



Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum

Medical College P.O.

Thiruvananthapuram-695011, Kerala, India

An Institute of National Importance under Department of Science & Technology, Government of India

Phone : 0471-2524445/145/245/225, Fax : 0471-2550728, Email : purchase@sctimst.ac.in

TENDER

Sealed TENDERS in two bid system are invited for the supply of the following stores from Foreign Manufacturers/their accredited Indian Agents/Indian Manufacturers/ their Distributors:

SI No	Particulars	TENDER No	Quantity
1	TENDER for a Mini Data Centre Infrastructure Implementation - Design, Engineer, Supply, Install, Test, Commission the Air-conditioning System 35 KW and other infrastructure for a Mini Data Centre with modular integrated racks in a single row; based on direct expansion refrigerant in rack/in row cooling solution on a turnkey basis.	SCT/IMP/2016-17/P6105/GN	1

The TENDER should be super scribed Tender for (specify name of the item) and addressed to the Director, Sree Chitra Tirunal Institute for Medical Sciences & Technology, Medical College P.O., Trivandrum -11. Late TENDERS will not be accepted. The TENDERS will be opened at 3 PM on 03/05/2017 in the presence of such of the Tenderer or their authorized representatives who may be present at that time.

The TENDER notices are posted on the website of the Institute (www.sctimst.ac.in) and 'http://eprocure.gov.in/epublish' for downloading by the prospective tenderer. The cost of TENDER documents (Rs.500/- + VAT @ 5%) can be paid by Tenderer in the form of demand draft drawn in favour of the Director of the Institute, which is not refundable under any circumstances, while submitting their offers with the bid / TENDER documents. The cost of such downloaded documents should be kept along with the Technical Bid. TENDER forms are not transferable.

TENDERS will be received up to 1 PM on 03/05/2017. All TENDERS should be accompanied by EMD for 5% of the total quoted amount/FOB value of the total quoted items (rates multiplied by quantity). The exchange rates shall be at Bill Selling rates prevailing on the date of opening of TENDERS. The EMD can be by way of Demand Draft favouring Director, SCTIMST or Bank guarantee (format enclosed). **The EMD should be enclosed with Commercial bid only**, not with the Technical Bid. The cost of TENDER documents and EMD will be waived based on relevant certificates for the TENDERed items on production of documents such as DGS&D / NSIC Registration Certificate, etc. for the specific category of item and should remain valid for the period required for EMD.

The Director of the Institute reserves the right to accept or reject all or any TENDER at his sole discretion without assigning any reason.

(Sd/-)

DIRECTOR



Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum

Medical College P.O.

Thiruvananthapuram-695011, Kerala, India

An Institute of National Importance under Department of Science & Technology, Government of India

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TENDER DOCUMENT

FOR

MINI DATA CENTRE INFRASTRUCTURE IMPLEMENTATION

for setting up modular integrated racks in single row; based on direct expansion refrigerant in rack/in row cooling solution

Date:15/03/2017

TENDER No.: SCT/IMP/2016-17/P6105/GN

The last date for submission of bids: 03/05/2017 up to 13:00 Hrs

The TENDER document is available for downloading at www.sctimst.ac.in

TENDER SUMMARY

1	TENDER/Tender No	SCT/IMP/2016-17/P6105/GN
2	Name of the Institute	Sree Chitra Tirunal Institute For Medical Science & Technology, Trivandrum Medical College P.O., Thiruvananthapuram, Kerala, India Pin 695011
3	Name of work	TENDER for a Mini Data Centre Infrastructure Implementation- Design, Engineer, Supply, Install, Test, Commission the Air-conditioning System 35KW and other infrastructure for a Mini Data Centre with modular integrated racks in a single row; based on direct expansion refrigerant in rack/in row cooling solution on a turnkey basis.
4	Date of commencement of work	7 days from the acceptance of Purchase Order
5	Period of completion of works	4 Months from the date of Purchase Order acceptance
6	Penalty for not completing the work on time	1% of Purchase Order amount for every work subject to a maximum of 5% of order value.
7	Warranty and support	Warranty - 36 months from the date of commissioning and handing over. Offered product should be supported for 7 years after the warranty through AMC/CMC.
8	Tender issue from web site	http://www.sctimst.ac.in/Tenders/
9	Place of receipt of TENDER	Sr. Purchase and Store Officer ,Sree Chitra Tirunal Institute For Medical Science & Technology, Trivandrum, Medical College P.O., Thiruvananthapuram, Kerala, India Pin 695011
10	EMD	5% of the total quoted amount /FOB value of the total quoted amount (rates multiplied by quantity) value valid up to 180 days by way of Bank Guarantee/Demand draft in the name of Director, SCTIMST payable at Thiruvanthapuram).
11	Cost of TENDER	Rs. 500 + Tax (Rs.25) - Total Rs. 525 Payable to the Director, SCTIMST, at Trivandrum by DD. The tender cost and EMD will be waived based on relevant certificates for the tendered items on production of documents such as DGS & D and NSIC registration certificates, etc. for the specific category of item and should remain valid for the period required for EMD.
12	Performance bank guarantee	10% of total work for three years after handing over. Security deposit will be released after that.(Performance Guarantee by DD or Bank Guarantee)
13	The firm period of TENDER	6 months from the date of submission.
14	Escalation	No Escalation
15	Last date and time for download of document	03/05/2017 up to 1 PM.
16	Inspection of proposed data centre site	04/04/2017 up to 4 PM.
17	Last date for submission of prebid queries as email to purchase@sctimst.ac.in with copy to purman@sctimst.ac.in	05/04/2017 up to 4 PM.
18	Bid validity	180 days.
19	Pre Bid meeting	07/04/2017 from 10 AM, Mini Conference Room, Achutha Menon Centre, SCTIMST, Trivandrum, Pin 695011, Maximum 2 (Two) participants per Tenderer will be allowed to participate in the Pre – Bid Meeting. The queries, if any, will have to be submitted in writing on/ before the day of Pre – Bid Meeting and the answers to the queries will be made available on our website under TENDER.
20	Responding to tenderer queries ,upload of answers on web site	18/04/2017.
21	Last date and time for submission of tender	03/05/2017 up to 1 PM.
22	Date and place of opening the technical bids	03/05/2017 from 3PM, Mini Conference Room, Achutha Menon Centre, SCTIMST, Trivandrum, Pin 695011

(S/d)

DIRECTOR,SCTIMST, TRIVANDRUM

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SECTION I: INVITATION FOR BIDS (IFB)

The Director, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum-11 invites pre-bid meeting cum global tender under Two Bid System (Technical and Commercial separately) from foreign manufacturers/ their accredited Indian agents /Indian Manufacturer for the Design, Engineer, Supply, Install, Test, Commission Service the Air-conditioning Systems and other infrastructure for setting up a Mini Data Centre with modular integrated racks in single row; based on direct expansion refrigerant in rack/in row cooling solution on a turnkey basis.

Broad specifications of the proposed system and the turn- key project details are given below. Specifications given are essential requirement of this equipment while terms & conditions are mentioned separately. Cost of each item/feature should be quoted separately in the price bids only. Additional relevant technical features suitable for our requirement will be given due weightage while selecting the system.

Full data sheet of the technical specifications of the machine should be provided in the bid. All available accessories including third party items should be mentioned in the data information sheet. Third party items for civil, electrical, network, AC should be finalized in consultation with the institute and with the consent of the institute users at the time of negotiation.

Building and preparing the site marked for Mini Data Centre including all the requisites within and outside the server room and console room, the complete civil work (flooring, partitioning, false ceiling, painting) , Rack fixing, AC, Electrical, Networking, Monitoring System, Safety & Security control system and installation of all these will be considered part of the proposed equipment purchase.

The entire installation should be done in a coordinated fashion with least inconvenience caused to patients, hospital operation and without affecting the existing functions of the patient care area nearby. The time lines of installation should be strictly followed. The equipment and accessories should be brought to site only after the installation site is ready in all respects. Tenderer shall also be responsible for safety and upkeep of all equipments supplied to site prior to commissioning and handover.

The entire installation, integration, functioning and commissioning of the system should be done within four months of accepting the order. The construction and installation should be done in continuous consultation and under the supervision of the engineers of SCTIMST.

The work cannot be assigned, transferred or sublet to another party.

The penalty for non compliance shall result in revoking the security deposit/EMD.

The Tenderer is advised to examine the entire document carefully. Failure to furnish all information required as per the Tender document may result in the rejection of the Bid.

The director of Institute reserves the right to accept or reject all or any part of the TENDERS at sole discretion without assigning any reason thereof at any stage of the TENDER process.

DIRECTOR

SCTIMST, TRIVANDRUM

SECTION II - TERMS & CONDITIONS

In addition to the conditions mentioned in the TENDER notice and attached schedule the following will also form part and parcel of the TENDER documents.

1. The prices quoted should be FOB in foreign currency by Ocean freight /Air freight or FOR Thiruvananthapuram for delivery at our Institute in INR, if the tenderer prefers to quote in INR. (This clause is applicable as per the mode of quote).
- 2 (a) The tenderer should clearly state whether he/they are manufacturer, accredited Agents, or sole representative (indicating the name of Principal) on the top of the Bid.

(b) The Foreign Manufacturers, whether they participate in the TENDER directly or through their accredited Agents should furnish an undertaking that they will directly or through their agents take the responsibility of maintenance of the equipment supplied and installed for a period of 10 years from the date of successful installation and commissioning of the equipment.
3. Agency Commission if any, to be deducted from Ex-works/ FOB/CIF value and is payable to Indian Agents should be indicated separately for payment in Indian Rupees, if the quotation is in foreign exchange.
4. Customs Duty, Excise Levies etc. if payable should be mentioned in the quotation separately. Rates quoted should be firm for acceptance by us within a period of 6 (six) months (180 days) from the date of opening.
5. (a) The detailed Technical bid and Commercial bid should be furnished in separate sealed covers and clearly marked as "Envelope no. 1 - Technical Bid" and "Envelope no. 2 - Commercial Bid" . Commercial Bid - Price schedule be completed in all respects with proper seal and signature of authorized person. Mention the TENDER name and number in both envelopes. The items to be included in both the bids are given at Technical bid and Commercial bid format. Both the technical bid and commercial bid should be in sealed covers and can be enclosed in a larger sealed cover super scribing tender number and date. A bidder is permitted to submit only one bid.

The Bid shall be neatly arranged, plain and intelligible with page numbering. The authorized person should sign each page of the bid.

The bid can be submitted in person or through post/ courier (SCTIMST shall not be responsible for any postal delays resulting in disqualification/ rejection of any bid) so as to reach on or before the due date and time. The tenderer's authorized representative (maximum two) can attend the bid opening/s.

The representatives of tenderer may choose to attend the opening of the technical bids. In case Tenderer requires any clarifications / information they may contact SCTIMST as given in TENDER Schedule.

Technical bid will be opened first and after evaluation, the commercial bid will be opened on prior intimation to qualified tenderer.

Please do not put "Commercial Bid" (prices quoted) in the technical bid envelope. If the price quoted is submitted with technical bid the TENDER will be rejected. The TENDER will be rejected if the bid is found inconsistent or inappropriate at the discretion of the institute without providing the Tenderer another opportunity.

- (b) Negotiation may be conducted with the lowest qualified Tenderer. The lowest price is calculated by adding the basic cost with all incidentals required for turnkey for the performance of the system, including Comprehensive Maintenance Contract cost for a period of 7 years after 3 year warranty.
6. All offers should be accompanied with:-
- a) Detailed specifications of the items offered.
 - b) Technical diagrams, illustrations etc.
 - c) The delivery schedule of item should be specified in the offer.
 - d) Other documents detailed as per schedule.

