forms.gle/VrwLbd6pqyNAz56D9 from 15.04.2021 to 19.04.2021.

   i. In case any manufacturing defect arises in the equipment, it should be replaced within seven working days.

   j. In the event of goods not being in accordance with the specification or the conditions of the contract or failure by the bidder to perform services as outlined in the Tender/Bid document, the department reserves the right to cancel the contract.

k. All information in the Tender/Bid should be in English language and each page of the Tender/Bid document should be signed & stamped by the Bidder as a token of acceptance to terms and conditions.

l. Bidders should quote for all accessories which are either part of an item or are necessary for proper functioning of that item.

m. All Passive Cabling work whether it is Fiber, UTP, Patch Panels, Racks Patch Cords etc. should be done neatly and with proper tagging. Entire cabling should be structured and aesthetically implemented.

n. Bidder must not have been blacklisted by any State/Central Government Department. An undertaking in this effect may be submitted.

o. Participating in this tender would mean that Bidder is accepting all terms and conditions of this tender document.

p. All legal disputes, arising if any, would be settled under jurisdiction of High Courts

In the Union Territory of Jammu and Kashmir. Arbitration shall be only in the Jammu and Kashmir.

6. Special Terms and Conditions

a. University of Jammu may, without prejudice to any other remedy for breach of contract, by written 30 days' notice of default sent to the Successful Agency modify / terminate the Contract in whole or part.

b. All the items are to be quoted in Indian Rupees.

c. All prices quoted shall be inclusive of all **taxes, freight** etc. and shall be for FOR University of Jammu.

d. The bidder must clearly mention the **make, model & enclose relevant datasheet/brochures along with requisite certificates of the products** as per technical specifications as mentioned in technical specification annexures.

e. Payment Terms will be as follows:

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100% Payment shall be made on complete and successful installation.

f. UNIVERSITY OF JAMMU may decrease or increase any active or passive component or both and make a commensurate adjustments in the corresponding service components while issuing work order or at a later stage. It may decide to add or drop any item at any stage of the tender process or on award of Purchase order to successful bidder. Bidders are advised to quote competitively on each and every line item of the financial bid. The payment for all the passive components shall be made on the basis of actual consumption.

g. Additional similar equipment or components may be required at a later date, contingent on additional funding being made available. University of Jammu shall decide to add or drop any item at any stage of the tender process or on award of Purchase order to successful bidder.

h. Delivery Schedule: The Material delivery has to be done in 6-8 weeks at IT Building, UNIVERSITY OF JAMMU premises from the release of work Order and complete installation has to be done within 12-14 weeks from the date of release of Work Order

i. The Passive quantity mentioned in the Tender/Bid is only an indicative one. UNIVERSITY OF JAMMU reserves the right to increase/ decrease/ remove

any/all quantities while placing the order.

j. Any work not covered under this contract which may be essentially required for the completion of job shall be carried out by the Successful Bidder as extra item with prior approval of UNIVERSITY OF JAMMU for which payment shall be made separately at the reasonable rates decided by it.

k. For the period of 5 years beyond Go-Live of the project, Bidder shall be responsible for smooth running of the system.

l. The required ethics under constitution shall be followed by the bidder.

m. EMD shall be released after receiving the PBG and signing of the contract.

n. Warranty means smooth and regular uninterrupted functioning of the solution.

o. At any time, prior to the deadline for submission of Bids, the procuring entity may for any reason, whether on its own initiative or as a result of a request for clarification by a bidder, modify the bidding documents by issuing an addendum/ corrigendum in accordance with the provisions below.

p. In case, any modification is made to the bidding document or any clarification is issued which materially affects the terms contained in the bidding document, the procuring entity shall publish such modification or clarification in the same manner as the publication of the initial bidding document.

q. In case, a clarification or modification is issued to the bidding document, the procuring entity may, prior to the last date for submission of Bids, extend such time limit in order to allow the bidders sufficient time to take into account the clarification or modification, as the case may be, while submitting their Bids.

r. Any bidder, who has submitted his Bid in response to the original invitation, shall have the opportunity to modify or re-submit it, as the case may be, within the period of time originally allotted or such extended time as may be allowed for submission of Bids, when changes are made to the bidding document by the procuring entity: Provided that the Bid last submitted or the Bid as modified by the bidder shall be considered for evaluation.

s. Bidder shall be responsible to provide all the electrical equipment (like wires, pipes, MCB, switches etc.) that would be required to complete the project without any extra cost.

t. FORCE MAJEURE:

Force Majeure shall mean any event or circumstances or combination of events or circumstances that materially and adversely affects, prevents or delays any party in performance of its obligation in accordance with the terms of the Agreement, but only if and to the extent that such events and circumstances affected party's reasonable control, directly or indirectly and effects of which could have prevented Good Industry Practice.

Any events or circumstances meeting the description of the Force Majeure which have same effect upon the performance of any contractors hall constitute Force Majeure with respect to the Vendor.

The Parties shall ensure compliance of the terms of the Agreement unless affected by the Force Majeure Events.

If a Force Majeure situation arises, the supplier/ selected bidder shall promptly notify the department in writing of such conditions and cause thereof within 30 days of occurrence of such event. Unless otherwise directed by the department, the supplier/ selected bidder shall continue to perform its obligations under the contract as far as reasonably practical.

If the performance in whole or part or any obligation under the contract is prevented or delayed by any reason of Force Majeure for a period exceeding 90 days, either party at its option may terminate the contract without any financial repercussion on either side.

7. Checklist

To ensure that your offer submitted please go through the following checklist & tick mark for the enclosures attached with your offer:

#	DESCRIPTION	Documents Required	(Yes/ No)
1.	General Information about Bidder as per Annexure I and the documents thereof.	Annexure I and the documents thereof.	
2.	Earnest Money Deposit	EMD	
3.	Tender Fee	NIL	
4.	Letter of proposal		
6.	Compliance and details on Annexure I – General Information about Bidder	Documentary Proof as per Annexure I	
7.	Compliance and details on Annexure II- Bidder and OEM Compliance	Documentary Proof as per Annexure II	
8.	Compliance and details on Annexure III	Documentary Proof of SLA as per Annexure III	
9.	Local Office support in UNIVERSITY OF JAMMU	A Self Certified letter by an authorized signatory. In case the bidder doesn't have an office, it has to setup its office / Support Location for which declaration should be submitted.	
10.	Blacklisting	A self-certified letter by Authorized Signatory of Company / firm.	
11.	Brochures	Brochures/catalogues mentioning the models.	
12.	Technical Bid in Separate Envelope - Annexure I to Annexure VII Compliance	Signed copy of the entire Tender and Annexure I to Annexure VII Compliance	
13.	Financial Bid in a Separate Sealed Envelope - Annexure VIII	Annexure VIII to be placed in financial bid of the e tender	

Documents Comprising the Bid – Technical and Financial Bids

- The tender/Bid shall be submitted online in two parts, viz., Technical Bid and Financial Bid.

TECHNICAL BID

The following documents are to be scanned and uploaded as part of the Technical Bid as per the tender document:

- Scanned copy of Tender Forms (Techno Commercial Un- Priced Bid) and Tender Acceptance Letter);

- Scanned copy of the compliance report,

- Scanned copy or copy of proof for submission of Earnest Money Deposit

- Scanned copy of written confirmation authorizing the signatory of the Bid to commit the Bidder;

- Scanned copy of documentary evidence establishing the Bidder's eligibility to bid;

- Scanned copy of (i) documentary evidence, that the Goods and Related Services to be supplied by the Bidder are of eligible origin and (ii) conform to the Bidding Documents, and (iii) any other document required in the tender document;

- Scanned copy of Pre-qualification Details as per PAN/GST etc.

- Technical Bid.

  Please note that all the original documents as well as the original payment instrument like Demand Draft against EMD /Bank Guarantee , samples(passive components) as specified in this tender document have to be sent to the address of the Purchaser mentioned in the Tender Document by post/speed post/by hand on or before bid Submission closing date & time. Beyond that the tender shall be summarily rejected without assigning any reason.

FINANCIAL BID consists of:

1. Price bid in the form of BoQ_XXXX.xls.
2. Scanned copy of item wise breakup of price bid.

The Price bid format is provided as BoQ_XXXX.xls along with this Tender Document at www.jktenders.gov.in. Bidders are advised to download this BoQ_XXXX.xls and quote their offer/rates in the prescribed column. Bidders have to quote Basic Price including taxes, / levies, freight etc. in INR.

Alternative Bids:

Alternative bids shall not be considered.

Bid Prices and Discounts

The prices and discounts quoted by the Bidder in the Tender Forms and in the Price Schedules (BOQ) shall conform to the requirements specified as under:

(a) All items must be listed and priced separately in the Price Schedules (BOQ).

(b) The price to be quoted shall be the total price of the bid, excluding any discounts offered.

(c) The Bidder shall quote any discount and indicate the methodology for their application in the Tender Forms.

(d) Prices quoted by the Bidder shall be fixed during the life of this tender.

Period of Validity of Bids

- Bids shall remain valid for a period of 120 days after the bid submission deadline date prescribed by the Purchaser. A bid valid for a shorter period shall be rejected by the Purchaser as non – responsive.

- 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 Earnest Money Deposit (EMD). A Bidder acceding to the request will neither be required nor permitted to modify the bid.

- Bid evaluation will be based on the bid prices without taking into consideration the above modifications.

Submission and Opening of Bids

The Bidder shall submit the bids electronically, through the e- procurement system (www.jktenders.gov.in). Any document submitted through any other means will not be considered as part of the Bid except for the Originals etc. as asked for in this tender.

- **Deadline for Submission of Bids**

The Purchaser may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

- **Late Bids**

The e-Procurement system would not allow any late submission of bids after due date and time as per server system. After electronic online proposal submission, the system generates a unique identification number which is time stamped. This shall be treated as acknowledgment of the proposal submission.

- **Bid Opening**

The Purchaser shall open the bids as per electronic bid opening procedures specified in JK tender portal at the date and time specified. Bidders can also view the bid opening by logging on to the e-procurement system. The tenderer/ bidder will be at liberty to be present either in person or

through an authorized representative at the time of opening of the Bid or they can view the bid opening event online at their remote end. Price Bids of only those tenderers shall be opened whose technical bids qualify.

The withdrawn bid will be available in the system .If bidder once withdraws the bid then he will not be able to participate in the respective tender again.

The Purchaser shall prepare a record of the bid opening that shall include, the name of the Bidder; whether there is a withdrawal, substitution, or modification; the Bid Price including any discounts and alternative bids; and the presence or absence of a bid security/EMD, if one was required. The Bidders' representatives who are present in the office of the Purchaser to witness the bid opening shall be requested to sign the record. The omission/refusal of a Bidder's signature on the record shall not invalidate the contents and effect of the record.

- **Confidentiality**

  Information relating to the evaluation of bids and recommendation of contract award shall not be disclosed to bidders or any other persons not officially concerned with the bidding process until information on Contract Award is issued.

  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 Purchaser, it should be done in writing.

  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.

- **Clarification of Bids**

  To assist in the examination, evaluation, comparison of the bids, and qualification of the Bidders, the Purchaser may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder in respect to its Bid and that is not in response to a request by the Purchaser shall not be considered. The Purchaser's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Purchaser in the Evaluation of the bids.

  If a Bidder does not provide clarifications of its bid by the date and time set in the Purchaser's request for clarification, its bid may be rejected.

  The Purchaser shall examine the technical aspects of the bid submitted in accordance with instructions specified in tender document, in particular, to confirm that all requirements enumerated in the Compliance Sheet have been complied with, without any material deviation or reservation or omission.

- **Purchaser's Right to Accept Any Bid, and to Reject Any 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 contract award, without thereby incurring any liability to Bidders. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.

- **Award of Contract**

In normal circumstances the University will generally award the Contract to the successful Bidder whose Bid has been determined to be the lowest (on turnkey basis) evaluated responsive Bid, provided further that the Bidder has been determined to be qualified to perform the Contract satisfactorily.

At the time the Contract is awarded, the Purchaser reserves the right to increase or decrease the quantity of Goods and Related Services originally specified by 20%.

- **Notification of Award**

Prior to the expiration of the period of bid validity, the Purchaser shall, notify the successful Bidder, in writing, that its Bid has been accepted. The notification letter (hereinafter and in the Conditions of Contract and Contract Forms called the —Letter of Acceptance) shall specify the sum that the Purchaser will pay the Supplier in consideration of the supply of Goods (hereinafter and in the Conditions of Contract and Contract Forms called –the Contract Price).

Until a formal Contract is prepared and executed, the notification of award shall constitute a binding Contract.

- **Signing of Contract**

Promptly after notification, the Purchaser shall send the successful Bidder the Contract Agreement.

Within seven days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Purchaser.

- **Performance Security**

Seller shall give a Performance Bank Guarantee to the tune of 3% of the total contract value of the purchase order within 30 days of award of the contract in shape of Bank Guarantee from any Nationalized Bank or scheduled Bank in favour of The Registrar, University of Jammu, Jammu on a non-judicial stamp paper of worth Rs. 100/- (Rupees One hundred). The aforesaid Bank Guarantee shall be valid for the order to cover the defect liability. i.e. two more months beyond the warranty period (62 months) from the date of receipt of materials(last consignment) at store/site plus extra three months towards claim period.

Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security/EMD. In that event, the Purchaser may award the Contract to the next lowest evaluated Bidder, whose bid is substantially responsive and is determined by the Purchaser to be qualified to perform the Contract satisfactorily.

Annexure – I

General Information about the bidder

1.	**Name Of The Bidder**	
2	**Postal Address**	
3	**Telephone/Fax no**	
4	**E-mail address & URL**	
5	**Type of Company / Firm** Attach Proof of Company Registration along with a copy of the Registration for Proprietorship / Partnership Deed / Article of Association and Memorandum of Understanding	
6	**Name and designation of the representative** of the Bidder to whom all references shall be made to expedite technical co-ordination.	
7	**Amount and reference of the EMD**	
8	**Financial capacity of the company/ firm.** (Attach copies of I.T. Returns and Balance Sheets for last 3 Years)	
9	**Name and address of the Indian/Foreign collaborator(s) if any**.	
11	**PAN/TAN Number**	
12	**GST Number**	

ANNEXURE – II: Bidder and OEM Compliance

S. No	DESCRIPTION	Documents Required	(Yes/ No)	(Page No)
I.	The bidder should be a Firm / registered Company / Organization / MSME with Government with Valid GST No and PAN No.	GST Registration Certificate and PAN Card		
II.	The Bidder should submit the Manufacturers Authorization Form (MAF) from the respective major OEMs.	Manufacturers Authorization Form (MAF) from each OEM.		
III.	The Bidder must be a profit making Company/Organization from last 3 years (2017-18, 2018-19,and 2019-20) duly certified by registered CA.	Documentary Proof / CA Certificate		
IV.	Switches, Controller and Access Points should be from the same OEM to have single TAC for Active components.	Documentary Proof and Certificate		
V.	OEM should have presence in India	Documentary Proof and letter from OEM		
VI.	The Bidder should have a minimum annual turnover of Rs 7.0 Crores in last three Financial years i.e. (2017-18, 2018-19, 2019-20) duly certified by registered CA	Documentary Proof / CA Certificate		
VII.	Bidder must have executed similar work in any State/Central Government Department/Government Agencies/UNIVERSITY/ PSU in last seven financial years	Purchase Orders from Government Department / Government Agencies / PSU.		
	Atleast one Project of Networking wired/wi-f-i/data centre with work order of the value of Rs5.0 Crore or more in any State/Central Government/Government Agencies/PSU in the financial years 2018-19 and 2019-2020 Or Two Projects of Networking			

	with work order of the value of 3.0 Crore or more in any State/Central Government/Government Agencies/PSU in the financial years 2018-19 and 2019-2020			

Annexure – III - SLA

I. Bidder will be responsible for operations and maintenance for a period of Five years.

II. For the purpose of measurement, "**downtime**" or "**fault duration**" constitutes any period of time during which the network connection is not useable for Data, Voice & Video. Causes of downtime include:
    a. Network connection equipment failures, supplied by Bidder to UNIVERSITY OF JAMMU
    b. Process failure
    c. Local loop failure in cables.
    d. Access Point, Core Switches, Distribution & Access Switches
    e. Any failure in the entire solution provided.
    f. Cable fault in the network e.g. LAN cable, internal OFC patch cords, patch panel etc.

III. The successful bidder shall take immediate action to carry out any rectification work and restore the installation to its normal operating conditions upon receipt of the complaint from the officer in-charge of the END-USER or his representative's work for Five year after Go Live acceptance. If no action is taken to carry out the repair within one week , the UNIVERSITY OF JAMMU shall reserve the right to engage a third party to carry out the rectification works with all the costs and expenses charged to the successful bidder.