7. The successful Tenderer will have to arrange for remitting a security deposit and execute an agreement as called upon by the institute. This may be in the form of a Performance Bank Guarantee/Demand draft for 10%

of total assignment (purchase value) from Nationalized Bank/ scheduled bank, which should be valid for a period of 60 days beyond the completion of all contractual obligations of the supplier including warranty.

8. Price list of essential spares shall be provided along with the quotation, it should be frozen for a minimum period of 3 years after the warranty.
9. a) Warranty should be for a minimum period of 3 years from the date of installation and successful commissioning of the system.
b) After warranty the maximum of Annual Maintenance Charges, for comprehensive service is 5% and for AMC Labour service is 2.5% of Ex-Works / FOB/CIF value as the case may be. Both the AMC charges will be allowed Annual escalation of 5%. AMC exchange rate calculation – FOB at the time of Receipt Voucher (Main Store of SCTIMST) acceptance of items in all respects. ie Date of Receipt of Voucher.
10. Mode of payment should be indicated. The payment modes available are following:
 - (1) Irrevocable Letter of Credit for Import
 - (2) Sight draft against original documents through our banker's (STATE BANK OF TRAVANCORE, MEDICAL COLLEGE BRANCH, THIRUVANANTHAPURAM-695011, Phone: 0471-2443271, Email: mctrivandrum@sbt.co.in
 - (3) Wire Transfer/Telephonic Transfer or Advance Demand draft will be applicable only after the receipt of the item.
 - (4) By electronic transfer (NEFT) within 30 days of satisfactory installation and commissioning.
11. All bank charges outside India are to the beneficiary's account.
12. TENDERS not accompanied with sufficient EMD (5% of the total quoted amount / FOB value of the total quoted amount (rates multiplied by quantity) shall automatically stand rejected. The exchange rates shall be at the Bill selling rates prevailing on the date of opening of TENDERS. The EMD should have a validity of 180 days from the date of opening. The successful Tenderer has to extend the validity of the EMD if required by the Institute.
13. REMOTE SERVICE ACCESS if required has to be provided at the supplier's cost.
14. The Tenderer submitting his TENDER would be deemed to have considered and accepted all the terms and conditions. Price list should clearly specify unit rates wherever applicable.
15. The quantity shown in the Schedule may increase or decrease to any extent depending upon the actual requirement.
16. The Tenderer shall submit the pre-requisite information like Civil works/ Electrical works, Air Conditioning etc. within 2 weeks from the date of receipt of the order or establishment of a letter of credit as the case may be.
17. In the case of a placement of Purchase Order, the Tenderer (the Tenderer whose TENDER is accepted) shall have to accept the purchase order within 7 days from the date of receipt of purchase order otherwise it will be deemed that the purchase order is accepted by Tenderer. However, if the supplier notices any mistake in the contents of the order, he must bring the same to the notice of the Institute and seek clarifications. The Supplier will have to bear the responsibility for failure to take this action.
18. All disputes arising out of this purchase contract, the legal jurisdiction will be Trivandrum, Kerala, India.
19. Penalty clause:
 - (I) Delay Delivery: If the delivery is not effected on the due date the Director, SCTIMST will have the right to impose penalty at 1% per week subject to a maximum of 5% of order value. SCTIMST reserve the right to cancel the order in case the delay is more than 10 weeks.
 - (II) Performance (during Warranty period and AMC period):
 - a) Uptime means 100 % of total days in a year, including Sundays and Institute Holidays
 - b) Down time means any shortage in achieving the uptime of 100 %.
 - c) Down time penalty will be levied at the rates shown below;
 - a) The Equipment for which EX-works/FOB/CIF value is up to Rs. 10 Lakhs, penalty is 1.5% per day of such value of the equipment.
 - b) The Equipment for which Ex-Works/ FOB/ CIF value is above Rs.10 Lakhs but up to Rs.50 lakhs penalty at 3 % per day of the cost of the equipment subject to a minimum of Rs.5,000/- per day.

- c) The Equipment for which Ex- Works / FOB/ CIF value exceeds Rs.50 Lakhs, penalty is at 4 % per day of the cost of the equipment subject to a minimum of Rs.10,000/- per day and maximum of Rs.50,000/- (Rupees Fifty Thousand Only) per day for the first week which will double every subsequent week.
- d) The Penalty will be leviable for each (a single) equipment.
- e) Even if the total days of downtime in a year is below 1 %, if the equipment is down for more than 2 working days continuously, excluding reporting and repairing days, on any occasion, a penalty at the above rate will be levied for such down time exceeding 2 days. For this purpose repairing day is a single day on which the machine is reported as repaired and working means fully working.
20. Recovery Clause: All losses liquidated or otherwise due to the violation of the terms and conditions of the purchase order or defective documentation will be to the supplier/agent's account.
21. Installation & Commissioning: Tenderer should undertake the turnkey work, commissioning, testing and demonstration at our facility free of cost. Equipment should be installed, calibrated with original licensed software issued to the institute in the name of Director, SCTIMST and the same has to be handed over.
22. Training should be provided free of cost.
23. Form No.16, DSIR Certificate if needed for clearing the item shall be mentioned in the Technical Bid.
24. In the case of import items purchase following documents will be required for negotiation of documents.
- (1) Airway bill
 - (2) Certificate of Origin issued by or certified by local chamber of commerce.
 - (3) Packing list
 - (4) Invoice
25. If the items involve softwares, companies should avail software license in the name of Director, SCTIMST and the paper license/email license to be transferred to the concerned HOD and should be mentioned in the invoice.
26. 2 numbers of technical/service manual in original to be provided along with the equipment free of cost.
27. All correspondence after TENDER submission will be by email only and the companies should provide and update their valid-mail Id.
28. For the commercial bid evaluation purpose, AMC amount for year 4 to 10 (after 3 year warranty) will be added but for all other purposes, tender value will be excluding AMC amount.
29. The tenderer/OEM should have their own branch office/ service centre in Thiruvananthapuram or specified plans to provide service through local dealer/ service provider.
30. Bids submitted without EMD along with commercial bid will stand rejected. EMD will not be accepted in cash/ cheque / FDR or any other form except DD or BG. No interest shall be payable on EMD. The EMD will be returned to the unsuccessful Tenderer(s) within 15 days from the date of opening of commercial bids. For successful Tenderer; the EMD will be returned on submission of Performance Bank Guarantee. However, if the return of EMD is delayed for any reason, no interest/ penalty shall be payable to the Tenderer. The successful Tenderer, on award of contract / order, must send the contract/ order acceptance in writing, within 7 days of award of contract / order, failing which the EMD will be forfeited.
- The EMD shall be forfeited:
- If the Tenderer withdraws the bid during the period of bid validity specified in the TENDER.
 - In case a successful Tenderer, fails to furnish the Performance Bank Guarantee.
31. The Tenderer should deploy for the job skilled and competent staff as per compliance of minimum wages act and shall perform their duties with due diligence.
32. The Tenderer will be solely liable in any manner whatsoever for any indiscipline, theft, loss or damage to any person/worker at the premises. SCTIMST will have no liability regarding any matter concerning to workers or his employees or sub tenderer or representatives salaries, other payments, welfare, uniform etc. Hence Tenderer has no right to claim on SCTIMST in any respect of employment/compensation etc. Workers will be frisked / checked by the security personnel at SCTIMST while entering and leaving the premises.
33. The Tenderer is expected to confirm all the conditions laid out in the TENDER. In extremely exceptional case if the tenderer require any clarification on TENDER terms and conditions or scope definition, they should specifically submit the same to SCTIMST as per the timelines mentioned in the schedule. The same will be addressed by SCTIMST as per the timelines in schedule, after which no requests will be entertained. For any clarification, the Tenderer should submit the specific query by email (only), quoting Ref. No. of the Tender Document and the Tenderer's identity, to the email address mentioned in the schedule. No verbal interaction will be entertained.

SECTION III: INSTRUCTIONS TO TENDERER (ITT)

Eligible Tenderer

- The tenderer should be a company registered under the Companies Act, 1956 or registered firm (Indian/Global) since last 3 years. Provide a copy of the certificate

The Tenderer/OEM should have minimum 1 number of CDCP (Certified Data Centre Professional) and 1 number of CDCS (Certified Data Centre Specialist) in their roles. (Attach copy of the certificate for verification). The Tenderer/OEM should have certificate of quality like CE, ISO, FDA.

- The manufacturer shall be ISO 9001 certified.
- The Tenderer / OEM should have net worth three times the value of the bid and a turnover of four times the bid value for each of the last three financial years ending on 31-03-2017.
- Tenderer's/OEM'S experience in setting-up Data Centres in India. Provide details of projects executed in last 3 years. Details should include the following.
 - 1) Client
 - 2) Scope
 - 3) Total Project Value
 - 4) Year of Execution

Provide Supporting Purchase order documents

- The Tenderer/OEM should have installed and commissioned two or more data centres with Rack – row/ conventional data center during the past three years. Tenderer in house data centers shall not be considered
- The Tenderer should also have installed and commissioned all non IT components of data centre like electrical, monitoring software & civil works, etc. Tenderer should submit order copies, completion certificates and contact details.
- Provide Supporting Purchase order documents
- Declaration that the Tenderer has not been debarred / blacklisted by any reputed Government / Semi-Government organization for the quality of services / product and that there is no major complaint against the quality of service / products by any organization.
- The Tenderer should submit a valid letter from the OEMs confirming the following:
 - a. Manufacturer's Authorization Form for bid.
 - b. Confirm that the products quoted are not end of life products.
 - c. Undertake that the support including spares, software patches for the project.
 - d. Offered products shall be in the market for sale minimum next 3 years.
 - e. Valid letter from all OEMs
- In each of the projects the Tenderer should also have procured, installed and commissioned all non IT components of data center like Closed Couple Cooling, electrical, monitoring software & civil work, etc. Tenderer should submit work order copies, completion certificates and contact details of the concerned persons
- The Tenderer shall go through the entire document and must comply with all the terms and conditions. A Compliance statement in the form of "Complied" or "Not Complied" shall be given against each item and specification of the TENDER documents. The compliance statements should be supported by authentic documentation. Please note that any deviation from the laid down requirements/specifications shall be duly signed and stamped by the Tenderer. Failing to comply with this requirement may result in the bid being rejected. Submit these documents along with the Technical Bid.
- **The Tenderer should preferably be either an Original Equipment Manufacturer (OEM) or should be Authorized System Integrator Partner having Direct Purchase and Support Agreement with the OEM.** In case the TENDERER is a System Integration Partner of the Principal Manufacturer, a Certificate from the Principal Manufacturer clearly stating the relationship with the Partner and authorization to the Partner to quote for this Specific TENDER Enquiry is to be furnished.
- All Components offered in the Bill of Material should be covered under OEM support enabling program so that to get back end support / benefits from Principles / OEM in terms of Free Support / Maintenance, if

any, Access to 24 x 7 x 365 online support from Technical Assistance Center of OEM for resolution of problems with the help of their technical team on-site/off-site, advance defective part replacement during warranty period (3 years) within a period of two working days and OEM Login Access. The undertaking from the OEM for the same should be enclosed with the technical bid.

Amendment of bidding document

At any time prior to the deadline for submission of bids, SCTIMST may, for any reason, whether on its own initiative or in response to the clarification request in a pre bid by a prospective Tenderer, modify the bid document. All prospective tenderer who has purchased the bidding document will be notified of the amendment in writing, and such amendments/ modifications will be binding on them.

SCTIMST at its discretion, may extend the deadline for the submission of bids if the bid document undergoes changes during the bidding period, in order to give prospective tenderer time to take into the consideration the amendments while preparing their bids.

Period of validity of bids

Bids shall be valid for minimum 180 days from the date of submission. Bid valid for a shorter period shall stand rejected. Tenderer has to extend the validity if required by the Institute.

Submission of bids

They should not contain any terms and conditions, printed or otherwise, which are not applicable to the bid. The conditional bid will be summarily rejected. Insertions, postscripts, additions and alterations shall not be recognized, unless confirmed by Tenderer's signature.