IV. This SLA will be a part of agreement with further additions as deemed necessary by UNIVERSITY OF JAMMU.

V. Post Go-Live, any change proposed by UNIVERSITY OF JAMMU would be addressed by the bidder.

Annexure IV

TECHNICAL SPECIFICATIONS OF PRODUCTS

Campus Network Infrastructure	
S.No	**Generic campus network Design Requirement**
1	Campus must be designed to avoid any STP, Blocking links, broadcast/flood related issues.
2	All switches i.e. Core, Distribution Switches and PoE switches need to be provided with all software license from day-1 to support functionality mentioned in RFP specification
3	Campus should have network automation tool for Zero touch provisioning, Building network and host inventory, Network Topology, Creating network segment and network access policy, Software image update, Troubleshooting end to end connectivity, Getting OEM update on security update/advisory.
4	Bidder should quote Direct OEM TAC Support for 5 years with 8 X 5X NBD SLA
	Network Provisioning and Automation
5	All hardware or cloud based resources needed by the controller and/or any other component to make the solution work as per specs is to be included from day 1
6	Management platform shall support template based configuration
7	Management platform shall support automated configuration changes (e.g. pushing common network changes across all devices, such as (QoS, security credentials or access control lists)
8	Management platform shall support configuration compliance checking to detect config drift (e.g. manual configuration changes that no longer match templates or automated configs)
9	Management platform shall support software image compliance checking for feature and performance consistency
10	Management platform support turnkey automated deployment(Zero Touch Provisioning) /PnP.
11	Management platform should provide open APIs to integrate custom developed or commercial third party tools
12	Management platform should support network rollback to a previously known good state after a failed maintenance operation

13	Management platform should support automated hitless software upgrades of network devices.
14	Management platform or devices shall support: ssh, JSON/HTTPS, OpenConfig/RESTConf/Netconf/SNMPv2c/v3/Rest APIs
16	Monitoring platform shall support correlation of events to simplify troubleshooting and reduce alerts.
17	Monitoring platform shall support capture of the state changes on the device I.e. Network events, States and any anomalies.
18	Monitoring platform should support event triggered email notification/Webhooks/SMS/
19	
20	management platform should monitor and record network performance throughput
21	
22	management platform should collect and maintain an inventory of all campus devices connected
23	Management Platform should automatically create and display the physical topology of network
24	Fabric/Solution should support real-time Telemetry function where in it should receive telemetry information from the switches. Telemetry should provide deeper visibility in terms of providing time line based view of the the control plane/data Plane data of the switching fabric/Solution. All Switches shall have license for streaming telemetry information from day 1. Telemetry software shall be licensed to receive telemetry information from all the switches in the fabric/Solution. Telemetry solution and switch OEM should be the same in order to provide seamless integration.

S.No	Core Switch :
	Hardware and Performance
1	Switch should be fixed form factor based configuration to support at-least 32*100G/40G Gigabit Ethernet QSFP+ Ports
2	The switch should come with 20 QSFP+ (40G) ports Populated from day one supporting upto 1 Km or more.

3	Switch must have redundant power supplies(1+1) and fans(N+1)
4	Switch should have field replaceable power supplies and FAN trays
5	Switch should have non-blocking architecture and should support switching bandwidth up to 6Tbps.
6	Device should support upto 95K-100K MAC address
7	Device should support upto 60K IPv4 Prefix routes
	Operating System
8	Shall support modern modular operating system designed for scalability and reliability
9	Shall support auto process recovery from failures
10	Shall support Health monitoring and self-healing
11	Shall support Single Operating System binary image for all switch models proposed as part of the design.
12	Shall support Industry standard CLI
	L2 Feature
14	Switch should support Ethernet standards like IEEE802.1p, IEEE802.1Q, Flow control, Jumbo frame, 802.1D, 802.1w, 802.1s, Jumbo frames (9216), 802.3ad, 4K VLAN
15	Device should support MST/per-vlan RSTP, BPDU Guard, Loop Guard or equivalent.
16	Device support LLDP and LACP to bundle links and detect miscalling issues.
	L3 Features
17	Device should support Routing Protocols: OSPFv2 with multiple instances, OSPFv3, BGP, MP-BGP, and RIPv2
18	Device Should support Graceful restart for BGP,OSPF v2 and v3.
19	Device Should support Policy Based Routing (PBR) for IPv4 and IPv6, VRRP V4 and V6, Resilient ECMP, Unicast Reverse path forwarding (urpf), and Inter-VRF route leaking
21	Device should support VXLAN+EVPN leaf-spine overlay technology
22	Device should have support for IRB
23	Device should support IPv4 and IPv6 clients in EVPN based overlay network
24	Device should support active-active EVPN multi-homing

25	Device should support Dynamic NAT options like Many-to-Many NAT and Many-to-One NAT (PAT) at line rate with no additional latency.
26	Device should support IGMP v2/v3,PIM-SM / PIM-SSM, VRF Support for IP Multicast, Multicast Source Discovery Protocol (MSDP)and IP Multicast Multipath. Support for Anycast RP (RFC 4610) is optional
	High Availability
27	Device should support Hitless upgrade & reloads in MLAG/Vpc setup and standalone (non-stack) setup (optional), without adversely affecting the forwarding plane with sub second data outage during upgrade.
28	Device should support Low-Memory mode wherein during a out of memory condition the device kills non-essential agents until the system recovers the necessary amount of memory.
	Security
29	should support port ACL with l2, L3 and L4 parameters
30	Should support Storm control and Control Plane protection (CoPP)
31	Device should protect against ARP and DHCP spoofing by ensuring that a port will only permit IP and ARP packets with IP source addresses that have been authorized.
32	Device should support multicast accounting to AAA servers
	QoS features
33	Switch should support 8 queues per port
34	should support priority queue
35	should support Weighted Fair Queue or Weighted round robin or equivalent
36	should support WRED and DSCP for CPU generated traffic
37	should support ACL based classification for QoS
39	Should support rate limiting function like policing and shaping
	Management and Troubleshooting
40	Switch should support Telnet, SSHv2, https, SNMPv1/2/3, configuration rollback feature for ease of management
41	Switch may support API Driven configuration and support Netconf and Restconf using YANG data model. It may support automation tool like python. It is an optional feature.

42	Device should support advanced mirroring features.
43	should support NTP/IEEE 1588 PTP
44	Device should support real time data collection with sflow/netflow.
45	Switches need to be provided with all software license from day-1 as per RFP specification
46	Switch should support streaming Real-time telemetry from Day 1

S.No	Distribution/Service Switch
	Hardware and Performance
1	Switch should be fixed 1RU based configuration to support at least 48*25G or more. The individual interface should be configurable to 1G & 10G if required.
2	Device should have 4x 40/100G Fibre ports with support breakout to provide additional 16 number of 10/25/50G interfaces.
	The switch should come with 4 X 40G ports Populated from day one supporting upto 1 Km and 15 SFP (1G) ports populated from day one supporting upto 1 Km.
3	Device should support upto 80K MAC address
4	Device should support upto 30K IPv4 Prefix routes
5	Switch must have redundant power supplies(1+1) and fans(N+1)
6	Switch should have field replaceable power supplies and FAN trays
7	Device should have total Throughput of 3.6Tbps or more.
	Operating System
8	Shall support modern modular operating system designed for scalability and reliability
9	Shall support auto process recovery from failures
10	Shall support Health monitoring and self-healing
11	Shall support Single Operating System binary image for all switch models proposed as part of the design.

12	Shall support Industry standard CLI
	L2 Feature
13	Switch should support Ethernet standards like IEEE802.1p, IEEE802.1Q, Flow control, Jumbo frame, 802.1D, 802.1w, 802.1s, Jumbo frames (9216), 802.3ad, 4K VLAN
14	Device should support MST/per-vlan RSTP, BPDU Guard, Loop Guard or equivalent
15	Device support LLDP and LACP to bundle links and detect miscalling issues.
	L3 Features
16	Device should support Routing Protocols: OSPFv2 with multiple instances, OSPFv3, BGP, MP-BGP, and RIPv2
17	Device Should support Graceful restart for BGP,OSPF v2 and v3.
18	Device Should support Policy Based Routing (PBR) for IPv4 and IPv6, VRRP V4 and V6, Resilient ECMP, Unicast Reverse path forwarding (urpf), and Inter-VRF route leaking
19	Device should support VXLAN+EVPN leaf-spine overlay technology
20	Device should have support for IRB
21	Device should support IPv4 and IPv6 clients in EVPN based overlay network
22	Device should support active-active EVPN multi-homing
23	Device should support Dynamic NAT options like Many-to-Many NAT and Many-to-One NAT (PAT) at line rate with no additional latency.
24	Device should support IGMP v2/v3,PIM-SM / PIM-SSM, VRF Support for IP Multicast, Multicast Source Discovery Protocol (MSDP)and IP Multicast Multipath. Support for Anycast RP (RFC 4610) is optional.
	Security
25	should support port ACL with l2, L3 and L4 parameters
26	Should support Storm control and Control Plane protection (CoPP)
27	Device should protect against ARP and DHCP spoofing by ensuring that a port will only permit IP and ARP packets with IP source addresses that have been authorized.
28	Device should support multicast accounting to AAA servers
	QoS features

29	Switch should support 8 queues per port
30	should support priority queue
31	should support Weighted Fair Queue or Weighted round robin or equivalent
32	should support WRED and DSCP for CPU generated traffic
33	should support ACL based classification for QoS
34	Should support rate limiting function like policing and shaping
	Management and Troubleshooting
35	Switch should support Telnet, SSHv2, https, SNMPv1/2/3, configuration rollback feature for ease of management
36	Switch may support API Driven configuration and support Netconf and Restconf using YANG data model. It may support automation tool like python. It is an optional feature.
37	Device should support advanced mirroring features.
38	should support NTP/IEEE 1588 PTP
39	Device should support real time data collection with sflow/netflow.
40	Switches need to be provided with all software license from day-1 as per RFP specification
41	Switch should support streaming Real-time telemetry from Day 1

	Access Switch 48-Port
	Performance and Scalability
1	The switch should have minimum of 48x10M/100M/1G downlink Ethernet port and 4x25 or More Uplink SFP Ports in fixed Form Factor. The switch should come with 2 SFP28 ports Populated from day one supporting upto 10 Km and 2 SFP28 ports Populated from day one supporting upto 70 m. Or The switch should have minimum of 48x10M/100M/1G downlink Ethernet port and 2x25 Uplink SFP Ports with 2 Stacking Port & required cable for both in fixed Form Factor . The switch should come with 2 SFP28 ports Populated from day one supporting upto 10 Km.

2	The switch should support minimum of 30W(802.11at). Simultaneously on all the downlink ports.
3	Switch should operate at wire speed and should have Non-blocking architecture.
4	Switch should have field replaceable power supplies and field replaceable FANs.
5	Switch should have 1+1 Power supply and N+1 redundant Fan Tray
	L2 Feature
7	Shall support upto 32K MAC.
8	Spanning Tree Protocol (IEEE 802.1.D, 802.1W, 802.1S)
9	Switch should support VLAN Trunking (802.1q) and should support 4k VLAN and MAC based VLAN assignment
10	Switch should support basic Multicast IGMP v1, v2, v3
11	Shall support Shall support RPVST+ / VSTP or equivalent
12	Shall support LACP
14	Shall support Port Mirroring and should support L2/L3/L4 filtering on Mirror session.
15	Shall support Jumbo Frames 9K Bytes
16	Shall support 802.1AB Link Layer Discovery Protocol (LLDP) and also LLDP enhancements for PoE including Media Endpoint Discovery (MED) attributes reporting
	L3 Feature
17	Switch should support 30K IPv4/ 7K IPv6 Routes
19	Switch must support protocols like BGPv4, OSPFv2/v3 , MP-BGP,RIPv2,BFD , PIM-SM, Policy based routing
20	Switch should support VRRP,
21	
	Network security features
23	The switch should support IEEE 802.1x Authentication framework, MAC authentication, Dynamic VLAN assignment and CoA.
24	The switch should support SSHv2, SNMPv3, TACACS+ and RADIUS

25	Switch Should act as DHCP Relay.
26	Switch should support Ingress ACL Scale of 4k or better.
27	Switch should support DHCP spoofing protection mechanism or equivalent.
	Quality of Service (QoS) & Control
28	The switch should support 8 egress queues per port to enable differentiated management
29	The switch should support Standard 802.1p CoS field classification and Differentiated services code point (DSCP) field classification
30	The switch should support Rate Limiting function to guarantee bandwidth
31	The switch should support SPQ(Strict Priority Queueing, WRR(Weighted Round robin), Policing, shaping and Per-Priority Flow control (PFC) or equivalent
32	Switch should support IEEE 1588/NTP
	Operation and Management
33	Switch should have dedicated management port and USB ports to upload configuration files and image
34	
35	Switch should Provide persistent/constant PoE power even when switch is under maintenance
36	Shall support ISSU for software upgrades and hitless patching
	Management and Troubleshooting
37	Switch should support telnet, ssh, https, SNMPv3, configuration rollback feature for ease of management
38	Switch may support API Driven configuration and support Netconf and Restconf using YANG data model. It may support automation tool like python. It is an optional feature.
39	Switch should support port mirroring based on Inbound & outbound, mirroring based on ports, vlans.
40	Switches need to be provided with all software license from day-1 as per RFP specification
41	Switch should support real time data collection with sflow/netflow.
42	Switch should support real-time telemetry
	Other

44	should support IPv4 and IPv6 dual stack operations simultaneously
45	Hardware replacement warranty and TAC support should be directly from the OEM. OEM email-id and India Contact support no. to be provided.
46	Required SFP Module should be from Same OEM

	Access Switch 24-Port
	Performance and Scalability
1	The switch should have minimum of 24x10M/100M/1G downlink Ethernet port and 4x25 or More Uplink SFP Ports in fixed Form Factor . The switch should come with 2 SFP28 ports Populated from day one supporting upto 10 Km and 2 SFP28 ports Populated from day one supporting upto 70 m. Or The switch should have minimum of 24x10M/100M/1G downlink Ethernet port and 2x25 Uplink SFP Ports with 2 Stacking Port & required cable for both in fixed Form Factor . The switch should come with 2 SFP28 ports Populated from day one supporting upto 10 Km.
2	The switch should support minimum of 30W (802.11at) on all 24 ports simultaneously
3	Switch should operate at wire speed and should have Non-blocking architecture.
4	Switch should have field replaceable power supplies and field replaceable FANs
5	Switch should have 1+1 Power supply and N+1 redundant Fan Tray
	L2 Feature
7	Shall support upto 32K MAC.
8	Spanning Tree Protocol (IEEE 802.1.D, 802.1W, 802.1S)
9	Switch should support VLAN Trunking (802.1q) and should support 4k VLAN and MAC based VLAN assignment
10	Switch should support basic Multicast IGMP v1, v2, v3
11	Shall support Shall support RPVST+ / VSTP or equivalent
12	Shall support LACP
13	Shall support active/active layer2/Layer3 multipathing redundancy(MLAG)
14	Shall support Port Mirroring and should support L2/L3/L4 filtering on Mirror session.

15	Shall support Jumbo Frames 9K Bytes
16	Shall support 802.1AB Link Layer Discovery Protocol (LLDP) and also LLDP enhancements for PoE including Media Endpoint Discovery (MED) attributes reporting
	L3 Feature
17	Switch should support 30K IPv4/ 7K IPv6 Routes
18	Switch must support protocols like BGPv4, OSPFv2/v3 , MP-BGP,RIPv2,BFD , PIM-SM, Policy based routing
19	Switch should support VRRP,
20	
	Network security features
23	The switch should support IEEE 802.1x Authentication framework, MAC authentication, Dynamic VLAN assignment and CoA.
24	The switch should support SSHv2, SNMPv3, TACACS+ and RADIUS
25	Switch Should act as DHCP Relay.
26	Switch should support Ingress ACL Scale of 4k or better.
27	Switch should support DHCP spoofing protection mechanism or equivalent.
	Quality of Service (QoS) & Control
28	The switch should support 8 egress queues per port to enable differentiated management
29	The switch should support Standard 802.1p CoS field classification and Differentiated services code point (DSCP) field classification
30	The switch should support Rate Limiting function to guarantee bandwidth
31	The switch should support SPQ(Strict Priority Queueing, WRR(Weighted Round robin), Policing, shaping and Per-Priority Flow control (PFC) or equivalent
32	Switch should support IEEE 1588/NTP
	Operation and Management
33	Switch should have dedicated management port and USB ports to upload configuration files and image
34	
35	Switch should Provide persistent/constant PoE power even when switch is under

	maintenance
36	Shall support ISSU for software upgrades and hitless patching
	Management and Troubleshooting
37	Switch should support telnet, ssh, https, SNMPv3, configuration rollback feature for ease of management
38	Switch may support API Driven configuration and support Netconf and Restconf using YANG data model. It may support automation tool like python. It is an optional feature.
39	Switch should support port mirroring based on Inbound & outbound, mirroring based on ports, vlans.
40	Switches need to be provided with all software license from day-1 as per RFP specification
41	Switch should support real time data collection with sflow/netflow.
42	Switch should support real-time telemetry
	Other
44	should support IPv4 and IPv6 dual stack operations simultaneously
45	Hardware replacement warranty and TAC support should be directly from the OEM. OEM email-id and India Contact support no. to be provided.
46	Required SFP Module should be from Same OEM

	Wireless Controller Specifications
1.1	**Solution Architecture** The System Architecture enlists the expectation from the "Total Solution", that are common to Wi-Fi services including, but not limited to, Access, WIDS and WIPS.
1.2	The proposed Wi-Fi controller(s) should be cloud based Management solution
1.3	Solution must support an independent intelligent edge architecture for Wi-Fi access. In case of non-reachability of the controller, all WLAN services should be delivered at the edge.
1.4	All Wi-Fi, WIDS, WIPS & RRM (Radio resource management) services should be functional if the link between AP/Sensor and its management controller goes down. It must also be possible to onboard new clients in such a scenario.

1.5	The solution must facilitate Control and Provisioning of Wireless Access Point devices and ensure data encryption between access point devices and controllers across remote WAN/LAN links
2	**Management Controller**
2.1	The Controller must provide centralized Wi-Fi and WIPS management system
2.2	The controller must have AP Group based policy management and administration.
2.3	The Controller should have role based admin rights to manage the controller.
2.4	The controller should support open API's for integration with 3rd party configuration management, inventory management, performance management, process automation, reporting, WLAN monitoring tools etc.
2.5	The controller should enable application visibility and control. It should display list of applications with their data usage for a specific SSID.
2.6	The Solution should allow blocking traffic based on IP address, port, URL, hostname, application etc. and QoS (for example: bandwidth restriction for the SSID, QoS tagging of special traffic like Voice) at the edge (AP).
2.7	The solution should locate wireless devices (APs and Clients) on floor maps
2.8	The solution must provide location tracking of a DoS attacker
2.9	Controller should support SNMP v1, v2c, v3/ Webhooks /API
2.10.	The controller should provide remote packet capture for troubleshooting
2.11.	The system should support remote packet captures on AP radio and Ethernet ports without disrupting the client connectivity of any of the APs.
2.12.	The solution should maintain controller user action logs which should include all activities performed by the user like login, any configuration changes made on the system, device deletion, device authorization, log out etc., for at least 7 days.
2.13.	The solution should enable wireless client association analytics logs which should record client MAC address, AP connected to, data transfer, data rate, session duration, content - domain (http, https, IP address), for at least 30 days. In case of support for less than 30 days, an automated solution must be provided to download logs to local repository.
2.14.	The solution must allow VLAN segmentation at the edge.
2.15.	Time Schedules - the solution must allow configuration of time schedules when WLAN is / isn't available (For example: SSIDs can be active from 9 am to 5 pm and then automatically disabled). It not supported then feature must be provided by support of external/Third Party app.
2.16.	Solution should support External Splash Page

2.17.	The solution should support RADIUS and OTP-based authentication mechanisms (SMS gateway to be provided by Customer in case of OTP based authentication) for Guest users
2.18.	Solution should support "Walled Garden" or equivalent feature for Guest Network
2.19.	Solution should support URL redirection
3.	**Management and Monitoring**
3.1	The solution should have all locations consolidated dashboard and location-specific dashboard as well.
3.2	The solution must send notifications based on location and alarm type
3.3	Client Fingerprinting - The solution should detect and identify all types of Wi-Fi enabled client devices.
3.4	The solution must provide a device summary (for APs, and clients) report per location
3.5	The solution must allow for report generation.
3.6	The controller and Wi-Fi AP devices management should support command line (ssh / telnet)/web based (https) administration.
3.7	The solution shall support Location tracking of any particular client and AP
3.8	The solution should support automated root cause analysis of WiFi issues such as low RSSI, low data rate, Authentication related issue.
3.9	The solution should highlight client connection failures during association, authentication and network entry. It should also identify the cause of failure.
4	**Software & System Mangement**
4.1	The system should support manual and scheduled automatic system backup.
4.2	The controller and AP can be on different software versions.
4.3	The controller should be able to rollback all APs/group of APs to previous version.
4.4	The Controller Upgrade should not disrupt Wi-Fi and WIPS services.
4.5	The AP Upgrade to controller version should be flexible and be scheduled on per AP/AP group or site basis as required.
4.6	For management and monitoring operations, the controller must provide a web interface/command-line interface and APIs.
4.7	The Solution shall support Hitless AP upgrade feature

5.	**WIPS**
5.1	The solution must auto-classify APs precisely in different categories as managed / authorized (ie. managed device connected to the networks), external (i.e. un-managed APs not connected to the networks, e.g. neighbors), and rogue APs (un-managed AP connected to the networks)
5.2	The solution must have the capability of auto classifying Wi-Fi clients as authorized (managed clients connecting to the network), guest, and rogue in addition to manual classification.
5.3	The solution must correctly detect Devices connecting to the network. Additional solution if required must be provided to satisfy this requirement
5.4	The solution must be able to detect and automatically prevent all types of Rogue (unauthorized APs connected to the network) APs, such as: a) APs such as Bridge and NAT b) MAC-adjacent Open/Encrypted Wi-Fi routers c) Non-MAC-adjacent OPEN Wi-Fi routers d) Virtual APs on network connected laptops (e.g., Connectivity software on Windows 7/10) e) Non-MAC adjacent APs having MAC ACLs
5.5	The solution must be able to detect and automatically prevent all Wi-Fi enabled devices such as smartphones bridging / ICS when connected to the network
5.6	The solution must detect mis-configured authorized APs and automatically prevent them.
5.7	The solution should detect and prevent outside client trying to connect to the the WLAN
5.8	The solution must detect Honey Pot attacks including its advanced variants such as Multiport attack. It should be able to prevent the authorized client from connecting to a honeypot AP.
5.9	The WIPS solution should NOT affect the operation of an external (i.e. neighbors) or a man-aged access point while preventing a rogue AP on the same channel.
5.10.	The solution must be able to detect wireless Denial of Service (DoS) attacks
5.11.	The solution must provide forensic data aggregated for major threat vectors like Rogue AP, Honeypot AP, Mis-Configured AP, DoS, Unauthorized Association, Ad Hoc Networks, Bridging/ICS Client, Mis-Association.
6	**Guest Management**
6.1	The solution should include web based guest user creation by front office users. Any additional solution if required must be provided.

6.2	The solution should support self-registration by guest users and admin users can approve the registration.
6.3	The solution should allow blocking of guest user for specific time frame between two association sessions.
6.5	The solution should support portal page that can be used to display the terms and conditions of accessing the guest network as well as any other information as needed.
6.6	The solution should support for Login Timeout, Blackout Time, Redirect to URL and walled garden settings.
6.7	The solution should support multiple custom portals - separate portals can be configured for each SSID.
6.8	The solution should support authentication using social plugins - guest users can access WiFi using their social media account credentials.
6.9	The solution should support authentication using private guest book account.
6.10	The solution should support creating a custom portal for click-through access, portal page can also be created to ask user to fill some basic information like name, age, email to provide access to WiFi.
6.11.	The solution should support SMS OTP-based authentication support.
7	**License, Warranty and Support**
7.1	The Total solution should come with all required feature licenses from first day of installation
7.2	The Total solution should have 10 years hardware/Software/Licences warranty for AP's, controller, Adapters and every item supplied as a part of solution
7.3	The Total solution should have technical support for Hardware, Software, Software upgrades, all license cost from the OEM for first 10 years.
7.4	The Total solution should come with the latest and updated version available at no extra cost
7.5	Any new release of firmware and software must be updated regularly within 10 years warranty term.
7.6	Should Provide TAC support direct from OEM not from outsourced TAC

S.NO.	AP – Features Type-1 (Indoor)
1	AP should support at least IEEE Wi-Fi 802.11ac Wave 2 standard.
4	AP must support Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP).

5	Wi-Fi AP devices and the solution must support the following protocols: IEEE 802.11a/b/g, IEEE 802.11n, IEEE 802.11ac (WAVE 2), IEEE 802.11h, IEEE 802.11d, 802.11i, 802.11 r/k/v
6	The Wi-Fi AP devices and the solution should support the following authentication methods: 802.1X support, per-session encryption keys (WPA2)
8	Wi-Fi APs and the system should have ability to set SSIDs as bridge or NAT.
9	Wi-Fi APs and the system should have support for 802.1Q VLANs.
11	Supply should include ceiling/wall mountable units equal to the no. of APs quoted.
12	APs shall be compliant with all applicable national regulation.
13	
14	AP must support SSH protocol for local or remote access to device through CLI/Web administration.
15	At least 8 SSIDs shall be supported in each of the 2.4GHz and 5GHz bands, with the ability to map each SSID to a separate VLAN.
16	The SSID profiles/configurations of 2.4GHz and 5GHz radios should be independent.
17	APs shall support Hotspot 2.0
18	The device must be capable of providing Wi-Fi access with 24/7 wireless intrusion prevention (WIPS) in a single device both operating simultaneously.
19	The device should be remotely upgradeable from the controller, so that new features / upgrades can be added.
21	AP Should support 2 X Gigabit Ethernet Port.
22	AP must support minimum 4X4 multi user, multiple-input multiple-output (MU-MIMO)
23	Security mechanisms should be in place to protect the communication between the controller and the APs.
24	AP must support simultaneous 802.11n on the 2.4GHz and 802.11ac Wave 2 on the 5GHz radios.
25	AP shall support up to 800 Mbps for 2.4 GHz radio and 1.7 Gbps on 5GHz radio.
26	AP shall support 20/40/80 MHz channel width in 5GHz band.
27	Must support 802.11 dynamic frequency selection (DFS).
28	Must support up to 24dBm Tx power.
29	Antenna gain should be minimum 3dBi for 2.4 GHz and 5 GHz.

30	AP must able to handle RF interference from other WiFi and non-WiFi sources and automatically assign channel and power so as to deliver high performance and reliable communication.
33	The AP must support 802.11ac beamforming (transmit beamforming).
34	AP must support AP load-balance between 2.4GHz and 5GHz band.
35	AP must incorporate radio resource management for power, channel, coverage hole detection and performance optimization. These features should work even if the link to controller is down.
37	The AP must support IPv4 and IPv6 for management and data traffic.
38	The AP must be capable of receiving IP address via DHCP for IPv4/IPv6 and SLAAC for IPv6.
39	The AP shall support operating temperature of 0° C to +40° C.
40	The AP must support EoGRE/VXLAN for L2 tunnelling or equivalent tunnelling mechanism to achieve L2 tunneling.
41	The AP shall support third party analytics integration for real-time data transfer.
42	AP shall support self-healing wireless mesh networking.
43	Must support POE+ to power up the AP.

	AP Type-II (Outdoor) – Features
1	AP should support at least IEEE Wi-Fi 802.11ac Wave 2 standard.
2	AP should able to discover controllers on the same L2 domain.
3	AP must able to discover controller across L3 network.
4	AP must support Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP).
5	Wi-Fi AP devices and the solution must support the following protocols: IEEE 802.11a/b/g, IEEE 802.11n, IEEE 802.11ac (WAVE 2), IEEE 802.11h, IEEE 802.11d, 802.11i, 802.11 r/k/v
6	The Wi-Fi AP devices and the solution should support the following authentication methods: 802.1X support, per-session encryption keys (WPA2)
7	Wi-Fi APs and the system must support Fast Handoff between APs.
8	Wi-Fi APs and the system should have ability to set SSIDs as bridge or NAT.
9	Wi-Fi APs and the system should have support for 802.1Q VLANs.
10	Wi-Fi AP devices should support configurable management VLAN.
11	Supply should include Pole mountable units equal to the no. of APs quoted.
12	APs shall be compliant with all applicable national regulations.
13	AP should support integration with cloud-based and standalone on-prem controller.
14	AP must support SSH for local or remote access to device through CLI.
15	At least 8 SSIDs shall be supported in each of the 2.4GHz and 5GHz bands, with the ability to map each SSID to a separate VLAN.
16	The SSID profiles/configurations of 2.4GHz and 5GHz radios should be independent.

17	APs shall support Hotspot 2.0 Release 2.
19	The device should be remotely upgradeable from the controller, so that new features / upgrades can be added.
20	AP must support 2X2 or higher Multi user, multiple-input multiple-output (MU-MIMO) with 2 spatial streams.
21	Security mechanisms should be in place to protect the communication between the controller and the APs.
22	AP must support simultaneous 802.11n on the 2.4GHz and 802.11ac Wave 2 on the 5GHz radios.
23	AP shall support up to 400 Mbps for 2.4 GHz radio and 867 Mbps on 5GHz radio.
24	AP shall support 20/40/80 MHz channel width in 5GHz band.
25	Must support 802.11 dynamic frequency selection (DFS).
26	Must support Maximum Aggregate Transmit Power of 27dbm
27	Antenna gain should be minimum 5dBi for 2.4 GHz and 5 GHz.
28	AP must able to handle RF interference from other WiFi and non-WiFi sources and automatically assign channel and power so as to deliver high performance and reliable communication.
29	The AP should support 802.1q VLAN tagging.
30	The AP must support the following authentication methods: WPA2-AES, PSK, authentication and AES encryption and 802.1x/EAP and unauthenticated (open) mode.
31	The AP must support 802.11ac beamforming (transmit beamforming).
32	AP must support AP load-balance between 2.4GHz and 5GHz band.
33	AP must incorporate radio resource management for power, channel, coverage hole detection and performance optimization. These features should work even if the link to controller is down.
34	The AP must support IPv4 and IPv6 for management and data traffic.
35	The AP must be capable of receiving IP address via DHCP for IPv4/IPv6 and SLAAC for IPv6.
36	The AP shall support operating temperature of -20° C to +65° C.
37	The AP must support EoGRE for L2 tunnelling.
38	The AP shall support third party analytics integration for real-time data transfer.
39	The AP shall support integrated firewall, traffic shaping, QoS and BYOD controls per SSID.
40	AP shall support self-healing wireless mesh networking.
41	Must support POE+ to power up the AP.
42	The Access point shall be IP67 rated.

FTTH OLT

The optical line terminal (OLT) device should be rack mountable.
should Support Gigabit Passive Optical Network (GPON), 10 Gigabit Symmetrical PON (XGS-PON) and time and wavelength division multiplexing PON (TWDM-PON)
Should support up to 120 Gb/s full duplex throughput.
Should support 16-port GPON or 4-port universal next generation (NG)-PON (XGS-PON/TWDM-PON). The device should be populated with 4 GPON XFP optics from day 1. The GPON XFP optics should from same OEM as OLT.
Should provide 10/10 Gb/s symmetric and/or 10/2.5 Gb/s asymmetric
Should support 8 x 1/10 Gb/s small form-factor pluggable (SFP) modules. The device should be populated with 4 10 Gb/s SFP module from day 1.
Should support Link aggregation (LAG)
Should support Simple Network Management Protocol (SNMP) and command line interface (CLI)-based management system.

Passive Items:

S.No.	Description	Compliance Yes/No	Remark
	Eligible Criteria for OEM		
1	The OEM of Passive Network Components should be present in the India last 10 Year. (Document proof Required- Proof of Incorporation should be attached)		
2	25-year Performance warranty; Warranty to cover Bandwidth of the specified and installed cabling system		
3	Should have Technical / Telephonic support center in India		
4	OEM must have ISO 9001:2008, ISO 9001:14001.		
5	Factory Test report have to be provided for the product during supply.		
6	All the components/raw material used must be RoHS verified		
7	OEM should have manufacturing Unit and product design & Development center in India.		
8	OEM should have at least two dedicated Pre sales manpower in India for after sales support		
9	Only Premium Brand and No Class B Products should be quoted		
10	The entire passive components Fiber should be from single OEM of one make.		
11	The entire passive components Copper should be from single OEM of one make.		