Deadline for submission of bids

Bids must be received by SCTIMST before the due date and time at the address specified in the TENDER document. In the event of the specified date for the submission of bids being declared as a holiday for SCTIMST, the bid-closing deadline will stand extended to the next working day up to the same time.

SCTIMST may extend this deadline for submission of bids by amending the bid documents and the same shall be suitably notified in the media.

Late bids

Any bid inadvertently received by SCTIMST after the deadline for submission of bids, will not be accepted and returned unopened to the Tenderer.

Bid opening and evaluation of bids

The technical bids will be evaluated to shortlist the eligible tenderer. The technical bids of only the eligible tenderer shall be considered for further processing (technical evaluation).

The Tenderer whose technical bid is found to be acceptable and meeting the eligibility requirements as specified in this TENDER will be informed about the date and time of the opening of the commercial bid.

SCTIMST will open commercial bids of only the technically short listed bids, in the presence of the Tenderer or their authorized representative who choose to attend the bid opening, at the time and date to be informed later.

The Tenderer's authorised representative who attends the bid opening shall sign an attendance register as a proof of having attended the bid opening.

The Tenderer's name, bid prices, discounts and such other details considered as appropriate by SCTIMST, will be announced at the time of the opening of the commercial bids.

Comparison of bids

Only the eligible and technically shortlisted bids after the technical evaluation shall be considered for commercial comparison.

The comparison shall also take into consideration the delivery schedule, payment terms, etc. offered by the Tenderer in its technical bid. The bid not adhering to the terms as mentioned in technical bid will stand rejected.

Award of contract

The Tenderer must quote for all the items mentioned under the technical bid of requirement. The lowest price criteria shall be applied on the total composite amount of all turnkey items taken together.

Preliminary scrutiny of the proposal will be made to determine whether they are complete, required processing fee and bid security have been furnished, whether the documents have been properly signed, and whether the bids are generally in order. Proposals not conforming to such preliminary requirements will be prima facie rejected.

Bids complying with all the eligibility requirements of the TENDER document and fulfilling the specifications and requirement mentioned under the requirement of the TENDER document should be treated as substantially responsive bids. Responsiveness of the bids shall be determined on the basis of the contents of the bid itself and shall not be determined by extrinsic evidences.

SCTIMST may ask the tenderer for presentation on the solution offered, if required. Failure on the part of Tenderer to arrange the presentation on the date & place fixed shall result in the rejection of technical bids and financial bids of these tenderer shall not be opened. Also, if it is found after presentation that the solution offered is not meeting the specifications prescribed by, such tenderer shall be treated as substantially non-responsive. SCTIMST decision shall be final in this regard. The place for presentation shall be conveyed to the tenderer at an appropriate date.

Tenderer will have to score a minimum total of 70 marks to qualify to the next stage of commercial evaluation.

Sl	Criteria description	Marks
1	Company experience- Experience of the Tenderer in executing work similar with similar criteria (Minimum 3 projects – 10 marks each)	30
2	Understanding of requirement & solutions Proposed	10
3	Design innovation for the Proposed System with best/efficient resources.	10
4	Solution with latest technology (not obsolete).	10
5	Design with less power consumption.	10
6	Presentation of proposed solutions	10
7	Project Implementation Methodology/Schedule	10
8	Project Duration – Implementation/Commissioning	10
9	Total	100

Commercial bids of only those tenderer will be opened who are found to be substantially responsive and the work shall be awarded to the commercially lowest Tenderer.

The Tenderer should quote their rates in prescribed Performa only. Commercial bids other than the format provided shall be rejected by SCTIMST.

In case of discrepancy between words and figures, the rates quoted in words shall be treated as final. The amount will be calculated by multiplying the correct price with quantity and in case of any discrepancy, the corrected amount shall be considered and total of all corrected amounts shall be Tenderer's total quoted amount.

In the copies of supply order/ contract/ agreement/ experience certificate submitted by the Tenderer, the currency is other than Indian Rupees, the value of work in Indian Rupees shall be determined by using the exchange rate declared by Reserve Bank of India as on the date of opening of TENDER and the eligibility of the Tenderer shall be determined accordingly.

If more than one Tenderer happens to quote the same lowest price, SCTIMST reserves the right to choose the Tenderer with lesser power consumption based on offered design capacity. SCTIMST may add power consumption for 10 years to break the tie based on specified load and 80% utilization factor.

(Calculation example – 35 KW x 24 x 365 x .80)

Purchaser's right to amend scope of work

If, for any unforeseen reasons, SCTIMST is required to change the Scope of Supply, this change shall be acceptable to the Tenderer without change in the unit price quoted.

SCTIMST reserves the right to accept or reject / all or any the bids or cancel the TENDER without assigning any reasons whatsoever.

SCTIMST reserves the right to accord relaxation uniformly to all the Tenderer in case the bid submitted by all the tenderer are found to have minor deviation.

Corrupt or fraudulent practices

It is expected that the tenderer who wish to bid for this project have high standards of ethics.

SCTIMST will reject the bid if it determines that the Tenderer recommended for the award has engaged in corrupt or fraudulent practices while competing for this work.

SCTIMST may declare a Tenderer ineligible, either indefinitely or for a stated duration, to be awarded a contract if it at any time determines that the Tenderer has engaged in corrupt and fraudulent practices during the execution of the contract.

Interpretation of the clauses in the TENDER Document / Contract Document

In case of any ambiguity/ dispute in the interpretation of any of the clauses in this TENDER Document; Director, SCTIMST interpretation of the clauses shall be final and binding on all parties.

Operation and maintenance services

The Tenderer should have facility to register service call 24x7x365 days and has to ensure the availability of consumable/equipment/spare parts during 3 year warranty period and 7 years after the warranty. All the parts replaced should be of the same standard/make of the original and SCTIMST has to approve for any deviation in standard. Service calls to be attended immediately or within 24 hours depending upon the situation. The servicing agency shall provide satisfactory installation certificate from the OEM for replacement and warranty assurance certificate from OEM for replaced items during warranty/AMC.

SECTION IV: SPECIAL CONDITIONS OF CONTRACT (SCC)

Prices

The price quoted shall be considered firm and no price escalation will be permitted.

The prices quoted should be inclusive of freight, insurance, packing, applicable taxes & duties till destination. The packing shall be transported worthy, so as to prevent their damage or deterioration to goods during transit to their final destination as indicated in this document. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, and the remoteness of the Goods final destination and the absence of heavy handling facilities at all point in transit. However, risk in good shall continue with supplier till the goods are delivered in good condition and installed at the end user's site.

Taxes and duties

The prices quoted should be inclusive of all taxes and /or duties except customs duty. The items being imported and will have to pay/exempt duty as per the current import-export policy. The Institute shall provide necessary Custom Duty Exemption Certificate as & when required & requested by the supplier.

The Tenderer shall arrange to clear the consignment after following customs formalities and arrange to deliver the consignment to the end user. The cost and risk of the consignment rests with the Tenderer till it is delivered to the

end user.

The basic prices and applicable taxes should be mentioned separately. The exact rates of taxes applicable, if any, as on the date of quoting must be mentioned. No concessional tax form (C/D) will be given by SCTIMST.

Software licenses

The tenderer should quote the licenses legally. The licenses shall contain paper licenses and at least one set of media (DVD's/CDs) for each software.

Water and Electricity

SCTIMST will make arrangement for water and electricity required for the works in original cost at one point

Site to be kept clean

The surplus spoil and dismantled debris shall be removed to a place as directed by the consultant and stacked, leveled and dressed as directed.

Inspection of operation

SCTIMST or their representative shall at all times have access to the works and to the site and to materials and the Tenderer shall afford every facility for every assistance in obtaining the right to such access. No work shall or put out of view without the approval of SCTIMST and the Tenderer shall afford full opportunity to examine and measure any work.

Completeness responsibility

Notwithstanding the scope of work, engineering, supply and services stated in bid document, any equipment or material, engineering or technical services which might not be even specifically mentioned under the scope of supply of the Tenderer and which are not expressly excluded there from but which are necessary for the performance of the work in accordance with the specification and executing the contract to establish achievement of performance guarantee parameters, are to be provided for and rendered by the Tenderer without any extra charge so that the said project is completed in all respect.

Warranty

All the items covered in the schedule of requirements, shall carry minimum three years on site comprehensive warranty (Consumables, Spares, Equipment) from the date of its installation & commissioning. **The Tenderer must undertake to provide the installation and warranty service in Thiruvananthapuram.**

Service window	24*7
Telephone support	24*7
Response time: Onsite On call	24 hrs
Resolution	48 hrs
Spare turnaround time	48 hrs

For service calls related to less cooling; call should be attended within 2 hours from the time of logging the call. In case of faults related to other components like intelligent security system shall be attended to within the next business day. The Tenderer shall ensure that a minimum stock of critical spare parts / units of the system are maintained as spare stock at the site along with the spare parts list and specifications.

Failure to do so would result in the invoking of the PBG. The PBG will be released by SCTIMST only after receipt of performance certificate issued by end-user after the completion of warranty period.

Payments:

FOR INDIGENOUS ITEMS

100% by electronic transfer within 30 days of satisfactory installation and commissioning.

IMPORTED ITEMS

100% LC will be opened by OWNER against submission of Performa invoice within seven days from the date of the Purchase Order on submission of 10% PBG.

The L. C will be opened by OWNER. All other charges such as L C commission, transit insurance, port and clearance, total transport and commissioning shall be included in the low side work

All bank charges outside India has to be paid by foreign supplier.

Performance Bank Guarantee (PBG)

The successful Tenderer must submit a Performance Bank Guarantee (PBG) of 10% of the order value on receipt of supply order by SCTIMST as per the format provided in the TENDER document.

This Bank Guarantee should remain valid six months beyond the period of the project including delivery, installation & warranty i.e. 42 (forty two) months from the date of its submission to SCTIMST.

Shipping Documents

After the consignment is ready for dispatch, the successful Tenderer shall be required to furnish the following documents:

1. Packing List.
2. Insurance Policy.
3. Invoice & other relevant document(s).
4. Certificate of origin issued / certified from the local chamber of commerce in the case of import.
5. Airway bill in case of import.

Final Dispatch Clearance Certificate (FDCC) shall be issued by SCTIMST on receipt of above-mentioned documents from successful Tenderer and actual shipment should be made only after receipt of FDCC.

Jurisdiction

The disputes, legal matters, court matters if any, shall be subject to Thiruvananthapuram jurisdiction only.

Force Majeure

SCTIMST may consider relaxing the penalty and delivery requirements, as specified in this document, if and to the extent that, the delay in performance or other failure to perform its obligations under the contract is the result of an Force Majeure. Force Majeure is defined as an event of effect that cannot reasonably be anticipated, such as acts of God (like earthquakes, floods, storms etc.), acts of states, the direct and indirect consequences of wars (declared or undeclared), hostilities, national emergencies, civil commotion and strikes at successful Tenderer's OEM premises.

Arbitration

SCTIMST and Tenderer shall make every effort to resolve amicably by direct negotiation any disagreement or dispute arising between them under or in connection with the purchase order. If any dispute shall arise between parties on aspects not covered by this agreement, any kind arising out of the supply, commissioning, acceptance, warranty maintenance, etc. shall be referred by either party (SCTIMST or the Tenderer) after issuance of 30 days notice in writing to the other party clearly mentioning the nature of dispute to a single arbitrator acceptable to both the parties. Such arbitration shall be governed in all respects by the provision of the Indian Arbitration Act, 1940 or later and the rules there under and any statutory modification or reenactment, thereof. The venue for arbitration shall be Thiruvananthapuram.