	Approved Make : Panduit,Molex,Comscope, Siemon and R&M

Technical Specification		
Cat 6 4 Pair Cable		
1	Type	Unshielded twisted pair cabling system, TIA / EIA 568-C.2 Category 6 Cabling system
2	Network support	Supports ultrahigh speed data networks such as Gigabit Ethernet (1000 Base-T and 1000 Base-TX) and beyond.
3	TIA / EIA 568-B.1	ETL/3P Verified, UL Listed and UL channel verified- All three Certificates are mandatory
4	IEEE 802.3ab	, ETL/3P verified
5	Warranty	25-year systems warranty; Warranty to cover Bandwidth of the specified and installed cabling system, and the installation costs. Site certificate Should be issued by OEM
6	Performance characteristics to be provided along with bid	Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR for 4-connector channel
7	Manufacturer	All Copper cabling component should be from same OEM.
8	Conductors	23 AWG solid bare copper
9	Insulation	Polyethylene
10	Approvals	UL Listed
		ETL verified to TIA / EIA Cat 6
11	Frequency tested up to	250 MHz minimum
12	Packing	Box of 305 meters
13	Impedance	100 Ohms + / - 15 ohms
14	Performance characteristics to be provided along with bid	Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR
15	Delay Skew:	45ns Max
16	Impedance:	100 ± 15 Ohms
17	Current Rating:	1.5 A Max
18	Conductor DC Resistance:	66.5Ω/km
19	Voltage:	150VAC
20	Propagation delay:	535ns/100m @250MHz
21	Mutual Capacitance:	5.6nF/100m Nominal
22	Insulation Resistance:	500 MΩ Minimum
23	Dielectric Strength:	1000 V RMS
24	Contact Resistance:	10 mΩ Max
Cat 6 I/O		
1	**Features and Benefits**	

		I/O Should be With Spring-Loaded Shutter or /equivalent
		IDC V-shaped contacts that flex not fatigue when terminated.
		Features pointed IDC towers to speed termination and enhance cable retention.
		Dual color-coding allows for 568 A/B wiring configuration.
		Can be terminated using industry standard punch-down tools.
		RJ-11 compatible
		Molded category identification on I/O face as well as optional port identification icons.
		USOC Wiring Sequences Available
2	Dust Proof	RJ45 I/O should be supplied with Shutter/Dust cap to avoid Dust/equivalent
3	RJ45 I/O Compatibility	2a. Individual Compatible RJ45 I/O
		2b. Pointed IDC Tower on RJ45 I/O for easy termination
		2c. Half Plugged Patch Cord should be spitted out if not properly plugged in
4	**Mechanical Characteristics**	
	Plastic Housing:	Thermoplastic UL94V-0 rated or equivalent
	Operating Life:	Minimum 750 insertion cycles
	Contact Material:	Copper Alloy
	Contact Plating:	50µ" Gold/100µ" Nickel
	Contact Force:	100g minimum
	Plug Retention Force:	11 lbf minimum
5	**IDC Connector**	prevents incomplete mating protects from dust and contaminants
	Plastic Housing:	Thermoplastic UL94V-0 rated or equivalent
	Operating Life:	Should be Minimum 20 reterminations
	Contact Material:	Copper Alloy
	IDC Contact Plating:	Tin/Lead Plate
	Wire Accommodation:	22-24 AWG solid
6	**Electrical Characteristics**	
	Interface Resistance:	20 milliohms
	Initial Contact Resistance:	2.5 milliohms
	Insulation Resistance:	>100 Megaohms
7	Parts List:	
Wall plates		

1	Features and Benefits	The stylish unloaded Wallplates to accept the UTP Connector. The unloaded Synergy Wallplates are available in 1, 2 and 4 port variants, in five colours, to co-ordinate with any decor and any installation size.
2	Accomodates	Accommodates UTP, STP I/O Accommodates single bezel Fibre modules Accommodates media configurable modules
3	Material	VE10 ABS

24 Port loaded Patch Panel 1U Height

	Features and benefits	
1		Each port Should be features the spring-loaded shutter/equivalent – – Should be protects from dust and contaminants
		Should be IDC V-shaped contacts that flex not fatigue when terminated
		Should be Features pointed IDC towers to speed termination and enhance cable retention
		Should be Front and rear port labelling as well as panel identification label
		Should be Integral cable management shelf ensures bend radius compliance
		Should be Molded category identification on each port face as well as optional port identification icons
	Mechanical Characteristics	
	Plastic Housing:	Should be thermoplastic UL94V-0 rated or equivalent
	Operating Life:	Should be minimum 750 insertion cycles
	Contact Material:	Should be copper Alloy
	Contact Plating:	50µ" Gold/100µ" Nickel
	Contact Force:	100g minimum
	Plug Retention Force:	11 lbf minimum
	IDC Connector	
	Plastic Housing:	Thermoplastic UL94V-0 rated or equivalent
	Operating Life:	Should be minimum 20 reterminations
	Contact Material:	Copper Alloy
	IDC Contact Plating:	Tin/Lead Plate
	Wire Accommodation:	22-24 AWG solid
	Electrical Characteristics	
	Interface Resistance:	20 milliohms
	Initial Contact Resistance:	2.5 milliohms
	Insulation Resistance:	>100 Megaohms
	Parts List:	

	Patch Panel Characteristics	
	Material:	cold rolled steel
	Thickness:	.060" (1.52mm)
	Coating:	Graphite Grey Powder coat
	Temperature range:	-10°C to +60°C
	Commercial Standards	
		TIA/EIA-568-C.2 Component Compliant
		FCC Subpart F 68.5 Compliant
		IEC-603-7 Compliant
		ISO 11801 Class E Compliant
		ETL/3P Verified for Category 6 Component
		Compliance & UL Listed
	Dimensions	
		24 Port with trays
		44mm H x 483mm W x 98mm D

Cat 6 Patch cord		
1	Type	Cat 6 U/UTP End-to-End Solution and are designed to support data networks for 10/100BASE-T and 1000BASE-T applications.
2	Conductor size:	Should be 24 AWG stranded copper wire
3	Nom. O.D.:	5.9mm
4	Sheath:	Should be LS0H
5	Bend radius:	4X O.D.
6	Boots	Transparent Plug with anti-snag slip on boots
7	RJ45 Plug Standard	ISO/IEC 60606-7-4 and FCC 47 Part 68
8	Sheath Standards	Fire Propagation compliant with CSA FTI, IEC 60332-1, IEC 61034
9	Operating temperature range:	Should be -20°C to 60°C
10	MIN operating life	:Should be 750 insertion cycles
11	RJ45 plug and boot material:	Clear polycarbonate
12	Contact material:	0.35mm thick copper alloy
13	Contact plating:	Selective gold
14	RJ45 plug dimensions compliant with:	ISO/IEC 60603-7-4 and FCC 47 Part 68
15	Commercial Standards	ISO/IEC 11801:2002/Amd 2:2010 Cat 6-, TIA-568-C.2 Cat 6
16		Should be ETL Verified/3P certified
17	Fire Propagation Tests:	Should be LS0H Sheath: CSA FT1, IEC 60332-1, IEC 61034
18	Standard length available	Should be 0.5mt to 10 mts

		Approved Make : Panduit,Molex,Comscope ,Siemon and R&M	

		Technical Specification	
Optical Fiber Armored Single-Mode OS2			
1	Cable Type	Optical fibres in water blocked loose tube, taped, corrugated steel tape armoured (STA) polyethylene (HDPE) outer sheathed embedded with two steel wires on the periphery. The cables are with UV Stabilized PE Jacket and protected from Rodent attacks. complying to ISO/IEC 11801, EN50173, ANSI/TIA 568-C.3, Telcordia GR-20; suitable for use in indoor / outdoor ducts, direct burial and backbone cabling	
2	Fiber Type	Single Mode, 9/125 micron primary coated buffers, OS2 (IEC 60793-2-50, B1.3 and ITU T G652.d). Shall be manufactured using Vapor Axial Deposition technology.	
3	**Contruction type**		
	Tube:	Polybutylene, Terephthalate(PBT)	
	Tube colour:	White	
	Tube diameter	3.0/2.0 mm nominal OD/ID	
	No of fibres:	4/6/8/12	
	Fibre colour sequence	Blue, Orange, Green, Brown, Slate (Grey), White, Red, Black, Yellow, Violet, Pink, Aqua	
	Water Blocking	Thixotropic Gel (Tube) Petroleum Jelly (Interstices)	
	Core Wrapping	Polyethylene Terephthalate	
	Armouring:	Corrugated Steel Tape Armour (ECCS Tape) Thickness > 0.125mm	
	Peripheral Strength Member	Two Steel wires (0.9 mm dia)	
	Ripcord:	Ployester based yarns below armoured tape for easy ripping	
	Outer Sheath	UV Stabilised Polyethylene (HDPE)	
	Sheath thickness	2.0 mm nominal	
	Sheath colour	Black	
4	**Standards**		

		complying to ISO/IEC 11801 2nd Edition, type OS1/OS2; AS/ACIF S008; AS/NZS 3080 ; TIA/EIA 568.C.3; IEC-60793-1, 60793-2 EN50173, ANSI/TIA 568-C.3, Telcordia GR-20; suitable for use in indoor / outdoor ducts, direct burial and backbone cabling
5	**Machanical characteristics**	
	Dimensions and Mass Overall Cable (Nominal):	9.0 MM
	Mass (Nominal)	80 kg/km
	Cable length	2 km ± 10%
	Max. Bending Radius (during installation)	20 X Overall diameter
	Max. Bending Radius (during full load):	10 X Overall diameter
	Max. Tensile Strength-Short Term	1500N
	Max. Crush Resistance-Short Term:	2000N/10 cm
	Operating Temperature range	-40°C ±70°C
6	**Optical characteristics**	
	Core Diameter @ 1310nm	9 + 0.6 μm
	Cladding Diameter	125 + 1.0 μm
	Cladding Non circularity	< 1.0 %
	Core Non circularity	< 6.0 %
	Core-Cladding Concentricity error	< 0.6 μm
	Primary Coating Diameter-uncoloured	245 + 10 μm
	Primary Coating Diameter-coloured	250 + 15 μm
	Primary Coating Non Circularity	< 6.0 %
	Primary Coating Cladding Concentricity error	< 12.5 μm
	Proof Stress Level	> 0.7 (~ 1%) GPa
	Strip Force (Peak):	$1.0 < F\ peak.strip < 8.9$
	Zero dispersion wavelength	1310-8/+12 nm
	Zero dispersion slope	> 0.091 ps/(nm2.km)
	Fibre curl:	> 4 m-radius of curvatuer
	Cut-off wavelength	< 1260 nm
	Mode field diameter at 1310	9.3 ± 0.5 μm
	Mode field diameter at 1550	10.4 ± 0.8 μm
	Macrobending loss @ 1550 nm, 100 turns on a 60mm mandrel	<0.5 db
	Max (chromatic)dispersion:	
	@1270-1340nm	<5.3ps/nm-km
	@1285-1330nm	<3.5ps/nm-km
	Polarisation mode dispersion (PMD)	
	coefficient, cabled	< 0.5 ps/sq km)

	PMD Link Design Value	< 0.2 ps/sq km) RoHS Complaint
7	**Electrical/Optical Characteristics**	
	Attenuation	Characteristics - Optical Performance Max. Attenuation (Cable with fibres) At 1310 nm: 0.35 dB/km At 1550 nm: 0.22 dB/km Max. Average Attenuation; At 1310 nm: 0.33 dB/km At 1550 nm: 0.21 dB/km

Rack Mount Fiber Panel

1	Rack Mount	LIU Should have Sliding Drawer with 4 Cable entry/exit points (covered with rubber grommets)
2	Material	Powder coated mild steel
3	Accommodation and Supports	Accommodation of single mode cable multimode fibers Capable of supporting SC and LC interface - For 24 Port with SC Coupler Management rings within system to accommodate excess fibre bend radius.
4	Compatiabiliy	Labelling for port identification, Fiber Management rings to accommodte excess fiber cordage behind the trough adapters and maintain fiber bend radius
5	No. of fiber ports	The 1U 24 Port LIU must be expandable up 96 ports.

Optical Fibre Adapter Plates/adaptors

1	Features and Benefits	Optical Fibre Adapter Plates are modular platform that is compatible with a various Enclosures and Fibre Splicing Systems. Adapter density ranges from 6/12 fibres to 24 fibre per plate, allowing for 1U 96 fibre density. Available in a variety of connectors and performance levels, the Plates require no tools for installation or should have individual adaptors
		From 6 Fibre to 24 Fibre Density – Allows you to reuse your existing enclosure and increase your fibre count to meet demand or should have individual adaptors
		Greater Asset Utilisation – Easily Expandable – allows multiple generational uses of the enclosure for the same rack area. Our blank plates and a small profile plate ensures you only pay for the adapters you need.
		Snap Rivets – allows for easy installation and removal
		100% Factory Tested – Guaranteed performance
2	Commercial Standards	ISO/IC 11801, ANSI/TIA/EIA 568.B.3-2000, ANSI/TIA/EIA-492, TELECORDIA GR-409, ICEA-596
3	Mechanical Characteristics	Dimensions: 86 x 33mm

		Plate Material: Black Electroplate or Thermoplastic
LC-LC OFC Patch Cords		
	Type of connectors	LC LSOH Jacket - Reduces toxic / corrosive
	Length	Should be 3Mtr
	Polishing	100% Factory polished and tested
	Insertion Loss	Less than 0.3dB per connector
	Attenuation	3.5dB/km @ 850 nm & 1.5dB/km @ 1300nm
	Standards	ROHS Compliant
	Jacket colour	Industry Standard Colour - OS1-Yellow
	Make and Type	LC to LC Duplex Fiber Optic Patch Cord 50/125 Micron
	Cable Sheath	LSZH
	Cable Diameter	1.6 mm
	Ferrule	Ceramic
	Buffer	Tight buffered
	Temperature Range	.-40 Degree C to +85 Degree C
	Buffer Diameter:	900μm
	Primary Coating :	245μm
	Strength Member:	Aramid Yarn
	Jacket Material:	LS0H IEC 61034-1 & 2, IEC-60332-1, IEC-60754- 1 & 2
Pigtail		
	Type of connectors	SC / LC LSOH Jacket - Reduces toxic / corrosive
	Length	1.5 Mtrs
	Polishing	100% Factory polished, tested and Guaranteed Performance
	Standards	ROHS Compliant

1.	42U Network Rack		
S.No.	Features	Specifications	Compliance (Yes/No)
1	Key Features	a) Rack should be 800mm/1000mm wide with reducing cable channel of 100mm on both sides and also in front and rear and 1000mm/1200mm in depth. b) Confirm to DIN 41494 or EIA 310D standards. c) Load rating Capacity of 250kg. d) Cabinet can be dismantle and reassemble at site. e) Plain side panels with slam latches should be there. f) Other part/component except vertical profile should be made of CRCA steel and CRCA steel should be of "IS 513 Gr D" g) Thickness of CRCA sheets used for doors is 1.2mm and foe side panels is 1mm. h) Fully adjustable and recessible 19" mounting angle from both front and rear. i) Front glass toughened and tinted with easy detachable hinges and rear split perforated doors with "Honeycomb" type of perforation for maximum air circulation and stiffness. Perforation area should be 70% at least of the total door area. j) Should be RoHS complied and ISO Certified manufacturing plants. k) Fan Housing Unit with four fans of 90CFM ratings. l) For Base management castors (Set of 4) should be there 2Nos. with front brakes and 2nos without brakes. m) Earthing kit from top to bottom for proper earthing. n) PDU 19' Octagonal socket 12 X 5/16 Amp with 16 Amp MCB & Indicator with 3MTR cable and Industrial plug.	

S.No.	Features	Specifications	
		o) Rack to be powder coated with Nano ceramic pre-treatment process using Zirconium coat, and the powder coating process should be RoHS Complied. Powder coating thickness should be 80 to 100 microns.	
2	Make	Rittal/APW-President	

2.   15U Network Rack

S.No.	Features	Specifications	
1	Key Features	a. Confirms to DIN 41494 and EIA 310D standards. b. Fully Recessible 19" equipment mounting angle. c. Heights available 15U d. Depth Options – 600mm . e. Width -500mm f. Front Plain glass door. g. Top and bottom cover with cable entry provision. h. Ventilated top and bottom covers. i. Load rating 60kgs. j. Supply fully assembled and configured with the accessories. k. Fan Housing Unit with two fans. l. 1Nos. PDU 6 amp 5 Socket m. 2nos. Cable Manger (Finger duct) with cover	
2	Configured Rack Contents	Frame. • Front Glass Door. • Panel Mount supports (2Pairs)	
3	Make	Rittal/APW-President	

3.   1U Horizontal Cable Manager - Finger duct with cover

S.No.	Features	Specifications	
1	**Dimensions (hwd / in.)**	2 x 5 x 20	
2		Cold rolled steel with black finish	

S.No.	Features	Specifications	
3	Product Warranty Period (Worldwide)	5-year warranty	
4	Unit Dimensions (hwd / in.)	1.77 x 3.9 x 19.13	
5		Required mounting hardware included	
6	Make	Rittal/APW-President	

4.   Power Distribution Unit 6 amp 5 Socket

S.No.	Features	Specifications	
1		PDU 19' Octagonal socket 6 X 5 Amp with 16 Amp MCB & Indicator with 2 MTR cable and Industrial plug.	

21. Power Distribution Unit 16 amp 5 Socket 6 Pin each Socket

S.No.	Features	Specifications	
1		PDU 19' Octagonal socket 12 X 5/16 Amp with 32 Amp MCB & Indicator with 3MTR cable and Industrial plug	

Server:

Technical Specifications	
Processor(s)	2 x Intel® Xeon® CLX-SP 6242 16C/32T 2.8G 22M 10.4GT 3UPI
RAM	12 x 16 GB DDR4 2133 MHZ RDIMM (Max 768GB, 16 DIMMs)
HDD/SSD(s)	3 x 4000GB SAS 7.2K RPM
HDD Bays	8 Hot-swap 3.5" SAS/ SATA3 bays
RAID	SAS RAID Controller with RAID 0,1,10,5,6, levels supported with 2GB Cache
NIC	2 x Gigabit(10/100/1000Mbps) Ethernet ports
Exp. Slots	4x PCI-E 3.0 x16 , 2x PCI-E 3.0 x8 slots
Ports	1 VGA,2 USB,2 x LAN ports
Chassis	2U Rack Mountable with rail kit
Management	Thru IPMI 2.0 + KVM with Dedicated LAN
P. Supply	740W or higher Redundant Power Supplies, 80 Plus Certified
Warranty	5 Year Comprehensive warrant

UPS

Technical Specification for 20KVA Online UPS with 120 min Backup (3P In -1P Out)
Supply of **20KVA** True Online , DSP Controlled online UPS with 3 phase AC input and 1 phase AC output with minimum 120 minutes Battery backup with 12V SMF batteries Bank with Rack (min. VAH required =57600 VAH) ,The UPS should be with IGBT Based Rectifier and Inverter and with LCD/LED display for monitoring of its status along with same OEM Make inbuilt Galvanic Isolation Transformer at input side .   **UPS should have following Features:** **UPS power factor :** Input PF should be 0.99 AND output PF not less than 0.9 , **Efficiency:** overall efficiency (up to 94% without Isolation Tx), **Distortion Level** :THDi <5% & THDv </= 2% (for Liner load) & 5% (for Non Liner load),**Input Voltage Range**: 190-470V AC, **overload** : 110% for 5 minutes , 130% for 1 minutes and 150% for 10 seconds. **Noise level** <55dB,operating temp 0-45 degree C, Back feed protection required in UPS, **Communication interface** :RS232/USB port and optional SNMP compatibility for remote Monitoring , **Audible Alarm** : Mains Failure/Low battery /UPS Warning /Overload/Fault & Bypass Mode , **CERTIFICATIONS** : ISO 9001 & 14001 certification , **Compatibility** with DG Genset , Parallel operation up to 4 same units, Built in Automatic & Maintenance Bypass Switch ,**Warranty** : 2 Years on UPS as well as on Batteries, **Battery Make** : Exide /Amaron-Quanta/Panasonic Make Only, **Preferred/Approved Brand** : APC-Schneider /Emerson -Vertiv /Legrand-Numeric, Eaton. OEM should have at least 2 own/ASP Based service centers /network in J&K , need to furnish service centers address along with at least three engineers contact details and OEM should have experience of more than 10 years in Govt. business.

Data Center Accessories

1.   **Fire Fighting system for Server room in Center of IT**

2.   **Rodent Control system for Server Room in center of IT**

3.   **Water Leakage Detection system for Rack Area in center of IT**

4.   **Bio-Metric access & survelliance system for Server room in Center of IT**

BoQ:

Item	Qty
Spine Switch (Core Switch)	2
Distribution Leaf Switch	10
PoE 48 Port Access Switch	26
PoE 24 Port Access Switch	10
Network Controller/Orchestrator/Monitoring Platform	1 Set
1 Gbps SFP LR for existing switches	150
Server	2
Wifi AP Type-I	150
WiFi AP Type-II	10
OLT	2
24 Port loaded Patch Panel 1U Height	45 Nos.
Cat 6 4 Pair Cable	60Km
Cat 6 4 Pair Patch Cord 1m	500 Nos.
Cat 6 4 Pair Patch Cord 2m	700 Nos.
Cat 6 4 Pair Patch Cord 3m	200 Nos.
Cat 6 I/0 with back box and face plate	1200 Nos.

OFC 24 C Single Mode	OFC 24 C will be laid From Center of IT to All Distribution Switches. The bidder is expected to do survey as per route decided by Jammu University and quote The bidder can request for route map copy from Computer Center. **Total 15 km**
OFC 12 C Single Mode	OFC 12 C will be laid From Distribution Switch rack to access Switches Rack. **Total 15` km**
OFC 4 C Single Mode	OFC 4 C will be laid From Access Switch rack to access Switches Rack. The bidder is expected to do survey as per route decided by Jammu University and quote. The bidder can request for route map copy from Computer Center. **Total 50 km**
Fully loaded Rack Mount Fiber Panel for Fibre termination with LC adapter plates	60 Nos.
LC-LC OFC Patch Cords Single Mode 3 M	500 Nos
LC-LC OFC Patch Cords Multi Mode 3 M	100 Nos
Fully Loaded Fibre Splitter Box (1X16)	4 Nos
UPS	1 Set
Accessories (Water Leakage Detection, Fire Fighting, Rodent Control, cables etc.)	1 Set
Bio-Metric Access Control	1 Set
Rack 15 U with accessories	30 Nos.
Rack 42 U with accessories	4 Nos.
Fibre Termination Enclosure(Supporting Minimum 2 6C OFC)	125 Nos.
Any Accessories/Component/Service required to complete the project	1 Set
Conduiting Material (PVC Pipe/GI Pipe/ PVC Caping Casing for CAT 6 Cable)	10KM
24X7 Management & Operation of N/W	1 Set

Scope of Work:

The SI/bidder is expected to carry out following work:

1. Laying of Cat 6 Cable with proper Conduiting & Mounting of data outlet Points (I/O/Back box/faceplate)
2. The bidder will ensure submission of report after punching of cat6 Cable.
3. Termination of Cat 6 Cable at rack in Patch panel and Information Outlet.
4. Laying of OFC as per information provided from Core Switch rack to Distribution Switch Racks and from Distribution switch racks to Access Switch Racks.
5. Laying of OFC between Distribution Switches in a cluster.
6. Termination of OFC in fully loaded Rack Mount Fiber Panel.
7. The bidder will ensure submission of report after splicing of OFC.
8. Mounting of Racks with accessories.
9. Mounting and Configuration of Switches. The bidder shall also configure existing switches of University of Jammu as per new design & configuration agreed by University Jammu.
10. Bidder will submit Heat Map for Wi-Fi AP to be approved by University of Jammu before deployment.
11. Mounting & Configuration APs on approved locations.
12. Bidder will submit Customer requirement document, Design documents.
13. Bidder will ensure integration of existing firewall with proposed Campus Network design.
14. Bidder shall configure services using open-source technology (LDAP/RADIUS/DNS/DHCP/SYSLOG/NTP) in different VM created using open source virtualization technology (KVM/XEN). The bidder should ensure monitoring of VM and compute hosts using Open-Source technology.
15. The bidder will be asked to perform below test for randomly selected Copper cable:
    Wire Map, Length, Propagation Delay, Delay Skew, DC Loop Resistance, Insertion Loss (Attenuation), Return Loss (RL), Near End Crosstalk (NEXT), Attenuation-to-Crosstalk Ratio (ACR-N), ACR-F (ELFEXT), Power Sum ACR-F (PS ELFEXT), Power Sum NEXT, Power Sum ACR-N
16. The bidder should ensure Operation and management of Jammu University Campus N/W 24X7 for 5 Years. The manpower deployed at the site if goes on leave then replacement should be provided immediately for 24X7 on site operation & Management.

Campus Network Infrastructure	Compliance (Y/N)
S.No **Generic campus network Design Requirement**	
1 Campus must be designed to avoid any STP, Blocking links, broadcast/flood related issues.	
2 All switches i.e. Core, Distribution Switches and PoE switches need to be provided with all software license from day-1 to support functionality mentioned in RFP specification	
3 Campus should have network automation tool for Zero touch provisioning, Building network and host inventory, Network Topology, Creating network segment and network access policy, Software image update, Troubleshooting end to end connectivity, Getting OEM update on security update/advisory.	
4 Bidder should quote Direct OEM TAC Support for 5 years with 8 X 5X NBD SLA	
Network Provisioning and Automation	
5 All hardware or cloud based resources needed by the controller and/or any other component to make the solution work as per specs is to be included from day 1	
6 Management platform shall support template based configuration	
7 Management platform shall support automated configuration changes (e.g. pushing common network changes across all devices, such as (QoS, security credentials or access control lists)	
8 Management platform shall support configuration compliance checking to detect config drift (e.g. manual configuration changes that no longer match templates or automated configs)	
9 Management platform shall support software image compliance checking for feature and performance consistency	
10 Management platform support turnkey automated deployment(Zero Touch Provisioning) /PnP.	
11 Management platform should provide open APIs to integrate custom developed or commercial third party tools	

12	Management platform should support network rollback to a previously known good state after a failed maintenance operation	
13	Management platform should support automated hitless software upgrades of network devices.	
14	Management platform or devices shall support: ssh, JSON/HTTPS, OpenConfig/RESTConf/Netconf/SNMPv2c/v3/Rest APIs	
16	Monitoring platform shall support correlation of events to simplify troubleshooting and reduce alerts.	
17	Monitoring platform shall support capture of the state changes on the device I.e. Network events, States and any anomalies.	
18	Monitoring platform should support event triggered email notification/Webhooks/SMS/	
19		
20	management platform should monitor and record network performance throughput	
21		
22	management platform should collect and maintain an inventory of all campus devices connected	
23	Management Platform should automatically create and display the physical topology of network	
24	Fabric/Solution should support real-time Telemetry function where in it should receive telemetry information from the switches. Telemetry should provide deeper visibility in terms of providing time line based view of the the control plane/data Plane data of the switching fabric/Solution. All Switches shall have license for streaming telemetry information from day 1. Telemetry software shall be licensed to receive telemetry information from all the switches in the fabric/Solution. Telemetry solution and switch OEM should be the same in order to provide seamless integration.	

S.No	Core Switch :	
	Hardware and Performance	

1	Switch should be fixed form factor based configuration to support at-least 32*100G/40G Gigabit Ethernet QSFP+ Ports	
2	The switch should come with 20 QSFP+ (40G) ports Populated from day one supporting upto 1 Km or more.	
3	Switch must have redundant power supplies(1+1) and fans(N+1)	
4	Switch should have field replaceable power supplies and FAN trays	
5	Switch should have non-blocking architecture and should support switching bandwidth up to 6Tbps.	
6	Device should support upto 95K-100K MAC address	
7	Device should support upto 60K IPv4 Prefix routes	
	Operating System	
8	Shall support modern modular operating system designed for scalability and reliability	
9	Shall support auto process recovery from failures	
10	Shall support Health monitoring and self-healing	
11	Shall support Single Operating System binary image for all switch models proposed as part of the design.	
12	Shall support Industry standard CLI	
	L2 Feature	
14	Switch should support Ethernet standards like IEEE802.1p, IEEE802.1Q, Flow control, Jumbo frame, 802.1D, 802.1w, 802.1s, Jumbo frames (9216), 802.3ad, 4K VLAN	
15	Device should support MST/per-vlan RSTP, BPDU Guard, Loop Guard or equivalent.	
16	Device support LLDP and LACP to bundle links and detect miscalling issues.	
	L3 Features	
17	Device should support Routing Protocols: OSPFv2 with multiple instances, OSPFv3, BGP, MP-BGP, and RIPv2	
18	Device Should support Graceful restart for BGP,OSPF v2 and v3.	
19	Device Should support Policy Based Routing (PBR) for IPv4 and IPv6, VRRP V4 and V6, Resilient ECMP, Unicast Reverse path forwarding (urpf), and Inter-VRF route leaking	
21	Device should support VXLAN+EVPN leaf-spine overlay technology	

22	Device should have support for IRB	
23	Device should support IPv4 and IPv6 clients in EVPN based overlay network	
24	Device should support active-active EVPN multi-homing	
25	Device should support Dynamic NAT options like Many-to-Many NAT and Many-to-One NAT (PAT) at line rate with no additional latency.	
26	Device should support IGMP v2/v3,PIM-SM / PIM-SSM, VRF Support for IP Multicast, Multicast Source Discovery Protocol (MSDP)and IP Multicast Multipath. Support for Anycast RP (RFC 4610) is optional	
	High Availability	
27	Device should support Hitless upgrade & reloads in MLAG/Vpc setup and standalone (non-stack) setup (optional), without adversely affecting the forwarding plane with sub second data outage during upgrade.	
28	Device should support Low-Memory mode wherein during a out of memory condition the device kills non-essential agents until the system recovers the necessary amount of memory.	
	Security	
29	should support port ACL with l2, L3 and L4 parameters	
30	Should support Storm control and Control Plane protection (CoPP)	
31	Device should protect against ARP and DHCP spoofing by ensuring that a port will only permit IP and ARP packets with IP source addresses that have been authorized.	
32	Device should support multicast accounting to AAA servers	
	QoS features	
33	Switch should support 8 queues per port	
34	should support priority queue	
35	should support Weighted Fair Queue or Weighted round robin or equivalent	
36	should support WRED and DSCP for CPU generated traffic	
37	should support ACL based classification for QoS	
39	Should support rate limiting function like policing and shaping	
	Management and Troubleshooting	

40	Switch should support Telnet, SSHv2, https, SNMPv1/2/3, configuration rollback feature for ease of management	
41	Switch may support API Driven configuration and support Netconf and Restconf using YANG data model. It may support automation tool like python. It is an optional feature.	
42	Device should support advanced mirroring features.	
43	should support NTP/IEEE 1588 PTP	
44	Device should support real time data collection with sflow/netflow.	
45	Switches need to be provided with all software license from day-1 as per RFP specification	
46	Switch should support streaming Real-time telemetry from Day 1	

S.No	Distribution/Service Switch	
	Hardware and Performance	
1	Switch should be fixed 1RU based configuration to support at least 48*25G or more. The individual interface should be configurable to 1G & 10G if required.	
2	Device should have 4x 40/100G Fibre ports with support breakout to provide additional 16 number of 10/25/50G interfaces.	
	The switch should come with 4 X 40G ports Populated from day one supporting upto 1 Km and 15 SFP (1G) ports populated from day one supporting upto 1 Km.	
3	Device should support upto 80K MAC address	
4	Device should support upto 30K IPv4 Prefix routes	
5	Switch must have redundant power supplies(1+1) and fans(N+1)	
6	Switch should have field replaceable power supplies and FAN trays	
7	Device should have total Throughput of 3.6Tbps or more.	
	Operating System	
8	Shall support modern modular operating system designed for scalability and reliability	

9	Shall support auto process recovery from failures	
10	Shall support Health monitoring and self-healing	
11	Shall support Single Operating System binary image for all switch models proposed as part of the design.	
12	Shall support Industry standard CLI	
	L2 Feature	
13	Switch should support Ethernet standards like IEEE802.1p, IEEE802.1Q, Flow control, Jumbo frame, 802.1D, 802.1w, 802.1s, Jumbo frames (9216), 802.3ad, 4K VLAN	
14	Device should support MST/per-vlan RSTP, BPDU Guard, Loop Guard or equivalent	
15	Device support LLDP and LACP to bundle links and detect miscalling issues.	
	L3 Features	
16	Device should support Routing Protocols: OSPFv2 with multiple instances, OSPFv3, BGP, MP-BGP, and RIPv2	
17	Device Should support Graceful restart for BGP,OSPF v2 and v3.	
18	Device Should support Policy Based Routing (PBR) for IPv4 and IPv6, VRRP V4 and V6, Resilient ECMP, Unicast Reverse path forwarding (urpf), and Inter-VRF route leaking	
19	Device should support VXLAN+EVPN leaf-spine overlay technology	
20	Device should have support for IRB	
21	Device should support IPv4 and IPv6 clients in EVPN based overlay network	
22	Device should support active-active EVPN multi-homing	
23	Device should support Dynamic NAT options like Many-to-Many NAT and Many-to-One NAT (PAT) at line rate with no additional latency.	
24	Device should support IGMP v2/v3,PIM-SM / PIM-SSM, VRF Support for IP Multicast, Multicast Source Discovery Protocol (MSDP)and IP Multicast Multipath. Support for Anycast RP (RFC 4610) is optional.	
	Security	
25	should support port ACL with l2, L3 and L4 parameters	
26	Should support Storm control and Control Plane protection (CoPP)	

27	Device should protect against ARP and DHCP spoofing by ensuring that a port will only permit IP and ARP packets with IP source addresses that have been authorized.	
28	Device should support multicast accounting to AAA servers	
	QoS features	
29	Switch should support 8 queues per port	
30	should support priority queue	
31	should support Weighted Fair Queue or Weighted round robin or equivalent	
32	should support WRED and DSCP for CPU generated traffic	
33	should support ACL based classification for QoS	
34	Should support rate limiting function like policing and shaping	
	Management and Troubleshooting	
35	Switch should support Telnet, SSHv2, https, SNMPv1/2/3, configuration rollback feature for ease of management	
36	Switch may support API Driven configuration and support Netconf and Restconf using YANG data model. It may support automation tool like python. It is an optional feature.	
37	Device should support advanced mirroring features.	
38	should support NTP/IEEE 1588 PTP	
39	Device should support real time data collection with sflow/netflow.	
40	Switches need to be provided with all software license from day-1 as per RFP specification	
41	Switch should support streaming Real-time telemetry from Day 1	

	Access Switch 48-Port	
	Performance and Scalability	
1	The switch should have minimum of 48x10M/100M/1G downlink Ethernet port and 4x25 or More Uplink SFP Ports in fixed Form Factor. The switch should come with 2 SFP28 ports Populated from day one supporting upto 10 Km and 2 SFP28 ports	