Delivery, Storage and handling

Deliver materials to the SCTIMST site in supplier's or manufacturer's original wrappings and containers, labeled with supplier's or manufacturer's name, material or product brand name, and lot number, if any. SCTIMST shall provide storing spare for materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity. However the tenderer shall be responsible for safe and secure upkeep of the items until they are installed, commissioned and handed over.

Drawings and product data

Submit sufficient information to determine compliance with the Drawings and Specifications. Product data shall include:-

- Drawings and specifications for equipment
- Capacity data
- Electrical data
- Electrical connection drawing
- Piping connection drawing
- Bill of materials
- Product catalog sheets or equipment brochures
- Product guide specifications
- Installation information, including, but not limited to, weights and dimensions.
- Information about terminal locations for power and control connections.
- Drawings for requested optional accessories.
- Wiring diagrams (Lighting, Fire)
- Installation manual
- Operation and maintenance manual
- Compliance statements

The selected Tenderer shall report project progress on a periodic intervals and submit daily and weekly reports.

Project management tool should be updated and shared (like MS project) and the same to be displayed in project area with A0 size.

Adherence to safety procedures, rules, regulation and restriction

The Tenderer shall comply with the provision of all laws, including labour laws, rules, regulations and notifications issued there under from time to time. All safety and labour laws enforced by statutory agencies and by SCTIMST shall be applicable in the performance of this work and Tenderer shall abide by these laws.

The Tenderer shall take all measures necessary or proper to protect the personnel, work and facilities and shall observe all reasonable safety rules and instructions.

The Tenderer shall report as soon as possible any evidence, which may indicate or is likely to lead to an abnormal or dangerous situation and shall take all necessary emergency control steps to avoid such abnormal situations.

The Tenderer shall also adhere to all security requirement/regulations of SCTIMST during the execution of the work. The **work shall be carried out by the agency during 8 AM to 5:30 PM** on all working days with permission of Security & Safety Officer. Special permission may be provided to work on holidays.

All statutory certificates required has to be arranged by the supplier.

AMC Services

The brief scope of services and obligations to be performed by the Tenderer notwithstanding to those mentioned in the periodic maintenance checklist/maintenance plan are the following.

- Quarterly checking and servicing the entire data centre (Quarterly preventive maintenance)
- Attending to the service when called upon by the client within two hours.
- Repairing/overhauling the components of the equipment at site/in service station, including replacement of worn out parts when found necessary.
- Replenishing refrigerant required as a result of a leak in the system arising out of wear and tear
- Lubricating the bearings of motor, pumps and fans, when found necessary.
- Replacing of damaged electrical parts before restarting the system after break down.
- Quarterly inspecting belts, adjusting of tension and replacing worn out belts.
- Check control system and devices for evidence of improper operation. Repair, adjust or replace components to ensure proper operation.
- Check for proper operation of the cooling coil. Clean, restore or replace as required.
- Check the motor contactor for pitting or other signs of damage. Repair or replace as needed.
- Check fan blades. Clean, repair or replace as needed.

- Check refrigerant system temperatures. If outside recommended levels, find cause, repair and adjust refrigerant to achieve optimal operating levels.
- Check the integrity of all panels on equipment. Replace fasteners as needed to ensure proper integrity and fit finish of equipment.
- Check drain pan, drain line and coil for biological growth. Clean as needed.
- Visually inspect areas of moisture accumulation for biological growth. If present, clean or disinfect as needed.
- Check compressor oil level and or pressure on refrigerant systems having oil level and or pressure measurement means. Repair, replace or adjust as needed to ensure proper control
- Check for proper damper operation. Repair or replace as needed.
- Check temperature transmitters for accuracy.
- Visually inspect exposed duct work and external piping for insulation and vapor barrier for integrity. Correct as needed.
- Visually inspect internally lined duct work until the first turn or up to 20 ft into the supply plenum from air system for integrity, and if soiled or degraded, correct. Records are to be maintained for all the above tasks and submitted to clients as and when required.

SECTION V: TECHNICAL SPECIFICATION FOR INTEGRATED MINI DATA CENTRE INFRASTRUCTURE

Scope of work

1. This work covers intelligent integrated factory fabricated infrastructure, standalone system design, engineering, manufacture, assembly, testing at manufacturer's works, supply, delivery at site, unloading, handling, proper storage at site, erection, testing, successful integration of all units and commissioning at site of complete infrastructure for the proposed *Mini Data Centre* to be installed as detailed in the specification, complete with all accessories required for efficient and trouble free operations.
2. The detail specifications of the intelligent integrated/inbuilt infrastructure, standalone system shall be in adherence to TIA 942, Uptime Institute guidelines thus shall be composed of multiple active power and cooling distribution paths. Shall have redundant components, and is concurrently maintainable providing 99.982% availability.
3. The Intelligent Integrated Infrastructure essentially includes internal redundant or backup power supplies, environmental controls (e.g., precision air conditioning, fire suppression, smoke detection, water leak detection, humidity sensor, intelligent monitoring system, security devices, etc.) Air-conditioning system is to have 100 % reliability on 24 x 7 basis with a total cooling capacity of 35 KW and with adequate standby for system redundancy. (Failure of any single unit; still to meet the total cooling requirement of 35 KW). Tenderer to provide proof for the technical basis on their redundancy assumption to achieve the uptime objective. UPS will be provided by customer. (Cable will be provided up to the racks).
4. The Intelligent Integrated Infrastructure would provide many functionalities and some of the key functionalities are cold and hot aisle; fire rated cabinet, insulation (room/rack), remote management and single point of service.
5. Intelligent, Integrated Infrastructure Data Centre solution should utilize the approach to infrastructure design, an intelligent, Row/Rack-based cooling solution that simplifies infrastructure design, installation and management and optimizes the efficiency and reliability of data center/server room. By integrating UPS, power distribution, precision cooling and control technologies, it delivers industry best practices in data centre design to deliver an infrastructure.
6. Smart Monitoring system – includes sensors like smoke detectors, water leak detection system, temperature & humidity sensor, door sensor, and alarm beacon & capable for Email, SMS alerts.
7. The Tenderer is responsible for managing the entire project from commencement to the final handing over of the facility to SCTIMST. The Tenderer is required to provide detailed architectural diagrams and other illustrations like conceptual architectural plan, civil work details, electrical layouts and network cabling design layouts, 3D view of data centre etc., for the envisaged DC.

Components

- a. Cooling - In-row/In-rack based Precision Air conditioner with variable capacity cooling, heater and humidifier to cater IT load approximately 10 TR (35 KW) for total 8 racks. Air-conditioning system is to have 100 % reliability on 24 x 7 basis with a total cooling capacity of 35 KW and with adequate standby for system redundancy. (Failure of any single unit; still to meet the total cooling requirement of 35 KW). Tenderer to provide proof for the technical basis on their redundancy assumption to achieve the uptime objective (The tenderer can quote multiple units as per manufacturers units)
- b. Primary fire suppression using linear heat sensitive tube connected to the Extinguisher container with pressure release valve. Novec 1230 Gas based fire suppression system as per NFPA guidelines.
- c. Smoke detectors, water leak detection system, Temperature sensor, CCTV system and beacon in rack and alarm outside corridor and in AC plant.
- d. Racks - 42 U racks of dimension 600 mm x 1000 mm - 7 numbers for servers/storage and 42U racks of dimension 800/750 mm x 1000 mm – 1 number of networking units. Rack mount PDU of type IEC19/13, 12 Nos per PDU, Each rack shall have two PDU's.
- e. Monitoring system – capable to Email & SMS alerts
- f. Biometric access control system for racks and entry door which should be control of fire fighting access panel.
- g. Redundant electrical system three phase with essential MCB/MCCB.
- h. Intelligent integrated infrastructure would have provision to add an extra rack in the future. It should be flexible, adaptable, controllable infrastructure.
- i. Rodent repellent system.
- j. Power distribution system for rack and room.
- k. Remote management, KVM switches.
- l. Split/Package air conditioners for the room.
- m. Civil & Interior works– floor tiling, partition, doors (outside, inside), isolating/blanking windows, false ceiling, LED light fitting, painting, insulation etc.

DETAILED TECHNICAL SPECIFICATIONS OF COMPONENTS

1. In row/ In rack DX based precision air conditioning system.

The scope of work covers the supply, installation, commissioning and warranty of Precision Air Conditioner (here in referred to as "product") and services provided for the same.

The AC Units should have high sensible heat ratios, to match high sensible loads of Computer/Server Rooms/ Switch room/UPS. A Microprocessor controlled Precision package AC system with **R407C/R-410a** refrigerant shall be suitable to take thermal and air quantity inputs from the server and adjust its operation accordingly so as to achieve higher levels of performance and efficiency.

The Indoor unit shall comprise of Variable capacity **Digital Scroll/Inverter Scroll** Compressor, **EC fans**, Evaporator DX Cooling Coil with **hydrophilic coating**, Microprocessor controllers, Thermostatic valves, Driers, Filter, Suction and Discharge piping, Internal power and Control wiring, Crankcase heaters, Humidifier, Heaters, HP/LP Cutouts, Power and Control contactors, water leak detectors and Other Electrical accessories.

Fixed capacity compressor technology like multiple scrolls or Tandem scrolls are strictly not allowed. Systems should mandatorily be having variable capacity compressors and performance as per above specifications.

THE AIR-COOLED PRECISION PACKAGE UNIT SHALL BE DESIGNED AS PER FOLLOWING CONDITIONS

- a. Ambient air design temperature : 38 Deg C ± 5
- b. Sensible Cooling Capacity : Total 35 KW + 35 KW Stand by
- c. Air Flow Direction : Horizontal-in front of the racks
- d. Air inlet Temp & RH : Set point 22 ± 1°C (DB) & RH 45 ± 5
- e. Relative humidity at 20°C : 45± 5 % , dew point should be below 18°C
- f. Air Quantity : Modulating as per server 80-100 CFM/KW minimum)
- g. Units should be able to provide 1 SHR at part load

- h. Units should be able to work for fixed supply air logic instead of return air control logic. Units should be also connected to cold/hot aisle remote sensors for taking the temperature feedback from the racks at multiple places. This would help to regulate the fan for required air flow in cold aisles.
- i. The Units shall be designed for 68-69 DBA at 1.5 meter from the unit outlet quiet operation with all moving parts mounted on anti-vibration mounting and carefully balanced to ensure minimum vibration.
- j. If required, the unit shall be tested on site for performance rating before acceptance. Performance test shall be a heat load test using heater supplied by the Precision unit supplier.
- k. It is mandatory to submit software selection output of the proposed unit. The specific power consumption and other performance details shall be as mentioned in BoQ.
- l. Cold air will be supplied to the cold aisle containment of the integrated cabinet and the hot air will be taken from the hot aisle containment of the cabinet.

Design requirements

The environmental control system shall be a factory assembled unit. It shall be floor mounted, optimized for maximum cooling capacity in a minimum footprint. It shall be specifically designed for service from the front and rear of the unit. The system shall be designed to draw-through air arrangement to ensure even air distribution across the entire face area of the coil. It shall have adjustable air supply diffusers, the unit shall be capable to be mounted between the racks or at the end of the row. The unit shall modulate cooling capacity and airflow based on requirements.

These units are to be supplied with a 415 Volt, 3 phase, 50 Hz power supply.

Quality assurance

The specified system shall be factory "end of line" tested (functionality test) before shipment and designed to meet Industry best standards. The system shall be designed and manufactured according to world-class quality standards. The manufacturer shall be ISO 9001 certified.

Cooling circuit

One refrigeration circuit, incorporating a high efficiency, fully hermetic Copeland or equivalent Digital Scroll/Variable Capacity Scroll compressor with crankcase heater, safety valve, filter drier, moisture indicating sight glass, liquid line solenoid valve and an externally equalised expansion valve.

Each compressor to be equipped with pre-set high and low pressure switches for protection against high condensing and low evaporating temperatures. The low pressure switch features an automatic reset (with an adjustable delay for winter start-up).

The unit shall be provided with additional protection against high ambient temperature. When the temperature goes over the design conditions, the unit remains in operation with partial load (20% decrease against required). If such protection is not sufficient High Pressure switch shall generate a high pressure alarm and the unit shuts down - manual reset shall be required.

The inclined evaporator coil is manufactured from copper tubes, mechanically bonded to hydrophilic painted aluminium fins, with a stainless steel condensate drain pan. The large face area/low velocity coil allows precise control of temperature and humidity during cooling and dehumidification, and is designed to optimize fluid velocity and minimize pressure drop.

The moisture indicating sight glass, liquid line solenoid valve and expansion valve for each circuit to be mounted in a service compartment, isolated from the air stream, to allow checking and adjustment while the unit is in operation.

Fan section

Units shall be with Direct Driven EC Fans, High efficiency, external rotor electronically commutated (EC) motor with integrated electronics, True soft start characteristics (inrush current lower than operating current), Backward curve, corrosion resistant aluminium fan wheel, Maintenance free design and construction. The fan section shall be designed for higher air flow. The fan shall be protected over temperature of motor, electronics, locked rotor protection, short circuit of motor output. Fans are IP54, Protection class F.

Cabinet and frame

The unit shall be powder painted steel panels with min 10mm insulation. It shall have a suitable enclosure for high voltage components. The frame shall be painted with a powder coat black colour finish to protect against corrosion. The unit is to be totally front and rear accessible, including any component removal. Unit shall be provided with casters and leveling feet for an easy unit placement into the row of racks.

Air filtration

Room air to be filtered with filters rated to MERV8 by ASHRAE 52.2 (45% by ASHRAE 52.1) or G4 by EN779, located within the cabinet, and accessible from the rear of the unit. The Frame of the filter shall be made of galvanized steel. A clogged filter alarm shall be a standard feature.

Refrigerant

All units equipped with direct expansion circuit are suitable for R 407C/R410A refrigerant.

Microprocessor controller

The controller is microprocessor based. It consists of the Main Board and a distributed intelligence of devices able to collect thermodynamic data (sensors) and activation of refrigerant circuit components (compressors, valves, etc...)

Unit utilizes multiple temperature sensors placed at the rack inlet, to ensure management and control of temperature by rack. Each cold aisle should be connected up to 3-10 Sensors.

The controller allows setting and monitoring of the following space parameters:

- Air inlet Temperature
- Air supply Temperature (remote sensors at rack inlet)
- Return Temperature set-point
- Supply Temperature set-point
- Return Temperature band
- Supply Temperature band
- Humidity (inlet)
- Humidity set-point
- Humidity band
- Rack Min, Max and Average temperature
- CW temperature

Available warnings / alarms:

- High supply temperature
- Low supply temperature
- High return humidity
- Low return humidity
- Loss of airflow, Fan fault
- Compressor Low Pressure
- Compressor High Pressure
- High CW Temperature
- Loss of CW flow
- Electrical heater high temperature
- Clogged filter
- Customer input
- LP transducer fail
- Call service (customer input)
- High temperature (customer input)
- Unit hours exceeded
- Compressor hours exceed
- Humidifier hours exceed
- Supply sensor failure
- Network failure
- Humidifier problem
- Digital scroll high temperature
- Smoke detected
- Fire alarm

- Rack sensor failure

Following features to be incorporated in the controller:

- Status Report of the latest 400 event-messages of the unit.
- Input for remote on-off and volt-free contacts for simple remote monitoring of low and high priority alarms: high/low temperature, high/low refrigerant pressure, fan/control failure, compressor/control failure and others are available
- LAN management: functions provided as standard include stand-by (in case of failure of the unit in operation, the second one starts automatically), and automatic rotation.
- Automatic restart after a power failure.

Monitoring

Suitable provision to be made for SNMP / Modbus connectivity. Perpetual license for the monitoring software (never expire) required. Web interface for the supervisory control.

There should be SNMP and HTTP / Web management capability for enhanced communications and control of HPM systems, The cards make use of an Ethernet 100/1000 mbps to monitor and control a wide range of operating parameters, alarms and notifications. The card utilizes standard Ethernet cables (different cable lengths at convenience for the connectivity).

The unit shall also include input for remote on-off and volt-free contacts for simple remote monitoring of low and high priority alarms: high/low temperature, humidity, high/low refrigerant pressure, fan/control failure, compressor/control failure, total IT load, rack/row wise load, communication status of all infrastructure devices being monitored, Per Phase Input Current and Voltage, Per Phase Output Current and Voltage, Power Factor per Phase, Frequency, Active Energy (KWH/MWH) etc.

Condenser (DX Air cooled version only)

The condenser should be with fan speed controller designed & set for usages of R410A /R 407C refrigerant. Condenser should be worked -20 deg C to 46 deg C ambient temperature. The condenser frame shall be made up of a sturdy aluminium structure. The entire unit shall be IP54 type of protection. The motorized fan shall be IP54, protection class F. Fan blades implement the HiBlade TM technologies.

Electric Re-Heating

The heating resistors shall be of rigid design for extended operational life and to be utilized to maintain room dry-bulb conditions during a system call for dehumidification. The electric reheat coils are low watt density, 304 stainless steel fin tubular construction, protected by thermal safety switches. Re-heating control is of the ON-OFF type one step. The heating system also to incorporate Miniature Circuit Breaker which protects the heaters from short circuits, should the harness be damaged accidentally. Electrical re-heat can be disabled by remote contact (Optional - humidifier and reheat lockout).

Humidifier

The unit to be fitted with a canister type steam humidifier suitable for use with water of varying degrees of hardness, provided that the water is not treated or de mineralized (Conductivity range 125-500µS/cm). The humidifier has to be with a water inlet valve, water outlet valve and a maximum water level sensor, disposable cylinder, steam distributor and electronic controls. Humidifier control is of the ON-OFF type, can be also disabled by remote contact (Optional - humidifier and reheat lockout).

Condensate Pump

It shall have a capacity of 22.7 l/min (6 GPM) at 9 m (30ft) head. Pump is complete with integral dual float switch, pump - motor assembly and reservoir. The secondary float shall send a signal to the local alarm and shut down the unit upon high water condition

2. Split units for server room and console room

Cabinet

The split units shall have a metal cabinet of heavy gauge. The body should be machine pressed and adequately stiffened. The body should be chemically treated for corrosion resistance and then painted over with at least two coats of paint on primer. The body shall be insulated both thermally and acoustically on the inside. All the components indicated below should be mounted within the cabinet. Removable type access and drain connections shall be provided with the unit.

Compressor

Each unit shall have one or more reciprocating compressors complete with motor. Compressor shall be semi sealed or hermetic or open type and shall be suitable for Freon refrigerant. Compressors shall be mounted on vibration isolation springs/mountings and shall be easily accessible for service. The whole casing shall be suitably sealed against dirt and moisture. The lubrication system shall be force-feed type and shall comprise relief valves, pressure controls. Electrically operated oil heaters shall be with built in thermostat suitable for specified power supply. Heaters shall be automatically actuated when the compressor is stopped by means of auxiliary contacts and indicating light shall be provided with compressor.

Condenser (Air cooled)

The coils shall be made of copper hydraulically bonded with aluminum fins. The condenser shall be fitted with safety relief valve and air purge cock. (Pumping drain system for cassette units).

Refrigeration piping and accessories

Only hard drawn copper shall be used in piping with brass fittings wherever required. Brazing shall be with silver ,copper, phosphorous alloy. Horizontal lines shall have a grading of at least 1:250 away from the compressor and towards the condenser to prevent gravity draining of oil to the compressor. Liquid lines shall be sized to ensure that the flashing of liquid refrigerant does not occur. The circuit should include a thermostatic expansion valve, distributors, liquid strainer, de-hydrator and liquid lines shut off valve. Refrigerant shall be factory charged with the latest standards in charging procedure. If any leaks during transit shall be tested by the procedure as given below:

Leaks shall be tested with soap solution. After all leaks have been repaired, system shall be tested with a test pressure maintained for a period of not less than 8 hours. No measurable drop in pressure should be detected after the pressure readings are adjusted for temperature changes. After satisfactory completion of the pressure test, the system shall be evacuated to reduce the pressure to 0.1 Kg/Sq.cm. For a period of 6 hours and vacuum broken. A vacuum pump connected to the refrigeration system shall be used to create the vacuum and the installed compressor shall not be used to create the purpose. The system shall again be evacuated and a vacuum of 0.01 Kg/Sq.cm. Absolute maintain for 24 hours before charging with the correct quantity of refrigerant and oil. The system shall be operated for 12 hours and then again tested for leaks with halide torch.

Fan

Fan section including wheel and housing shall be of heavy gauge steel. Fans shall be centrifugal, forward curved multi blade type. Fan housing shall have inlets and guide vanes for smooth air flow. Fans shall be complete with drive motor and belt drive. The fans should be statically and dynamically balanced. They should be of the double inlet, forward curve blade centrifugal type. The fan bearing should be "Life lubricated type" ball bearing. The fan motor should be resilient mounted. The fan should be suitable for the final filters specified. The fan outlet should be closable with a damper.

Coil

Copper Coils shall be of the direct expansion type made of heavy gauge copper with aluminium fins firmly banded. The cooling coil of both condenser and evaporator should be of copper tube with aluminium fins. The fins should be bonded to the coil under hydraulic pressure. The refrigerant circuit should be heavy gauge copper factory piped and transported complete with an initial charge of gas and oil. Topping up if required, should be carried out in keeping with current practices. The circuit should include a thermostatic expansion valve, distributor, liquid strainer and liquid line shut off valve.

Testing

Split/Packaged units after installation shall be tested for its conformity to specifications. Units shall also be tested for a capacity and power consumption. The Tenderer shall compensate the shortfall in capacity and excess power consumption from the rated figure.

Refrigerant, refrigerant piping & oil:

The refrigerant shall be R-134A/R-22. Piping shall be of factory installed refrigerant piping with filler-drier, controls, etc. Required as per standard of manufacturer shall be installed. The first charge of refrigerant and oil shall be carried out.

Miscellaneous

Purge system

Continuous purge system with automatic purging of non-condensable gases/refrigerant.

Refrigerant flow control

This shall be provided.

Instruments (Generally, as per the standard of the supplier)

- a) Auxiliary relays.
- b) Temperature controller.
- c) Thermal relay and contactor for oil pump.
- d) Alarm buzzer or indication lamps.
- e) Fuses for voltmeter etc.

Vibration isolator (Generally, as per the standard of the supplier)

- a) Corrugated ribbed rubber pads to provide sufficient deflection to minimize vibration.
- b) Base plates.

Insulation

Refrigerant suction line insulation as per standards of manufacturer.

Tools

Standard & special tools for operation & maintenance. A list of such tools shall be furnished along with the technical bids.

3. Technical specification for cold aisle temperature and air flow regulation

Supply and installation cold aisle containment for integrated data centre infrastructure.

- The Cold Aisle containment should be modular to enable to add the racks.
- All the components used in the Aisle containment shall be Fire Retardant.

Entry Doors of Containment:

- Entry and Exit Doors of the Cold Aisle should have open able or double door.
- Each door should have CRCA frame with fire retardant glass sheet of 4 mm thick or Fire Retardant Rigid UL V-0 Plastic 3 mm.
- The frame of door should have 4 vertical MS Columns of rectangular section with thickness of 1.5mm.
- 4 columns should be grouted to real floor or can be fixed to the base frame of the rack.
- Vertical columns should be connected to each other with help of Cross members. These Cross members should be length of Cold Aisle width.
- The Doors must have a Steel Picture Frame fabricated in 1.2mm thick CRCA sheet as per "IS 513 Grade D" standards.
- PU Foam Gasket should used across the metal edges of the door to prevent any leakage of cold air.
- The doors should have automatic door closers installed to ensure that these are closed.
- Polyamide Cable Brushes should be fitted at the bottom of doors to avoid leakage of cold air when the doors are closed.
- Top panels of the cold aisle should be covered with either fire rated Glass or Polycarbonate panels.