	Populated from day one supporting upto 70 m.	
	Or	
	The switch should have minimum of 48x10M/100M/1G downlink Ethernet port and 2x25 Uplink SFP Ports with 2 Stacking Port & required cable for both in fixed Form Factor . The switch should come with 2 SFP28 ports Populated from day one supporting upto 10 Km.	
2	The switch should support minimum of 30W(802.11at). Simultaneously on all the downlink ports.	
3	Switch should operate at wire speed and should have Non-blocking architecture.	
4	Switch should have field replaceable power supplies and field replaceable FANs.	
5	Switch should have 1+1 Power supply and N+1 redundant Fan Tray	
	L2 Feature	
7	Shall support upto 32K MAC.	
8	Spanning Tree Protocol (IEEE 802.1.D, 802.1W, 802.1S)	
9	Switch should support VLAN Trunking (802.1q) and should support 4k VLAN and MAC based VLAN assignment	
10	Switch should support basic Multicast IGMP v1, v2, v3	
11	Shall support Shall support RPVST+ / VSTP or equivalent	
12	Shall support LACP	
14	Shall support Port Mirroring and should support L2/L3/L4 filtering on Mirror session.	
15	Shall support Jumbo Frames 9K Bytes	
16	Shall support 802.1AB Link Layer Discovery Protocol (LLDP) and also LLDP enhancements for PoE including Media Endpoint Discovery (MED) attributes reporting	
	L3 Feature	
17	Switch should support 30K IPv4/ 7K IPv6 Routes	
19	Switch must support protocols like BGPv4, OSPFv2/v3 , MP-BGP,RIPv2,BFD , PIM-SM, Policy based routing	
20	Switch should support VRRP,	

21		
	Network security features	
23	The switch should support IEEE 802.1x Authentication framework, MAC authentication, Dynamic VLAN assignment and CoA.	
24	The switch should support SSHv2, SNMPv3, TACACS+ and RADIUS	
25	Switch Should act as DHCP Relay.	
26	Switch should support Ingress ACL Scale of 4k or better.	
27	Switch should support DHCP spoofing protection mechanism or equivalent.	
	Quality of Service (QoS) & Control	
28	The switch should support 8 egress queues per port to enable differentiated management	
29	The switch should support Standard 802.1p CoS field classification and Differentiated services code point (DSCP) field classification	
30	The switch should support Rate Limiting function to guarantee bandwidth	
31	The switch should support SPQ(Strict Priority Queueing, WRR(Weighted Round robin), Policing, shaping and Per-Priority Flow control (PFC) or equivalent	
32	Switch should support IEEE 1588/NTP	
	Operation and Management	
33	Switch should have dedicated management port and USB ports to upload configuration files and image	
34		
35	Switch should Provide persistent/constant PoE power even when switch is under maintenance	
36	Shall support ISSU for software upgrades and hitless patching	
	Management and Troubleshooting	
37	Switch should support telnet, ssh, https, SNMPv3, configuration rollback feature for ease of management	
38	Switch may support API Driven configuration and support Netconf and Restconf using YANG data model. It may support automation tool like python. It is an optional feature.	

39	Switch should support port mirroring based on Inbound & outbound, mirroring based on ports, vlans.	
40	Switches need to be provided with all software license from day-1 as per RFP specification	
41	Switch should support real time data collection with sflow/netflow.	
42	Switch should support real-time telemetry	
	Other	
44	should support IPv4 and IPv6 dual stack operations simultaneously	
45	Hardware replacement warranty and TAC support should be directly from the OEM. OEM email-id and India Contact support no. to be provided.	
46	Required SFP Module should be from Same OEM	

	Access Switch 24-Port	
	Performance and Scalability	
1	The switch should have minimum of 24x10M/100M/1G downlink Ethernet port and 4x25 or More Uplink SFP Ports in fixed Form Factor . The switch should come with 2 SFP28 ports Populated from day one supporting upto 10 Km and 2 SFP28 ports Populated from day one supporting upto 70 m. Or The switch should have minimum of 24x10M/100M/1G downlink Ethernet port and 2x25 Uplink SFP Ports with 2 Stacking Port & required cable for both in fixed Form Factor . The switch should come with 2 SFP28 ports Populated from day one supporting upto 10 Km.	
2	The switch should support minimum of 30W (802.11at) on all 24 ports simultaneously	
3	Switch should operate at wire speed and should have Non-blocking architecture.	
4	Switch should have field replaceable power supplies and field replaceable FANs	
5	Switch should have 1+1 Power supply and N+1 redundant Fan Tray	
	L2 Feature	

7	Shall support upto 32K MAC.	
8	Spanning Tree Protocol (IEEE 802.1.D, 802.1W, 802.1S)	
9	Switch should support VLAN Trunking (802.1q) and should support 4k VLAN and MAC based VLAN assignment	
10	Switch should support basic Multicast IGMP v1, v2, v3	
11	Shall support Shall support RPVST+ / VSTP or equivalent	
12	Shall support LACP	
13	Shall support active/active layer2/Layer3 multipathing redundancy(MLAG)	
14	Shall support Port Mirroring and should support L2/L3/L4 filtering on Mirror session.	
15	Shall support Jumbo Frames 9K Bytes	
16	Shall support 802.1AB Link Layer Discovery Protocol (LLDP) and also LLDP enhancements for PoE including Media Endpoint Discovery (MED) attributes reporting	
	L3 Feature	
17	Switch should support 30K IPv4/ 7K IPv6 Routes	
18	Switch must support protocols like BGPv4, OSPFv2/v3 , MP-BGP,RIPv2,BFD , PIM-SM, Policy based routing	
19	Switch should support VRRP,	
20		
	Network security features	
23	The switch should support IEEE 802.1x Authentication framework, MAC authentication, Dynamic VLAN assignment and CoA.	
24	The switch should support SSHv2, SNMPv3, TACACS+ and RADIUS	
25	Switch Should act as DHCP Relay.	
26	Switch should support Ingress ACL Scale of 4k or better.	
27	Switch should support DHCP spoofing protection mechanism or equivalent.	
	Quality of Service (QoS) & Control	
28	The switch should support 8 egress queues per port to enable differentiated	

	management	
29	The switch should support Standard 802.1p CoS field classification and Differentiated services code point (DSCP) field classification	
30	The switch should support Rate Limiting function to guarantee bandwidth	
31	The switch should support SPQ(Strict Priority Queueing, WRR(Weighted Round robin), Policing, shaping and Per-Priority Flow control (PFC) or equivalent	
32	Switch should support IEEE 1588/NTP	
	Operation and Management	
33	Switch should have dedicated management port and USB ports to upload configuration files and image	
34		
35	Switch should Provide persistent/constant PoE power even when switch is under maintenance	
36	Shall support ISSU for software upgrades and hitless patching	
	Management and Troubleshooting	
37	Switch should support telnet, ssh, https, SNMPv3, configuration rollback feature for ease of management	
38	Switch may support API Driven configuration and support Netconf and Restconf using YANG data model. It may support automation tool like python. It is an optional feature.	
39	Switch should support port mirroring based on Inbound & outbound, mirroring based on ports, vlans.	
40	Switches need to be provided with all software license from day-1 as per RFP specification	
41	Switch should support real time data collection with sflow/netflow.	
42	Switch should support real-time telemetry	
	Other	
44	should support IPv4 and IPv6 dual stack operations simultaneously	
45	Hardware replacement warranty and TAC support should be directly from the OEM. OEM email-id and India Contact support no. to be provided.	

46	Required SFP Module should be from Same OEM	

	Wireless Controller Specifications	
1.1	**Solution Architecture** The System Architecture enlists the expectation from the "Total Solution", that are common to Wi-Fi services including, but not limited to, Access, WIDS and WIPS.	
1.2	The proposed Wi-Fi controller(s) should be cloud based Management solution	
1.3	Solution must support an independent intelligent edge architecture for Wi-Fi access. In case of non-reachability of the controller, all WLAN services should be delivered at the edge.	
1.4	All Wi-Fi, WIDS, WIPS & RRM (Radio resource management) services should be functional if the link between AP/Sensor and its management controller goes down. It must also be possible to onboard new clients in such a scenario.	
1.5	The solution must facilitate Control and Provisioning of Wireless Access Point devices and ensure data encryption between access point devices and controllers across remote WAN/LAN links	
2	**Management Controller**	
2.1	The Controller must provide centralized Wi-Fi and WIPS management system	
2.2	The controller must have AP Group based policy management and administration.	
2.3	The Controller should have role based admin rights to manage the controller.	
2.4	The controller should support open API's for integration with 3rd party configuration management, inventory management, performance management, process automation, reporting, WLAN monitoring tools etc.	
2.5	The controller should enable application visibility and control. It should display list of applications with their data usage for a specific SSID.	
2.6	The Solution should allow blocking traffic based on IP address, port, URL, hostname, application etc. and QoS (for example: bandwidth restriction for the SSID, QoS tagging of special traffic like Voice) at the edge (AP).	
2.7	The solution should locate wireless devices (APs and Clients) on floor maps	
2.8	The solution must provide location tracking of a DoS attacker	

2.9	Controller should support SNMP v1, v2c, v3/ Webhooks /API	
2.10.	The controller should provide remote packet capture for troubleshooting	
2.11.	The system should support remote packet captures on AP radio and Ethernet ports without disrupting the client connectivity of any of the APs.	
2.12.	The solution should maintain controller user action logs which should include all activities performed by the user like login, any configuration changes made on the system, device deletion, device authorization, log out etc., for at least 7 days.	
2.13.	The solution should enable wireless client association analytics logs which should record client MAC address, AP connected to, data transfer, data rate, session duration, content - domain (http, https, IP address), for at least 30 days. In case of support for less than 30 days, an automated solution must be provided to download logs to local repository.	
2.14.	The solution must allow VLAN segmentation at the edge.	
2.15.	Time Schedules - the solution must allow configuration of time schedules when WLAN is / isn't available (For example: SSIDs can be active from 9 am to 5 pm and then automatically disabled). It not supported then feature must be provided by support of external/Third Party app.	
2.16.	Solution should support External Splash Page	
2.17.	The solution should support RADIUS and OTP-based authentication mechanisms (SMS gateway to be provided by Customer in case of OTP based authentication) for Guest users	
2.18.	Solution should support "Walled Garden" or equivalent feature for Guest Network	
2.19.	Solution should support URL redirection	
3.	**Management and Monitoring**	
3.1	The solution should have all locations consolidated dashboard and location-specific dashboard as well.	
3.2	The solution must send notifications based on location and alarm type	
3.3	Client Fingerprinting - The solution should detect and identify all types of Wi-Fi enabled client devices.	
3.4	The solution must provide a device summary (for APs, and clients) report per location	
3.5	The solution must allow for report generation.	

3.6	The controller and Wi-Fi AP devices management should support command line (ssh / telnet)/web based (https) administration.	
3.7	The solution shall support Location tracking of any particular client and AP	
3.8	The solution should support automated root cause analysis of WiFi issues such as low RSSI, low data rate, Authentication related issue.	
3.9	The solution should highlight client connection failures during association, authentication and network entry. It should also identify the cause of failure.	
4	**Software & System Mangement**	
4.1	The system should support manual and scheduled automatic system backup.	
4.2	The controller and AP can be on different software versions.	
4.3	The controller should be able to rollback all APs/group of APs to previous version.	
4.4	The Controller Upgrade should not disrupt Wi-Fi and WIPS services.	
4.5	The AP Upgrade to controller version should be flexible and be scheduled on per AP/AP group or site basis as required.	
4.6	For management and monitoring operations, the controller must provide a web interface/command-line interface and APIs.	
4.7	The Solution shall support Hitless AP upgrade feature	
5.	**WIPS**	
5.1	The solution must auto-classify APs precisely in different categories as managed / authorized (ie. managed device connected to the networks), external (i.e. un-managed APs not connected to the networks, e.g. neighbors), and rogue APs (un-managed AP connected to the networks)	
5.2	The solution must have the capability of auto classifying Wi-Fi clients as authorized (managed clients connecting to the network), guest, and rogue in addition to manual classification.	
5.3	The solution must correctly detect Devices connecting to the network. Additional solution if required must be provided to satisfy this requirement	

5.4	The solution must be able to detect and automatically prevent all types of Rogue (unauthorized APs connected to the network) APs, such as: a) APs such as Bridge and NAT b) MAC-adjacent Open/Encrypted Wi-Fi routers c) Non-MAC-adjacent OPEN Wi-Fi routers d) Virtual APs on network connected laptops (e.g., Connectivity software on Windows 7/10) e) Non-MAC adjacent APs having MAC ACLs	
5.5	The solution must be able to detect and automatically prevent all Wi-Fi enabled devices such as smartphones bridging / ICS when connected to the network	
5.6	The solution must detect mis-configured authorized APs and automatically prevent them.	
5.7	The solution should detect and prevent outside client trying to connect to the the WLAN	
5.8	The solution must detect Honey Pot attacks including its advanced variants such as Multiport attack. It should be able to prevent the authorized client from connecting to a honeypot AP.	
5.9	The WIPS solution should NOT affect the operation of an external (i.e. neighbors) or a man- aged access point while preventing a rogue AP on the same channel.	
5.10.	The solution must be able to detect wireless Denial of Service (DoS) attacks	
5.11.	The solution must provide forensic data aggregated for major threat vectors like Rogue AP, Honeypot AP, Mis-Configured AP, DoS, Unauthorized Association, Ad Hoc Networks, Bridging/ICS Client, Mis-Association.	
6	**Guest Management**	
6.1	The solution should include web based guest user creation by front office users. Any additional solution if required must be provided.	
6.2	The solution should support self-registration by guest users and admin users can approve the registration.	
6.3	The solution should allow blocking of guest user for specific time frame between two association sessions.	
6.5	The solution should support portal page that can be used to display the terms and conditions of accessing the guest network as well as any other information as needed.	

6.6	The solution should support for Login Timeout, Blackout Time, Redirect to URL and walled garden settings.	
6.7	The solution should support multiple custom portals - separate portals can be configured for each SSID.	
6.8	The solution should support authentication using social plugins - guest users can access WiFi using their social media account credentials.	
6.9	The solution should support authentication using private guest book account.	
6.10	The solution should support creating a custom portal for click-through access, portal page can also be created to ask user to fill some basic information like name, age, email to provide access to WiFi.	
6.11.	The solution should support SMS OTP-based authentication support.	
7	**License, Warranty and Support**	
7.1	The Total solution should come with all required feature licenses from first day of installation	
7.2	The Total solution should have 10 years hardware/Software/Licences warranty for AP's, controller, Adapters and every item supplied as a part of solution	
7.3	The Total solution should have technical support for Hardware, Software, Software upgrades, all license cost from the OEM for first 10 years.	
7.4	The Total solution should come with the latest and updated version available at no extra cost	
7.5	Any new release of firmware and software must be updated regularly within 10 years warranty term.	
7.6	Should Provide TAC support direct from OEM not from outsourced TAC	

S.NO.	AP – Features Type-1 (Indoor)	
1	AP should support at least IEEE Wi-Fi 802.11ac Wave 2 standard.	
4	AP must support Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP).	
5	Wi-Fi AP devices and the solution must support the following protocols: IEEE 802.11a/b/g, IEEE 802.11n, IEEE 802.11ac (WAVE 2), IEEE 802.11h, IEEE 802.11d,	

	802.11i, 802.11 r/k/v
6	The Wi-Fi AP devices and the solution should support the following authentication methods: 802.1X support, per-session encryption keys (WPA2)
8	Wi-Fi APs and the system should have ability to set SSIDs as bridge or NAT.
9	Wi-Fi APs and the system should have support for 802.1Q VLANs.
11	Supply should include ceiling/wall mountable units equal to the no. of APs quoted.
12	APs shall be compliant with all applicable national regulation.
13	
14	AP must support SSH protocol for local or remote access to device through CLI/Web administration.
15	At least 8 SSIDs shall be supported in each of the 2.4GHz and 5GHz bands, with the ability to map each SSID to a separate VLAN.
16	The SSID profiles/configurations of 2.4GHz and 5GHz radios should be independent.
17	APs shall support Hotspot 2.0
18	The device must be capable of providing Wi-Fi access with 24/7 wireless intrusion prevention (WIPS) in a single device both operating simultaneously.
19	The device should be remotely upgradeable from the controller, so that new features / upgrades can be added.
21	AP Should support 2 X Gigabit Ethernet Port.
22	AP must support minimum 4X4 multi user, multiple-input multiple-output (MU-MIMO)
23	Security mechanisms should be in place to protect the communication between the controller and the APs.
24	AP must support simultaneous 802.11n on the 2.4GHz and 802.11ac Wave 2 on the 5GHz radios.
25	AP shall support up to 800 Mbps for 2.4 GHz radio and 1.7 Gbps on 5GHz radio.
26	AP shall support 20/40/80 MHz channel width in 5GHz band.
27	Must support 802.11 dynamic frequency selection (DFS).
28	Must support up to 24dBm Tx power.

29	Antenna gain should be minimum 3dBi for 2.4 GHz and 5 GHz.	
30	AP must able to handle RF interference from other WiFi and non-WiFi sources and automatically assign channel and power so as to deliver high performance and reliable communication.	
33	The AP must support 802.11ac beamforming (transmit beamforming).	
34	AP must support AP load-balance between 2.4GHz and 5GHz band.	
35	AP must incorporate radio resource management for power, channel, coverage hole detection and performance optimization. These features should work even if the link to controller is down.	
37	The AP must support IPv4 and IPv6 for management and data traffic.	
38	The AP must be capable of receiving IP address via DHCP for IPv4/IPv6 and SLAAC for IPv6.	
39	The AP shall support operating temperature of 0° C to +40° C.	
40	The AP must support EoGRE/VXLAN for L2 tunnelling or equivalent tunnelling mechanism to achieve L2 tunneling.	
41	The AP shall support third party analytics integration for real-time data transfer.	
42	AP shall support self-healing wireless mesh networking.	
43	Must support POE+ to power up the AP.	