- Top Panels are fixed in CRCA frame per "IS 513 Grade D" with thickness of 1.2 mm.
- The Glass/ Polycarbonate in the top Panels is about 4 mm thick.
- The Top Panel must be tool less installation to offer quick access to the area above the contained aisle during the maintenance activity
- The Top Panel must have opening for Smoke Sensor/ FM System wherever necessary Powder Coating
- The Powder coating complies with ROHS requirement to avoid hazardous substance contamination in the Data Center. Pre-treatment Nano Ceramic process should be followed.
- The powder coating thickness is 80-100 Microns.

Data centre cooling design should be based on lower operation cost, modularity, high safety, security, flexibility, with minimum capital cost investment. Therefore, we adopted, smart way of cooling the high density racks. We strongly recommend all our vendors to adhere to the specification mentioned.

Vendors need to consider the prices for software and hardware required for enabling the above solution in all the units. In case if one unit controller fails other units to take the commands to insure the higher availability.

AC units shall communicate each other and shall work as team to modulate the fans at parts for high power savings. If the room temperature in the cold zones deviates from the specified level, the fan speed is increased or decreased as required. This insures 24 Hours X 365 days continues monitoring of air flow and temperature in the cold aisle resulting into high power savings and uptime. RH control shall be done though return air.

Cold aisle containment (CAC)

Cold aisle containment (CAC) material should be of Plexiglass type and should comply to DIN 4102 and European Class E, DIN EN 13501. CAC Top Covering Should be Of European Class E Fire Rated Plexiglass. It should be light in weight & should generate very less smoke in case of fire. Plexiglass CAC material with Set of angle profiles, cross members including end cross members to support the Perspex covers and with proper finishing, necessary supports need to be supplied from Precision AC manufacturing company and the Tenderer should also be responsible for the complete low site related activities as per above specification. Any other material like normal glass or toughened glass will not be accepted due to data centre safety and flexibility concern.

Vendor to offer the below method of air flow and temperature control

Cold aisle containment should be done to avoid mixing of cold air with hot air. Precision AC unit's microprocessor controller should be connected to cold aisle temperature directly; multiple sensors installed in the cold aisle top shall modulate the EC fan speed at part load. AC unit's temperature to be maintained by supply air control mechanics by modulating the compressor based on the supply air temperature sensor for substantial power savings.

Cold aisle to be filled with the required amount of cold air at desired temperature conditions. There should be a uniform air flow pattern in the cold aisle (High opening grills to be placed based on the air flow requirement). The air from the AC unit to be regulated via the fan speed of the units connected to cold aisle temperature sensors.

4. Rack and accessories

Racks - 42 U racks of dimension 600 mm x 1000 mm - 7 numbers for servers/storage and 42U racks of dimension 800/750 mm x 1000 mm – 1 number for networking units.

These racks will be used to mount and house all servers, network and storage devices in the data center. The rack has to be designed to meet the safety requirements of the modern data center. Both the front and rear door should have got a comfort handle with locking options. The rack should be suitable for buying to a high performance cooling rack, with automatic door opening system integrated for emergency purpose. Cable entry should be entered via the roof plate and via the gland plate without affecting the climatic conditions inside the rack.

Rack shall have rugged & lightweight aluminium body structure with glass door in front & rear non perforated two door for effective air flow having a load bearing of > 500KG's suited for BLADE chassis mountings. This has to be kept together and the PAC system to be integrated along with all accessories required for the DC (All components inside the 42 U racks). Each rack shall have two Power Distribution Units and cable manager vertical, horizontal (Mounting Hardware Packages) etc.

- The PDUs shall have protection against overload and short circuit.

- The PDU should occupy zero U of rack space. Units that mount vertically shall be optimized to fit in Racks.
- Each PDU shall have IEC industrial Socket for input power connection and IEC C13 (12) and C19 (3) sockets for output connections.
- PDU shall have the provision to lock the power cable to protect from loose connections & human error
- PDU for 32 amps capacity shall have minimum two breakers to handle output sockets divided in minimum two load banks so that in case of overload / short circuit caused by any IT equipment will not shut down the complete PDU but allow remaining load bank distribution operational.
- Each Rack requires 20 numbers power cord lockable connectors and matching power chords.
- The Rack should be designed to Tenderer-neutral mounting for guaranteed compatibility with all EIA-310 compliant 19" equipment.
- Overhead cable troughs and partitions, install tool less on the roof of the enclosure eliminating the need for ceiling mounted or under floor mounted cable trays. Cable troughs and partitions are to be designed to manage both power and data cables while maintaining separation.
- The racks should be with a single glass front door and non perforated double door in the rear side. Split door in the rear side to allow proper space management in the white space of data center racks should be with baying kits which will attach all the server racks with each other. Racks also to have space available at the top for power cable and network cable entry with wire brush which stops cold air to go out of rack and mix with hot air.
- Closed Network rack required vertical and horizontal cable manager with all accessories.
- The Tenderer shall design the pre terminated cable length according to the layout.
- Rack color -Black
- The vertical mounting rails shall be easily adjustable to allow different mounting depths.
- The unit shall include caged nuts, bolts and cup washers, and caged nut tool for the mounting of equipment inside the unit.
- Both the front and rear doors shall be designed with lift-off hinges allowing for quick and easy detachment without the use of tools.
- The front and rear doors shall open a minimum of 120 degrees to allow easy access to the interior.
- The rack shall be supplied along with the overhead cable management accessories (power & Network).
- Network rack to have two horizontal shelf to accommodate hardware units.

5. Electrical system

Electrical distribution panels

Supply and installation of redundant electrical distribution system for integrated data centre infrastructure with required MCB/MCCB.

Each Precision AC unit should be provided with in-built electrical panel. Necessary 415 Volts +/- 10%, 3 Phase, 4 Wire (With Neutral), 50 Hz +/- 5% Power in double circuit shall be provided by Customer at each unit's electrical panel. Balance distribution of Power is in the Scope of Tenderer. All Electrical cabling should be of armored Copper.

Complete Electrical supplies for Datacenter area :- This includes supply of Datacenter Input LT panel fitted with redundant 3 Ph MCCB, Outgoing MCCB for UPS/PAC/Lights, Digital EDM meters & indicators. This Datacenter LT panel is fed from 2 numbers of independent power source feeders from client side. PAC, PDU etc. Cable Trays & Ladders for movement of cables inside the Server racks Power distribution architecture with Copper Flexible cable feeders supporting 8 racks. Earthing system inside the Datacenter for server dedicated earth, common body ground as per Datacenter standards

- a) Main bus bars of Panels shall withstand short circuit current of 25 kA for 1 sec. at 415 V, 3 PH, 4 Wire, unless specified otherwise.
- b) Panels shall be of a compartmentalized design comprising free standing vertical sections, fully interlocked pattern, fabricated from CRCA sheet steel. They shall be totally sheet steel enclosed, dust and vermin proof.
- c) Panel height shall not be more than 2000 mm & depth not to exceed 1200 mm. However, mounting of any operating switch, circuit breaker, etc. shall not be more than 1900 mm above the base level. A minimum clearance of 200 mm shall be provided between the floor of the panel and the lowest module.
- d) Cold rolled closed annealed sheet, used for the body of the panel shall be of 1.6 mm thick and the base angle/sheet/frame/front & rear doors shall be at least 2 mm thick. The degree of protection shall be IP 42. Barriers of 1.6 mm sheet shall be provided between modules as well as between modules and the busbars and between modules and cable chamber. Each module shall have an independent hinged door with

concealed hinges. All module doors shall be earthed using minimum 2.5 sq. mm copper conductor, green coloured PVC insulated wire. A base channel of 75 mm x 40 mm x 5 mm thick shall be provided at the bottom. The gland plate shall be of 3 mm thick sheet of matching colour.

- e) Doors/ bolted covers, etc. shall have gaskets made of non-ageing materials to make the module dust tight. Each door shall be provided with a lock.
- f) Switches, breakers, etc. shall be mounted on the rear plate of the module. Only switch/ breaker handles, push buttons, indicating lamps, meters etc. shall be mounted on the module door.
- g) Door interlock shall be provided for every module so that it shall not be possible to open the door with the switch/ breaker in the closed position. It shall be possible to defeat this interlock by authorised person only.
- h) Adequate space shall be provided for termination of cables. The panel shall be fabricated only after obtaining SCTIMST approval for the general arrangement and schematic drawings.
- i) All steel work shall undergo a rust removal process comprising alkaline degreasing, descaling in dilute sulphuric acid, cold rinsing, phosphating and passivating. The steel work shall then be powder coated, powder coating thickness shall not be less than 50micron. The paint shade for panel inside/ outside shall be RAL 7035 as per IS. (7 tank process to be used.)
- j) Fuse switch units or circuit breakers to be incorporated.
- k) Three phases and neutral horizontal electrolytic Copper bus bars as specified in the B.O.Q., uniformly rated having maximum current density 1.4 Amps per sq.mm with temperature rise not exceeding 40°C., shall be provided for the entire length of the panels. Cu earth bus bar of 25x6mm size or as specified shall be provided for the entire length of the switchboard.
Supply and installation cables / wire harness for integrated data center infrastructure with required connector / sockets.

Medium voltage cables/wires

Supply and installation cables / wire harness for integrated data centre infrastructure with required connector / sockets.

- a) Incoming cables shall be with aluminium conductors, XLPE insulated, FRLS sheathed, armoured and FLRS overall sheathed.
- b) Distribution & sub-distribution cables shall be with copper flexible wire with FRLS insulation
- c) Trefoil formation to be used for laying copper flexible wire to have a proper wire management system
- d) Cable terminations shall be crimped with cable sockets. Terminations to the equipment shall be carried out with brass compression glands, single or double compression type (for 120 sq mm and above cables).
- e) Cable lugs/sockets shall be heavy duty long barrel type and fitted on the cable core by crimping twice. Copper lugs to be used for all cables or as specified.
- f) On completion of cable laying work, the following tests shall be conducted in the presence of the Client:
 - a) Insulation Resistance Test (Sectional and Overall).
 - b) Continuity Test.
 - c) Earth Test.

Conduit system

- In case of unarmored cable, all conduits shall originate from the respective panel and terminate in lighting fixtures, receptacles, etc.
- Exposed conduits shall run in straight lines parallel to building columns, beams and walls as far as practicable. Unnecessary bends and crossings shall be avoided to present a neat appearance.
- Conduit supports shall be provided at an interval of 750 mm for horizontal runs and 1000 mm for vertical runs.
- Conduits shall be clamped on to approved type spacer plates or brackets by saddles or U-bolts. The spacer plates or brackets, in turn, shall be fixed to the building steel by welding and to concrete or brick work by grouting.
- A wooden plug inserted in the masonry or concrete for conduit support is not acceptable.
- Embedded conduits shall be securely fixed in position to preclude any movement. In fixing embedded conduit, if welding or brazing is used, extreme care should be taken to avoid any injury to the inner surface of the conduit.
- Spacing of embedded conduits shall be such as to permit flow of concrete between them and in no case shall be less than 38 mm.
- Where conduits are run on cable trays, they shall be clamped to supporting steel at an interval of 600 mm.
- For directly embedding in soil, the conduits shall be coated with asphalt - base compound. Concrete pier or anchor shall be provided where necessary to support the conduit rigidly and to hold it in place.

- Conduits shall be installed in such a way as to ensure against trouble from trapped condensation.
- Running threads shall be avoided as far as practicable. Where it is unavoidable, check nuts shall be used.
- Conduits shall be kept, wherever possible, at least 300 mm away from hot pipes, heating device, etc. when it is evident that such proximity may impair the service life of cables.
- Slip joints shall be provided when conduits cross structural expansion joints or where long run of exposed conduits is installed, so that the temperature change will cause no distortion due to expansion or contraction of conduit run.
- For long run, junction/pull boxes shall be provided at suitable intervals to facilitate wiring.
- Conduits shall be securely fastened to the junction box or cabinets each with a locknut and insulated bushing inside the box and locknut outside.
- Conduit lengths shall be joined by screwing couplers. Couplers shall be clearly cut.
- Conduit joints and connections shall be made thoroughly water-tight and rust-proof by application of a thread compound which will not insulate the joints.
- Field bends shall have a minimum radius of four (4) times the conduit diameter. All bends shall be free of kinks, indentations or flattened surfaces. Heat shall not be applied in making any conduit bend.
- The entire metallic conduit system, whether embedded or exposed shall be electrically continuous and thoroughly grounded.
- Lighting fixture shall not be suspended directly from junction box in the main conduit run.
- Conduits and fittings shall be properly protected during the construction period against mechanical injury. Conduit ends shall be plugged or capped to prevent entry of foreign material.
- After installation, the conduits shall be thoroughly cleaned by compressed air before pulling in the wire.

Wiring

- Wiring shall be generally carried out by FRLS wires in conduits. All wires in a conduit shall be drawn simultaneously. No subsequent drawing is permissible.
- Wiring shall be spliced only at junction boxes or with preferred make terminal blocks having anti-vibration terminals. Maximum two wires can be connected to each way of the terminal block.
- For lighting fixtures, connection shall be teed off through suitable round conduit or junction box, so that the connection can be attended without taking down the fixture.
- For vertical run of wires in conduit, wires shall be suitably supported by means of wooden/hard rubber plugs at each pull/junction box.
- Normal and Emergency circuits shall not be run in the same conduit.
- Receptacle sub-circuits shall be kept separate and distinct from lighting and fan sub-circuits.

Grounding

- The Tenderer needs to follow Grounding system that shall be as per UTI Tier III Standard, IS- 3043, IEEE 142-1991 and TIA 942
- The Tenderer shall carry out the grounding of all electrical equipment, steel structures, etc. Excavation and backfilling, if required, shall be performed by the Tenderer at no extra cost.
- The grounding shall be done by copper conductors / strips of sizes as laid down in BOM and the same shall be connected to the risers of the main ground mat.
- In case of site fabricated cable tray/ladder, the runner angles shall be used as ground conductors and shall be made electrically continuous.
- All ground conductor connections shall be made by electric arc welding/brazing unless otherwise specified. Ground connections shall be made from nearest available station ground grid risers.
- All ground conductors WELDED/BRAZED/Bolt nut connection shall be painted black for prevention of corrosion.
- Equipment will generally be furnished with two separate ground pads with tapped holes, bolts and spring washers. If, however, the same are not furnished, the Tenderer shall drill and tap holes and provide bolts, spring washer for connection (only copper).
- Equipment ground connections, after being checked and tested by Engineer in charge shall be coated with anti-corrosive paint.
- The electrical racks, IT rack, metallic channels will be connected to the earth. The cable channels will be connected to the earth. The entire grounding will converge towards the origin of the grounding of the building.
- Whether specifically shown or not, all conduits, trays, cable armor and cable end box, electrical equipment, such as motors, switch boards, panels, cabinets, junction boxes, lock-out switches, fittings, fixtures, etc. shall be effectively grounded.
- All equipment, supporting steel structures, panels, boards, switchgears, junction boxes, conduits, etc. shall be grounded in compliance with the provision of I.E. Rules and as per enclosed grounding notes and details.

- All ground connections shall be made from nearest available station ground grid. All connections to ground grid shall be done by arc welding unless otherwise stated.

6. Transient voltage surge suppressor (TVSS)

TVSS is proposed for the critical and expensive electronic equipment protection from the transient over-voltages and shall be as per following specifications.

- Surge Current Capacity : 100 kA
- All Modes Protection : L-L, L-N, L-G, N-G
- Connection Type : Parallel
- Protection Level : < 1 kV
- MCOV : Min. 320 Volts
- Response Time : < 0.5 nanoseconds
- EMI/RFI Attenuation : 40 dB typical
- Status Indication : LED, Dry contacts
- Monitoring : Monitoring of All Modes, including N-E
- Fusing : Individual Fusing of MOV's including N-G
- Certification : UL 1449-3
- Enclosure : NEMA Tested
- Mounting : Wall Mounting
- Warranty : 3 Years

TVSS detailed specification

The main incoming switchboard (MSB) and distribution boards (DB) shall be equipped with TVSS as defined in the IEEE standard 1100(1999).

- The TVSS shall be constructed of Metal Oxide Varistor (MOV) technology and internal surge capacitors.
- The surge protective devices shall be sized per IEEE Std C62.41-1991 and IEEE Std C62.45-1992.
- The TVSS shall have a UL listing and labeled 1449-3 suppressed voltage rating of 1000V peak.
- The unit shall have a maximum continuous operating voltage (MCOV) rating of minimum 320VRMS.
- The Response time of TVSS shall be ≤ 0.5 nanoseconds.
- The TVSS shall provide up to 40dB for RFI & EMI noise attenuation.
- TVSS monitoring shall consist of indicator lamps and form C dry contacts. Monitoring of all modes, including N-E is required.
- The TVSS warranty shall be 3 years minimum and cover all parts of the TVSS.

7. Electrical system for room

Light point wiring

10 no concealed point wiring in 20 mm steel conduit with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable, modular switch, modular plate and suitable GI box Earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc as required. Include material supply. Wiring should be concealed in walls and open below roof slab.

LED Light fittings Supply and fixing

10 no 40 Watts LED LIGHT Fitting panels. 600 mm x 600 mm flat LED for ceiling mounting. 4000-4500 K daylight colour. 9mm ultra slim glare free 230v 50hz. These are suspended from the ceiling by suitable metal chain/rope which should be fixed using ceiling mounted hooks and capable of sustaining at least 15 kg of dead weight, include material supply etc.

UPS power cable to three sets in console room.

UPS switch board with four 5 amp sockets, independent controls, wiring in 20 mm steel conduit with 2.5 sq.mm FRLS PVC insulated copper conductor single core cable , modular switch, modular socket, modular plate and suitable GI box . Earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc as required. Include material supply. Wiring should be concealed in walls and open below roof slab.

KSEB power to 2 sets of cassette type AC of 2 tons.

AC power point wiring for 2 nos for 2 ton AC with suitable wire conduit and controls, etc. wiring should be in steel conduit as per CPWD standards

KSEB power cabling to 1 set of split AC for console room

AC power point wiring for 1 no 1 ton AC with suitable wire conduit and controls, etc wiring should be in steel conduit as per CPWD standards

KSEB power point 15 Amps - 2 sets on wall

15 amps power point in 20 mm steel conduit with 2.5 sq.mm FRLS PVC insulated copper conductor single core cable, modular switch, modular plate and suitable GI box. Earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc as required. Include material supply.

Dismantling and removal of present electrical fittings and handing over to SCTIMST.

UPS power cable inputs (2 sets) to power unit for racks

Two sets of 40A, 4pole MCCB shall be provided by the institute on the wall at suitable locations. Remaining wiring shall be under the scope of the tender.

To provide KSEB power cable inputs (2 sets) to AC for racks

Two sets of 63A and 125A, 4 pole MCCB shall be provided by the institute on the wall at suitable locations. Remaining wiring shall be under the scope of the tender.

Complete electrification inside the data center consisting of lighting, air-conditioning etc. to be within the scope of the data center contract. CPWD specifications shall be followed in electrical cabling and wiring. Light fittings shall be of reputed make, energy efficient and preferably LED. The Institute shall provide generator supported power and UPS outlets with the isolation facility at convenient and nearest locations

Before procurement all product samples to be displayed and need to get the approval from SCTIMST

8. Network power switch

Supply, Installation testing and commissioning of Network Power Switch (6kVA) – 2U, three Phase, Dual Pole for uninterrupted, safe & reliable transfer of "Single Power" critical loads (RACK mountable).

9. Safety and security systems

Biometric based access control for door to racks

The IP based Access Control System shall be used to serve the objective of allowing access to authorized personnel only. Individual access cards shall be issued to all the authorized personnel. The system deployed will be based on Biometric Technology. The doors will be provided with additional electric locks, and will operate on fail-safe principle.

The system would be designed and implemented to provide following functionality:

- Configurable system for user defined access
- Built-in Real Time Clock (RTC), calendar; complete Database stored locally and shall be capable of operating offline on standalone mode
- Record, report and archive each and every activity (permission granted and / or rejected) with log formats
- Fail safe operation in case of no-power condition and abnormal condition such as fire, theft, intrusion, loss of access control, etc.
- At the biometric reader, user presents the finger to the biometric reader which is unique to each employee. The pattern is read and compared with stored data to grant / deny access.

10. Independent fire suppression system in all racks

Primary fire suppression using linear heat sensitive tube connected to the Extinguisher container with pressure release valve

The In row/In rack is designed as a complete stand-alone unit with security, fire detection and fire suppression systems. Each of the systems is inter-operable and inter connected. Environmentally friendly Novec 1230 agent is used to ensure that no harm to human beings and environment is caused.

Following systems are installed.

- Novec 1230 Clean Agent for fire suppression system
- Fire detection and alarm systems, with detectors and panel.
- Protected area: The entire enclosed volume of the rack cabin is protected with fire detection and fire suppression system. The doors are secured by Access Control system.
- The Novec 1230 system is designed and installed as per NFPA 2001-2012 Edition. SMPV, Petroleum and Safety Explosives Organization (PESO) approved cylinder filled with Novec 1230 is installed in specially designed Modular rack.

Fire Suppression System for integrated data centre infrastructure should be as approved by regulation and competent bodies.

The Clean Agent Fire Suppression system cylinder, discharge hose, fire detectors, panels and all other accessories required to provide a complete operational system meeting applicable requirements of NFPA 2001 (2012 addition) Clean Agent Fire Extinguishing Systems, NFPA 70 National Electric Code, NFPA 72 National Fire Alarm Code or ISO standards must be considered to ensure proper performance as a system with UL/FM/VDS approvals and installed in compliance with all applicable requirements of the local codes and standards. Scope includes supply, install, test and put in operation NOVEC 1230 (Fluro Ketone – FK-5-1-12) based fire suppression system.

- The Clean Agent system considered for Total flooding application shall be in compliance with the provisions of Kyoto Protocol.
- Care should be taken that none of the Greenhouse Gases identified in the Kyoto Protocol is used for fire suppression application
- The minimum criterion for the selection of the Clean Agent will be on the following parameters
 - Zero Ozone Depleting Potential.
 - Global Warming Potential not exceeding one.
 - Atmospheric Lifetime not less than 5 days.
 - comply with NFPA 2001 standard (2012 addition)
- The clean agent fire suppression system with FK-5-1-12 and Inert Gas based systems are accepted as a replacement of HCFC and HFC as per Kyoto Protocol.
- The Clean Agent considered for the suppression system must be suitable for manageable occupied areas with NOAEL Level (No observable adverse effect level) of 10% compared to the design concentration to ensure high safety margin for the human who might be present in the hazard area.