	AP Type-II (Outdoor) – Features	
1	AP should support at least IEEE Wi-Fi 802.11ac Wave 2 standard.	
2	AP should able to discover controllers on the same L2 domain.	
3	AP must able to discover controller across L3 network.	
4	AP must support Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP).	
5	Wi-Fi AP devices and the solution must support the following protocols: IEEE 802.11a/b/g, IEEE 802.11n, IEEE 802.11ac (WAVE 2), IEEE 802.11h, IEEE 802.11d, 802.11i, 802.11 r/k/v	
6	The Wi-Fi AP devices and the solution should support the following authentication methods: 802.1X support, per-session encryption keys (WPA2)	
7	Wi-Fi APs and the system must support Fast Handoff between APs.	
8	Wi-Fi APs and the system should have ability to set SSIDs as bridge or NAT.	
9	Wi-Fi APs and the system should have support for 802.1Q VLANs.	
10	Wi-Fi AP devices should support configurable management VLAN.	
11	Supply should include Pole mountable units equal to the no. of APs quoted.	

12	APs shall be compliant with all applicable national regulations.	
13	AP should support integration with cloud-based and standalone on-prem controller.	
14	AP must support SSH for local or remote access to device through CLI.	
15	At least 8 SSIDs shall be supported in each of the 2.4GHz and 5GHz bands, with the ability to map each SSID to a separate VLAN.	
16	The SSID profiles/configurations of 2.4GHz and 5GHz radios should be independent.	
17	APs shall support Hotspot 2.0 Release 2.	
19	The device should be remotely upgradeable from the controller, so that new features / upgrades can be added.	
20	AP must support 2X2 or higher Multi user, multiple-input multiple-output (MU-MIMO) with 2 spatial streams.	
21	Security mechanisms should be in place to protect the communication between the controller and the APs.	
22	AP must support simultaneous 802.11n on the 2.4GHz and 802.11ac Wave 2 on the 5GHz radios.	
23	AP shall support up to 400 Mbps for 2.4 GHz radio and 867 Mbps on 5GHz radio.	
24	AP shall support 20/40/80 MHz channel width in 5GHz band.	
25	Must support 802.11 dynamic frequency selection (DFS).	
26	Must support Maximum Aggregate Transmit Power of 27dbm	
27	Antenna gain should be minimum 5dBi for 2.4 GHz and 5 GHz.	
28	AP must able to handle RF interference from other WiFi and non-WiFi sources and automatically assign channel and power so as to deliver high performance and reliable communication.	
29	The AP should support 802.1q VLAN tagging.	
30	The AP must support the following authentication methods: WPA2-AES, PSK, authentication and AES encryption and 802.1x/EAP and unauthenticated (open) mode.	
31	The AP must support 802.11ac beamforming (transmit beamforming).	
32	AP must support AP load-balance between 2.4GHz and 5GHz band.	
33	AP must incorporate radio resource management for power, channel, coverage hole detection and performance optimization. These features should work even if the link to controller is down.	
34	The AP must support IPv4 and IPv6 for management and data traffic.	
35	The AP must be capable of receiving IP address via DHCP for IPv4/IPv6 and SLAAC for IPv6.	
36	The AP shall support operating temperature of -20° C to +65° C.	
37	The AP must support EoGRE for L2 tunnelling.	
38	The AP shall support third party analytics integration for real-time data transfer.	
39	The AP shall support integrated firewall, traffic shaping, QoS and BYOD controls per SSID.	
40	AP shall support self-healing wireless mesh networking.	
41	Must support POE+ to power up the AP.	
42	The Access point shall be IP67 rated.	

FTTH OLT

The optical line terminal (OLT) device should be rack mountable.	
should Support Gigabit Passive Optical Network (GPON), 10 Gigabit Symmetrical PON (XGS-PON) and time and wavelength division multiplexing PON (TWDM-PON)	
Should support up to 120 Gb/s full duplex throughput.	
Should support 16-port GPON or 4-port universal next generation (NG)-PON (XGS-PON/TWDM-PON). The device should be populated with 4 GPON XFP optics from day 1. The GPON XFP optics should from same OEM as OLT.	
Should provide 10/10 Gb/s symmetric and/or 10/2.5 Gb/s asymmetric	
Should support 8 x 1/10 Gb/s small form-factor pluggable (SFP) modules. The device should be populated with 4 10 Gb/s SFP module from day 1.	
Should support Link aggregation (LAG)	
Should support Simple Network Management Protocol (SNMP) and command line interface (CLI)-based management system.	

Passive Items:

	Approved Make : Panduit,Molex,Comscope, Siemon and R&M	

	Technical Specification	**Compliance Y/N**
Cat 6 4 Pair Cable		
1	Type	Unshielded twisted pair cabling system, TIA / EIA 568-C.2 Category 6 Cabling system	
2	Network support	Supports ultrahigh speed data networks such as Gigabit Ethernet (1000 Base-T and 1000 Base-TX) and beyond.	
3	TIA / EIA 568-B.1	ETL/3P Verified, UL Listed and UL channel verified- All three Certificates are mandatory	
4	IEEE 802.3ab	, ETL/3P verified	
5	Warranty	25-year systems warranty; Warranty to cover Bandwidth of the specified and installed cabling system, and the installation costs. Site certificate Should be issued by OEM	
6	Performance characteristics to be provided along with bid	Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR for 4-connector channel	
7	Manufacturer	All Copper cabling component should be from same OEM.	
8	Conductors	23 AWG solid bare copper	
9	Insulation	Polyethylene	
10	Approvals	UL Listed	
		ETL verified to TIA / EIA Cat 6	

11	Frequency tested up to	250 MHz minimum	
12	Packing	Box of 305 meters	
13	Impedance	100 Ohms + / - 15 ohms	
14	Performance characteristics to be provided along with bid	Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR	
15	Delay Skew:	45ns Max	
16	Impedance:	100 ± 15 Ohms	
17	Current Rating:	1.5 A Max	
18	Conductor DC Resistance:	66.5Ω/km	
19	Voltage:	150VAC	
20	Propagation delay:	535ns/100m @250MHz	
21	Mutual Capacitance:	5.6nF/100m Nominal	
22	Insulation Resistance:	500 MΩ Minimum	
23	Dielectric Strength:	1000 V RMS	
24	Contact Resistance:	10 mΩ Max	
Cat 6 I/O			
1	**Features and Benefits**		
		I/O Should be With Spring-Loaded Shutter or /equivalent	
		IDC V-shaped contacts that flex not fatigue when terminated.	
		Features pointed IDC towers to speed termination and enhance cable retention.	
		Dual color-coding allows for 568 A/B wiring configuration.	
		Can be terminated using industry standard punch-down tools.	
		RJ-11 compatible	
		Molded category identification on I/O face as well as optional port identification icons.	
		USOC Wiring Sequences Available	
2	Dust Proof	RJ45 I/O should be supplied with Shutter/Dust cap to avoid Dust/equivalent	
3	RJ45 I/O Compatibility	2a. Individual Compatible RJ45 I/O	
		2b. Pointed IDC Tower on RJ45 I/O for easy termination	
		2c. Half Plugged Patch Cord should be spitted out if not properly plugged in	
4	**Mechanical Characteristics**		
	Plastic Housing:	Thermoplastic UL94V-0 rated or equivalent	
	Operating Life:	Minimum 750 insertion cycles	
	Contact Material:	Copper Alloy	
	Contact Plating:	50µ" Gold/100µ" Nickel	

	Contact Force:	100g minimum	
	Plug Retention Force:	11 lbf minimum	
5	**IDC Connector**	prevents incomplete mating protects from dust and contaminants	
	Plastic Housing:	Thermoplastic UL94V-0 rated or equivalent	
	Operating Life:	Should be Minimum 20 reterminations	
	Contact Material:	Copper Alloy	
	IDC Contact Plating:	Tin/Lead Plate	
	Wire Accommodation:	22-24 AWG solid	
6	**Electrical Characteristics**		
	Interface Resistance:	20 milliohms	
	Initial Contact Resistance:	2.5 milliohms	
	Insulation Resistance:	>100 Megaohms	
7	Parts List:		

Wall plates

1	Features and Benefits	The stylish unloaded Wallplates to accept the UTP Connector. The unloaded Synergy Wallplates are available in 1, 2 and 4 port variants, in five colours, to co-ordinate with any decor and any installation size.	
2	Accomodates	Accommodates UTP, STP I/O Accommodates single bezel Fibre modules Accommodates media configurable modules	
3	Material	VE10 ABS	

24 Port loaded Patch Panel 1U Height

	Features and benefits		
1		Each port Should be features the spring-loaded shutter/equivalent – – Should be protects from dust and contaminants	
		Should be IDC V-shaped contacts that flex not fatigue when terminated	
		Should be Features pointed IDC towers to speed termination and enhance cable retention	
		Should be Front and rear port labelling as well as panel identification label	
		Should be Integral cable management shelf ensures bend radius compliance	

		Should be Molded category identification on each port face as well as optional port identification icons	
	Mechanical Characteristics		
	Plastic Housing:	Should be thermoplastic UL94V-0 rated or equivalent	
	Operating Life:	Should be minimum 750 insertion cycles	
	Contact Material:	Should be copper Alloy	
	Contact Plating:	50μ" Gold/100μ" Nickel	
	Contact Force:	100g minimum	
	Plug Retention Force:	11 lbf minimum	
	IDC Connector		
	Plastic Housing:	Thermoplastic UL94V-0 rated or equivalent	
	Operating Life:	Should be minimum 20 reterminations	
	Contact Material:	Copper Alloy	
	IDC Contact Plating:	Tin/Lead Plate	
	Wire Accommodation:	22-24 AWG solid	
	Electrical Characteristics		
	Interface Resistance:	20 milliohms	
	Initial Contact Resistance:	2.5 milliohms	
	Insulation Resistance:	>100 Megaohms	
	Parts List:		
	Patch Panel Characteristics		
	Material:	cold rolled steel	
	Thickness:	.060" (1.52mm)	
	Coating:	Graphite Grey Powder coat	
	Temperature range:	-10°C to +60°C	
	Commercial Standards		
		TIA/EIA-568-C.2 Component Compliant	
		FCC Subpart F 68.5 Compliant	
		IEC-603-7 Compliant	
		ISO 11801 Class E Compliant	
		ETL/3P Verified for Category 6 Component	
		Compliance & UL Listed	
	Dimensions		
		24 Port with trays	
		44mm H x 483mm W x 98mm D	
Cat 6 Patch cord			
1	Type	Cat 6 U/UTP End-to-End Solution and are designed to support data networks for 10/100BASE-T and 1000BASE-T applications.	

2	Conductor size:	Should be 24 AWG stranded copper wire	
3	Nom. O.D.:	5.9mm	
4	Sheath:	Should be LS0H	
5	Bend radius:	4X O.D.	
6	Boots	Transparent Plug with anti-snag slip on boots	
7	RJ45 Plug Standard	ISO/IEC 60606-7-4 and FCC 47 Part 68	
8	Sheath Standards	Fire Propagation compliant with CSA FTI, IEC 60332-1, IEC 61034	
9	Operating temperature range:	Should be -20°C to 60°C	
10	MIN operating life	:Should be 750 insertion cycles	
11	RJ45 plug and boot material:	Clear polycarbonate	
12	Contact material:	0.35mm thick copper alloy	
13	Contact plating:	Selective gold	
14	RJ45 plug dimensions compliant with:	ISO/IEC 60603-7-4 and FCC 47 Part 68	
15	Commercial Standards	ISO/IEC 11801:2002/Amd 2:2010 Cat 6-, TIA-568-C.2 Cat 6	
16		Should be ETL Verified/3P certified	
17	Fire Propagation Tests:	Should be LS0H Sheath: CSA FT1, IEC 60332-1, IEC 61034	
18	Standard length available	Should be 0.5mt to 10 mts	

	Approved Make : Panduit,Molex,Comscope ,Siemon and R&M	

	Technical Specification	**Compliance Y/N**
Optical Fiber Armored Single-Mode OS2		

1	Cable Type	Optical fibres in water blocked loose tube, taped, corrugated steel tape armoured (STA) polyethylene (HDPE) outer sheathed embedded with two steel wires on the periphery. The cables are with UV Stabilized PE Jacket and protected from Rodent attacks. complying to ISO/IEC 11801, EN50173, ANSI/TIA 568-C.3, Telcordia GR-20; suitable for use in indoor / outdoor ducts, direct burial and backbone cabling	
2	Fiber Type	Single Mode, 9/125 micron primary coated buffers, OS2 (IEC 60793-2-50, B1.3 and ITU T G652.d). Shall be manufactured using Vapor Axial Deposition technology.	
3	**Contruction type**		
	Tube:	Polybutylene, Terephthalate(PBT)	
	Tube colour:	White	
	Tube diameter	3.0/2.0 mm nominal OD/ID	
	No of fibres:	4/6/8/12	
	Fibre colour sequence	Blue, Orange, Green, Brown, Slate (Grey), White, Red, Black, Yellow, Violet, Pink, Aqua	
	Water Blocking	Thixotropic Gel (Tube) Petroleum Jelly (Interstices)	
	Core Wrapping	Polyethylene Terephthalate	
	Armouring:	Corrugated Steel Tape Armour (ECCS Tape) Thickness > 0.125mm	
	Peripheral Strength Member	Two Steel wires (0.9 mm dia)	
	Ripcord:	Ployester based yarns below armoured tape for easy ripping	
	Outer Sheath	UV Stabilised Polyethylene (HDPE)	
	Sheath thickness	2.0 mm nominal	
	Sheath colour	Black	
4	**Standards**		
		complying to ISO/IEC 11801 2nd Edition, type OS1/OS2; AS/ACIF S008; AS/NZS 3080 ; TIA/EIA 568.C.3; IEC-60793-1, 60793-2 EN50173, ANSI/TIA 568-C.3, Telcordia GR-20; suitable for use in indoor / outdoor ducts, direct burial and backbone cabling	
5	**Machanical characteristics**		
	Dimensions and Mass Overall Cable (Nominal):	9.0 MM	
	Mass (Nominal)	80 kg/km	
	Cable length	2 km ± 10%	
	Max. Bending Radius (during installation)	20 X Overall diameter	
	Max. Bending Radius (during full load):	10 X Overall diameter	

	Max. Tensile Strength-Short Term	1500N	
	Max. Crush Resistance-Short Term:	2000N/10 cm	
	Operating Temperature range	-40°C ±70°C	
6	**Optical characteristics**		
	Core Diameter @ 1310nm	9 + 0.6 μm	
	Cladding Diameter	125 + 1.0 μm	
	Cladding Non circularity	< 1.0 %	
	Core Non circularity	< 6.0 %	
	Core-Cladding Concentricity error	< 0.6 μm	
	Primary Coating Diameter-uncoloured	245 + 10 μm	
	Primary Coating Diameter-coloured	250 + 15 μm	
	Primary Coating Non Circularity	< 6.0 %	
	Primary Coating Cladding Concentricity error	< 12.5 μm	
	Proof Stress Level	> 0.7 (~ 1%) GPa	
	Strip Force (Peak):	1.0 < F peak.strip< 8.9	
	Zero dispersion wavelength	1310-8/+12 nm	
	Zero dispersion slope	> 0.091 ps/(nm2.km)	
	Fibre curl:	> 4 m-radius of curvatuer	
	Cut-off wavelength	< 1260 nm	
	Mode field diameter at 1310	9.3 ± 0.5 μm	
	Mode field diameter at 1550	10.4 ± 0.8 μm	
	Macrobending loss @ 1550 nm, 100 turns on a 60mm mandrel	<0.5 db	
	Max (chromatic)dispersion:		
	@1270-1340nm	<5.3ps/nm-km	
	@1285-1330nm	<3.5ps/nm-km	
	Polarisation mode dispersion (PMD)		
	coefficient, cabled	< 0.5 ps/sq km)	
	PMD Link Design Value	< 0.2 ps/sq km) RoHS Complaint	
7	**Electrical/Optical Characteristics**		
	Attenuation	Characteristics - Optical Performance Max. Attenuation (Cable with fibres) At 1310 nm: 0.35 dB/km At 1550 nm: 0.22 dB/km Max. Average Attenuation; At 1310 nm: 0.33 dB/km At 1550 nm: 0.21 dB/km	
	Rack Mount Fiber Panel		

1	Rack Mount	LIU Should have Sliding Drawer with 4 Cable entry/exit points (covered with rubber grommets)	
2	Material	Powder coated mild steel	
3	Accommodation and Supports	Accommodation of single mode cable multimode fibers Capable of supporting SC and LC interface - For 24 Port with SC Coupler Management rings within system to accommodate excess fibre bend radius.	
4	Compatiabiliy	Labelling for port identification, Fiber Management rings to accommodate excess fiber cordage behind the trough adapters and maintain fiber bend radius	
5	No. of fiber ports	The 1U 24 Port LIU must be expandable up 96 ports.	
Optical Fibre Adapter Plates/adaptors			
1	Features and Benefits	Optical Fibre Adapter Plates are modular platform that is compatible with a various Enclosures and Fibre Splicing Systems. Adapter density ranges from 6/12 fibres to 24 fibre per plate, allowing for 1U 96 fibre density. Available in a variety of connectors and performance levels, the Plates require no tools for installation or should have individual adaptors	
		From 6 Fibre to 24 Fibre Density – Allows you to reuse your existing enclosure and increase your fibre count to meet demand or should have individual adaptors	
		Greater Asset Utilisation – Easily Expandible – allows multiple generational uses of the enclosure for the same rack area. Our blank plates and a small profile plate ensures you only pay for the adapters you need.	
		Snap Rivets – allows for easy installation and removal	
		100% Factory Tested – Guaranteed performance	
2	Commercial Standards	ISO/IC 11801, ANSI/TIA/EIA 568.B.3-2000, ANSI/TIA/EIA-492, TELECORDIA GR-409, ICEA-596	
3	Mechanical Characteristics	Dimensions: 86 x 33mm	
		Plate Material: Black Electroplate or Thermoplastic	
LC-LC OFC Patch Cords			
	Type of connectors	LC LSOH Jacket - Reduces toxic / corrosive	
	Length	Should be 3Mtr	

Polishing	100% Factory polished and tested	
Insertion Loss	Less than 0.3dB per connector	
Attenuation	3.5dB/km @ 850 nm & 1.5dB/km @ 1300nm	
Standards	ROHS Compliant	
Jacket colour	Industry Standard Colour - OS1-Yellow	
Make and Type	LC to LC Duplex Fiber Optic Patch Cord 50/125 Micron	
Cable Sheath	LSZH	
Cable Diameter	1.6 mm	
Ferrule	Ceramic	
Buffer	Tight buffered	
Temperature Range	.-40 Degree C to +85 Degree C	
Buffer Diameter:	900μm	
Primary Coating :	245μm	
Strength Member:	Aramid Yarn	
Jacket Material:	LS0H IEC 61034-1 & 2, IEC-60332-1, IEC-60754- 1 & 2	
Pigtail		
Type of connectors	SC / LC LSOH Jacket - Reduces toxic / corrosive	
Length	1.5 Mtrs	
Polishing	100% Factory polished, tested and Guaranteed Performance	
Standards	ROHS Compliant	

1.	42U Network Rack		

S.No.	Features	Specifications	Compliance (Yes/No)
1	Key Features	a) Rack should be 800mm/1000mm wide with reducing cable channel of 100mm on both sides and also in front and rear and 1000mm/1200mm in depth. b) Confirm to DIN 41494 or EIA 310D standards. c) Load rating Capacity of 250kg. d) Cabinet can be dismantle and reassemble at site. e) Plain side panels with slam latches should be there. f) Other part/component except vertical profile should be made of CRCA steel and CRCA steel should be of "IS 513 Gr D" g) Thickness of CRCA sheets used for doors is 1.2mm and foe side panels is 1mm. h) Fully adjustable and recessible 19" mounting angle from both front and rear. i) Front glass toughened and tinted with easy detachable hinges and rear split perforated doors with "Honeycomb" type of perforation for maximum air circulation and stiffness. Perforation area should be 70% at least of the total door area. j) Should be RoHS complied and ISO Certified manufacturing plants. k) Fan Housing Unit with four fans of 90CFM ratings. l) For Base management castors (Set of 4) should be there 2Nos. with front brakes and 2nos without brakes. m) Earthing kit from top to bottom for proper earthing. n) PDU 19' Octagonal socket 12 X 5/16 Amp with 16 Amp MCB & Indicator with 3MTR cable and Industrial plug.	

		o) Rack to be powder coated with Nano ceramic pre-treatment process using Zirconium coat, and the powder coating process should be RoHS Complied. Powder coating thickness should be 80 to 100 microns.	
2	Make	Rittal/APW-President	

2.	**15U Network Rack**		
S.No.	**Features**	**Specifications**	
1	Key Features	a. Confirms to DIN 41494 and EIA 310D standards. b. Fully Recessible 19" equipment mounting angle. c. Heights available 15U d. Depth Options – 600mm . e. Width -500mm f. Front Plain glass door. g. Top and bottom cover with cable entry provision. h. Ventilated top and bottom covers. i. Load rating 60kgs. j. Supply fully assembled and configured with the accessories. k. Fan Housing Unit with two fans. l. 1Nos. PDU 6 amp 5 Socket m. 2nos. Cable Manger (Finger duct) with cover	
2	Configured Rack Contents	Frame. • Front Glass Door. • Panel Mount supports (2Pairs)	
3	Make	Rittal/APW-President	

3.	**1U Horizontal Cable Manager - Finger duct with cover**		
S.No.	**Features**	**Specifications**	
1	**Dimensions (hwd / in.)**	2 x 5 x 20	
2		Cold rolled steel with black finish	

S.No.	Features	Specifications	
3	Product Warranty Period (Worldwide)	5-year warranty	
4	Unit Dimensions (hwd / in.)	1.77 x 3.9 x 19.13	
5		Required mounting hardware included	
6	Make	Rittal/APW-President	

4. Power Distribution Unit 6 amp 5 Socket

S.No.	Features	Specifications	
1		PDU 19' Octagonal socket 6 X 5 Amp with 16 Amp MCB & Indicator with 2 MTR cable and Industrial plug.	

21. Power Distribution Unit 16 amp 5 Socket 6 Pin each Socket

S.No.	Features	Specifications	
1		PDU 19' Octagonal socket 12 X 5/16 Amp with 32 Amp MCB & Indicator with 3MTR cable and Industrial plug	

Server:

Technical Specifications	
Processor(s)	2 x Intel® Xeon® CLX-SP 6242 16C/32T 2.8G 22M 10.4GT 3UPI
RAM	12 x 16 GB DDR4 2133 MHZ RDIMM (Max 768GB, 16 DIMMs)
HDD/SSD(s)	3 x 4000GB SAS 7.2K RPM
HDD Bays	8 Hot-swap 3.5" SAS/ SATA3 bays
RAID	SAS RAID Controller with RAID 0,1,10,5,6, levels supported with 2GB Cache
NIC	2 x Gigabit(10/100/1000Mbps) Ethernet ports
Exp. Slots	4x PCI-E 3.0 x16 , 2x PCI-E 3.0 x8 slots
Ports	1 VGA,2 USB,2 x LAN ports
Chassis	2U Rack Mountable with rail kit
Management	Thru IPMI 2.0 + KVM with Dedicated LAN
P. Supply	740W or higher Redundant Power Supplies, 80 Plus Certified
Warranty	5 Year Comprehensive warrant

UPS

Technical Specification for 20KVA Online UPS with 120 min Backup (3P In -1P Out)	Compliance Y/N
Supply of **20KVA** True Online , DSP Controlled online UPS with 3 phase AC input and 1 phase AC output with minimum 120 minutes Battery backup with 12V SMF batteries Bank with Rack (min. VAH required =57600 VAH) ,The UPS should be with IGBT Based Rectifier and Inverter and with LCD/LED display for monitoring of its status along with same OEM Make inbuilt Galvanic Isolation Transformer at input side . **UPS should have following Features:** **UPS power factor :** Input PF should be 0.99 AND output PF not less than 0.9 , **Efficiency:** overall efficiency (up to 94% without Isolation Tx), **Distortion Level** :THDi <5% & THDv </= 2% (for Liner load) & 5% (for Non Liner load),**Input Voltage Range**: 190-470V AC, **overload** : 110% for 5 minutes , 130% for 1 minutes and 150% for 10 seconds. **Noise level** <55dB,operating temp 0-45 degree C, Back feed protection required in UPS, **Communication interface** :RS232/USB port and optional SNMP compatibility for remote Monitoring , **Audible Alarm** : Mains Failure/Low battery /UPS Warning /Overload/Fault & Bypass Mode , **CERTIFICATIONS** : ISO 9001 & 14001 certification , **Compatibility** with DG Genset , Parallel operation up to 4 same units, Built in Automatic & Maintenance Bypass Switch ,**Warranty** : 2 Years on UPS as well as on Batteries, **Battery Make** : Exide /Amaron-Quanta/Panasonic Make Only, **Preferred/Approved Brand** : APC-Schneider /Emerson -Vertiv /Legrand-Numeric, Eaton. OEM should have at least 2 own/ASP Based service centers /network in J&K , need to furnish service centers address along with at least three engineers contact details and OEM should have experience of more than 10 years in Govt. business.	

Data Center Accessories

S.No	Equipment	Compliance Y/N
1	**Fire Fighting system for Server room in Center of IT**	
2	**Rodent Control system for Server Room in center of IT**	
3	**Water Leakage Detection system for Rack Area in center of IT**	
4	**Bio-Metric access & surveillance system for Server room in Center of IT**	

Bill of Quantities

Item	Qty
Spine Switch (Core Switch)	2
Distribution Leaf Switch	10
PoE 48 Port Access Switch	26
PoE 24 Port Access Switch	10
Network Controller/Orchestrator/Monitoring Platform	1 Set
1 Gbps SFP LR for existing switches or existing	150
Server	2
Wifi AP Type-I	150
WiFi AP Type-II	10
OLT	2
24 Port loaded Patch Panel 1U Height	45 Nos.
Cat 6 4 Pair Cable	60Km
Cat 6 4 Pair Patch Cord 1m	500 Nos.
Cat 6 4 Pair Patch Cord 2m	700 Nos.
Cat 6 4 Pair Patch Cord 3m	200 Nos.

Cat 6 I/0 with back box and face plate	1200 Nos.
OFC 24 C Single Mode	OFC 24 C will be laid From Center of IT to All Distribution Switches. The bidder is expected to do survey as per route decided by Jammu University and quote The bidder can request for route map copy from Computer Center. **Total 15 km**
OFC 12 C Single Mode	OFC 12 C will be laid From Distribution Switch rack to access Switches Rack. **Total 15` km**
OFC 4 C Single Mode	OFC 4 C will be laid From Access Switch rack to access Switches Rack. The bidder is expected to do survey as per route decided by Jammu University and quote. The bidder can request for route map copy from Computer Center. **Total 50 km**
Fully loaded Rack Mount Fiber Panel for Fibre termination with LC adapter plates	60 Nos.
LC-LC OFC Patch Cords Single Mode 3 M	500 Nos
LC-LC OFC Patch Cords Multi Mode 3 M	100 Nos
Fully Loaded Fibre Splitter Box (1X16)	4 Nos
UPS	1 Set
Accessories (Water Leakage Detection, Fire Fighting, Rodent Control, cables etc.)	1 Set
Bio-Metric Access Control	1 Set
Rack 15 U with accessories	30 Nos.
Rack 42 U with accessories	4 Nos.
Fibre Termination Enclosure(Supporting Minimum 2 6C OFC)	125 Nos.
Any Accessories/Component/Service required to complete the project	1 Set
Conduiting Material (PVC Pipe/GI Pipe/ PVC Caping Casing for CAT 6 Cable)	10KM
24X7 Management & Operation of N/W	1 Set

(i)   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 have examined and have no reservations to the Bidding Documents, including Addenda ,if any, issued in accordance with the tender document;

2. I/We meet the eligibility requirements and have no conflict of interest ;

3. I/We have not been suspended nor declared ineligible in India;

4. I/We offer to supply in conformity with the Bidding Documents and in accordance with the Delivery Schedules specified in the Tender document the following Goods: [***insert a brief description of the Goods and Related Services***];

5. I/We 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 120 days from the date of opening of the tender.

6. I/we shall be bound by a communication of acceptance issued by you.

7. I/We have understood the General Conditions 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.

8. A crossed Bank Draft in favor of the Registrar, University of Jammu for Rs. (Rupees… only) as Earnest Money is enclosed.

   The Draft is drawn on.. Bank payable at Jammu.

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

   a. Compliance Sheet duly signed and stamped (without indicating price).
   b. Income Tax clearance certificate.
   c. Copy of last audited balance sheet.
   d. Copy of Valid GST registration certificate.
   e. Copies of following documents including relevant major purchase orders to support following:
       i.   The bidder having an average annual turnover of Rs. 7.0 crores for the financial year 2017-18, 2018-19, 2019- 20 and above are only eligible for this bidding.
       ii. The bidder can be a System Integrator (SI) or Original Equipment Manufacturer (OEM). In case of SI, a support letter from OEM must be supplied with an indication that warranty will be extended for the period of 5 years from the date of installation.
       iii. The bidder should have successfully implemented atleast one project of the value of Rs. 5 crores in the last three financial years or two projects of Rs. 3.0 crore each of similar nature.
   f. Proof of manufacturing Unit, dealership certificate/general order suppliers.
   g. Proof of establishment and experience of service centre in the UT of J&K
   h.   Statement of deviations from financial terms & conditions, if any.
   i.   Any other enclosure. (Please give details)
   j.   We undertake to execute all orders which have been placed to meet emergent requirements on priority basis
   k. Certified that the bidder is:
       i.   A sole proprietorship firm and the person signing the bid document is the sole proprietor/constituted attorney of the sole proprietor,
                                    OR
       ii. 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
       iii. A company and the person signing the document is the constituted attorney.
   (NOTE: Delete whatever is not applicable. All corrections/deletions should invariable be duly attested by the person authorized to sign the bid document).

l. 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.

m. If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents;

n. We are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process, other than alternative bids submitted;

o. We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption

Name of the Bidder**[insert complete name of person signing the Bid]**

Name of the person duly authorized to sign the Bid on behalf of the Bidder** [insert complete name of person duly authorized to sign the Bid]**

Title of the person signing the Bid **[insert complete title of the person signing the Bid]**

Signature of the person named above **[insert signature of person whose name and capacity are shown above**]

Date signed _**[insert date of signing]** day of **[insert month]**, **[insert year]**

*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

**: Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid Schedules.

Yours faithfully,

(Signature of bidder)

Dated this day of _____

Address:_____

Telephone No. :_____

FAX:_____

E-mail_____

Company seal

(ii)TENDER FORM

(Priced Bid)
(On the letter head of the firm submitting the bid document)

The _____

_____

_____

Ref: Tender No……………………………………Dated: …………………….…………

Sir,

Having examined the bidding documents and having submitted the techno commercial un- priced bid for the same, we, the undersigned, hereby submit the priced bid for supply of goods and services as per the tender document and in conformity with the said bidding documents.

1. We hereby offer to supply the Goods/Services at the prices and rates mentioned in the enclosed schedule of requirement.
2. We do hereby undertake that, in the event of acceptance of our bid, the supply of Goods/Services shall be made as stipulated in the tender document and that we shall perform all the incidental services.

3. The prices quoted are inclusive of all charges net F.O.R University. We enclose herewith the complete Financial Bid as required by you. This includes:

a. Price Schedule (Bill of Quantity- BOQ).
b. Statement of deviations from financial terms and conditions

3   We agree to abide by our offer for a period of **120 days** from the date fixed for opening of the bid documents and that we shall remain bound by a communication of acceptance within that time.

4   We have carefully read and understood the terms and conditions of the bid document and we do hereby undertake to supply as per these terms and conditions. The Financial Deviations are only those mentioned in the statement of deviations from financial terms and conditions.

5   We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract: **[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]**

Name of Recipient	Address	Reason	Amount

(If none has been paid or is to be paid, indicate –none.‖)

6   We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and

7   We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

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

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.

Dated this day of_____

Signature of Bidder_____

Details of enclosures_____

Full Address:_____

Telephone No._____

Mobile No. : _____Fax_____ _ E-mail :_____

COMPANY SEAL

TENDER ACCEPTANCE LETTER

(To be given on Company Letter Head)

Date:

_____

_____

_____

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No._____

Name of Tender/ Work: -

_____

_____

_____

_____

_____

_____

_____

_____

Dear Sir,

1. I/We have downloaded/ obtained the tender document(s) for the above mentioned ‗Tender/Work' from the web site(s) namely:

_____

_____

_____

_____

as per your advertisement, given in the above mentioned website(s).

2. I/We hereby certify that I/We have read the entire terms and conditions of the tender documents (including all documents like section(s), schedules(s) etc.,), which form part of the contract agreement and I/we shall abide hereby by the terms/conditions/ clauses contained therein.

3. The corrigendum(s) issued from time to time by your university too have also been taken into consideration, while submitting this acceptance letter.

4. I/We hereby unconditionally accept the tender conditions of above mentioned tender document(s)/ corrigendum(s) in its totality/entirety.
5. In case any provisions of this tender are found violated, then your university shall without prejudice to any other right or remedy be at liberty to reject this tender/bid including the forfeiture of the full said earnest money deposit absolutely.

Yours Faithfully,

(Signature of the Bidder,

with Official Seal)

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