Design Condition

1. The Novec 1230 agent shall be stored in seamless steel cylinders and super pressurized with dry nitrogen to provide additional energy to give the required rapid discharge.
2. At the normal operating pressure of 25 bars at 21o C, the agent is a liquid in the cylinder.
3. The designer shall consider simultaneous flooding of all voids within the protected volume.
4. The system shall be designed in accordance with the OEM's Design Manual.
5. In order to extinguish a fire using clean agent, the concentration of agent delivered to each void shall be above the minimum design concentration.
6. The following shall be considered while designing the system. Minimum design concentration shall be 4.7%. If the protected volume has a floor and / or ceiling void the spaces shall be included in the protected volume, employing a minimum design concentration not below that of the main room compartment.
7. The discharge nozzles shall be located within the protected volume in compliance to limitations and with regard to spacing, floor and ceiling coverage, etc. The nozzles shall be positioned such that they would cover the entire area up to the extreme corners of the area under protection and the design concentration will be established in all parts of the protected volumes.
8. The final numbers of discharge nozzles shall be according to the OEM's product manual.
9. The average pressure at each nozzle shall not be less than 6.034 Bar.

10. The gas flow calculations shall be carried out on special software given by the OEM. The software should support usage of seamless cylinders which have a different design compared to the standard containers used worldwide. The system acceptance report shall show the resulting concentration in each independent void to be above 4.7% and the average pressure at each nozzle to be not less than 6.034 Bar.
11. The agent discharge time shall not exceed 10 seconds and not less than 5s.
12. The system engineering company should carry out the piping Isometric design and validate the same with a hydraulic flow calculation generated by using the agent's software. Appropriate fill density to be arrived at based on the same.
13. The system shall be so designed that a fire condition in any one protected area shall automatically the total flooding of clean agent in that area independently. The entire system shall incorporate inter-alia detection, audible and visual alarms, actuation and extinguishing.
14. All system components furnished and installed shall be warranted against defects in design, materials and workmanship for the full warranty period which is standard with the manufacturer, but in no case less than five (5) years from the date of system acceptance.
15. Additionally, Portable Extinguishers of required capacity (CO₂ or Halon based Extinguishers are not acceptable) to be placed at strategic stations throughout the Data Centre.

11. Smart monitoring solution

Smart monitoring system should be integrated into data centre infrastructure.

Product description

The system should have intelligent monitoring platform that allows data center administrators to combine monitoring of the equipments, environment and safety of the facility altogether. It should facilitate the flexible structural design which enables the user to customize the configurations according to the specific requirements of IT infrastructure operations.

Smart monitoring unit should be included inside the server area with required sensors like temperature & humidity sensor, door sensor, smoke sensor, water leak detection sensor etc.

It should also be integrated with cooling unit for monitoring the parameters of AC in single window. The monitoring unit should send email/ GSM SMS alerts for the warnings alarms to the specified person so that immediate action can be taken for trouble shooting.

The Data Center infrastructure must be installed with intelligent IP Based SNMP enabled system to monitor, control and document physical parameters inside the data center. Such as high/low temperature, humidity, high/low refrigerant pressure, smoke, compressor/control failure, cooling system failure, fan speeds for cooling racks, IT load, rack/row wise load, communication status of all infrastructure devices being monitored, per phase input current and voltage, per phase output current and voltage, power factor per phase, frequency, active energy (KWH/MWH), automatic rack door opening in case of high temperature and fire conditions.

Upon entering the alarm mode, audible indication shall be supplied by the steady sounding of an Alarm bell (First stage) and alarm electronic sounder (Second Stage). These units shall be U.L. Listed.

It shall have an output of 90 Decibels at 10 feet, at 24 VDC. The alarms devices shall be provided with a red finish.

The electronic sounder should have at least three selective hooter sounds.

Upon entering the pre-discharge mode (delay timer activation), the electronic sounder shall provide a pulsed output.

Upon system discharge, the electronic sounder shall provide a steady output and a strobe light shall flash.

Upon activation of abort switch the electronic sounder should have a different pulsed signal than that of the second stage pulsed output.

The strobe lens shall be of white translucent construction with the word "Novec" imprinted upon it.

Audible alarm to be placed inside the AC plant area.

Temperature sensor alarm system is required for the existing Server room 2.

It should have following features:

- The solution must be a web accessible from anywhere by custom LAN or WAN.
- The solution must have Dual Power redundancy.
- There should be Network redundancy.
- Monitoring Application redundancy.
- No separate client is envisaged in the user machine.
- It must support both IE, Chrome or Mozilla (minimum 2)
- The proposed monitoring solution must be mobile ready or accessible from mobile.
- The proposed monitoring solution must be scalable to monitor multiple sites.
- Intelligence must be built at both controller level as well as manager level.
- Supports multiple monitoring protocols (mod bus, SNMP etc.)
- Supports multiple user login simultaneously.
- Supports user based individual dashboard.
- Support user based roles (admin, browser, operator).
- Support user based restriction protocol to sites/devices (ex. User1 : can view all sites, user2 : can view specific site, etc.)
- Support user specific & device specific restriction (ex. User1 can view UPS but not cooling, user2 can view UPS & Cooling both, etc).
- Support basic inventory of facility devices.
- Support user login security from specific IP.
- Support user based password expiration policy.
- Each user must be able to configure its own dashboards & login page.
- Support notification (email & GSM SMS) both from controller & from manager.
- Monitoring solution must not have any restriction on number of data point or alarm

12. CCTV system

Supply and installation of CCTV System for integrated data centre infrastructure.

The Critical and Non critical area of the Data Centre needs to be under constant video surveillance. The primary objective of implementing a CCTV system is to ensure effective surveillance of the area and also create a record for post event analysis. Monitoring cameras should be installed in proper areas to cover all the critical areas of the data centre. The scope of work involves supply, installation, commissioning, testing and maintenance of the Closed Circuit Television system for State Data Centre.

The CCTV system shall provide an online display of video images on monitor. The Entire setup shall be monitored from the control room on 24/7 basis. Cameras with suitable lenses shall be used to view all the critical areas of the Data Centre.

The CCTV system shall be based on the use of fixed dome cameras & PTZ for outdoor area

The CCTV System proposed to fulfill the overall surveillance / observation requirements and enhance the level of security necessary in a software establishment such as ours, which shall be complete in all respects and shall comprise of following minimum items

A set of fixed dome cameras with remote control operation of focus and zoom-

- A professional housing with internal and external cooling fans to protect both the camera and lens from the environmental rigors and should be designed/built for ease of installation and maintenance.
- A complete CCTV control facility that performs all the functions with a provision to increase the total number of inputs for each monitor site.

IP Based Dome camera (Indoor / Outdoor)

- The IP based domes cameras shall support power over Ethernet (IEEE802.3at)
- The camera shall support multilevel password protection
- The camera shall provide 3 simultaneous video streams – Dual MPEG4 both 25 fps (Pal) and scalable MJPEG.
- cameras shall have optics options available for low light , day, night , extreme light and shall be of high resolution with minimum 540 TV lines
- The cameras shall use 1/3 or 1/4 inch interline color CCD/CMOS imaging device.
- The sensitivity of the cameras shall be a minimum of 1 lux @ 40 IRE and for outdoor applications, it shall be sensitive up to 0.1 lux @ 40 IRE with infrared cut filter and optical low pass filter
- Outdoor cameras shall have IP 66 protection.

IP Based PTZ camera (Outdoor)

- The camera shall support simultaneous IP and Analog Video and Control.
- The camera shall provide 3 simultaneous video streams – Dual MPEG4 both 25 fps (Pal) and scalable MJPEG
- ¼ in format , Ex view HAD CCD
- Resolution 540 TVL
- Lens – 3.6 to 119 mm (35 X) optical with 12 X digital
- Sensitivity – 0.55 lux @ 35 IRE (color only) / 0.00018 (mono)
- Electronic Image stabilization
- Inbuilt motion detection
- Wide Dynamic range range up to 128 X
- IP 66 rated
- Pan speed – 360 deg / sec and Tilt speed 200 /sec
- Tilt speed – 200 deg / sec
- Auto flip up to 180 deg /sec

Network Video Recorder

- The Network video recorder (NVR) / server shall support a minimum of 16 cameras.
- The NVR shall have a internal hard disc capacity of up to 2 TB or 30 days of video storage.
- The NVR / server shall be able to record individual camera with selectable frame rate.
- The NVR / server shall support remote administration, monitoring and management of video, audio and data.
- The NVR shall support health and event monitoring of the system.
- The NVR shall support logical camera grouping.
- The NVR / server can support MPEG 4, MJPEG formats.
- The network video recorder shall be able to record videos in CIF (352 x 288), 2 CIF (704X 288) and 4 CIF resolutions (704 X 576).
- NVR hardware shall be off the shelf server hardware of suitable specifications from HP/IBM/Dell/Cisco.
- Necessary operating system and the system software licenses required shall be included.

13. IP KVM Switch & supporting software's.

- A. 32 port rack mountable IP KVM Switch- 4 user remote access; virtual media support, 28 ports for servers (virtual media server interface module for vga and usb 2.0) and 4 ports serial with power source and with computer interface modules, Activity logging to External Server support, Multiplatform support: Windows 2000/XP/Vista, Linux, Unix.
- B. 16 port rack mountable IP KVM Switch - 2 user remote access; virtual media support,16 ports for servers (virtual media server interface module for vga and usb 2.0) and with computer interface modules, Activity logging to External Server support, Multiplatform support: Windows 2000/XP/Vista, Linux, Unix.
- C. Centralized remote management software for accessing servers from upto 4 computers, which gets integrated with KVM switches.
 - Should comply to rsa second factor authentication.
 - User access control with an Administrator, User roles and access right for each port should be configurable for each user.
 - Multiplatform support: Windows Server 2012/Windows 10/Linux/Unix.

14. Rodent repellent system

Ultra modern sound based rodent repellent system which will work on different sound frequencies for the entire area of data centre room size of approximately 600 sq. ft. The system should be used non chemical, non toxic devices. System should support manual and auto mode operation with at least two frequency bands. Control switch should be placed on a convenient location preferably front panel.

Ultra NW rodent repeller electronic device that uses the principle of intense high frequency sound waves (well above the 20 KHz frequency which is the upper limit of the hearing range of the human ear) to drive away RODENTS. They emit intensive ultrasound that is audible and painful to rodents, but is inaudible and harmless to humans. The acoustically hostile environment created by the ultrasound makes it undesirable for the rodents to inhabit or cohabit and leads to avoidance behavior. Rodents usually leave the area being protected by ultrasound. They do not get killed.

Ultra NW rodent repeller system comprises of one Controller with accessories that include twelve transducers, cables and a pair of stand bracket. The Controller is installed in the main control room/ server room and the transducers in the problematic areas i.e. above false ceiling, room outside areas.

Controller

The Controller generates variable high frequency electronic signals that are ultrasonic in nature (20 KHz to 50 KHz). The signals are transmitted to the transducers via cables for emission all around. It needs a power connection and comes equipped with a 3-pin power supply cord.

Transducers

Each transducer can protect an open area of 600 sq. ft. with an average ceiling height of 10 ft.

Cables

2 core flexible (14/40) SWG, specially coated CT cables for connecting the transducers with the Controller.

Mounting

Powder coated Al. stand and bracket accessories for mounting the Controller. As compared to conventional methods star ultra NW rodent repeller is clean, safe and easy to install without the added trouble of disposing of dead rodents.

15. Water leak detection system

- Audible and visual alarm.
- Alarm mute/test/reset facilities
- The requirements to complete the water detection system
- Detection of leaks from air conditioners or support piping
- Integration with monitoring system
- The proposed system shall be Digital type.

16. Civil and Interior works

1. Flooring

Providing and laying stain free mat finish vitrified floor tile of size 1000 x 1000 mm of Marbonite/ Nitco / Kajaria brands in light shade and color (premium quality) laid on floor and skirting over 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc, complete as per instruction of Engineer in charge after dismantling the existing mosaic tile work in floors for thickness of tiles above 25 mm and up to 40 mm laid in cement mortar including stacking material within 50 metres lead. Dismantled floor shall be leveled prior to laying tile using cement concrete with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), including finishing complete.

2. External wall

All the existing window opening should be closed with Half brick work with best quality locally available bricks of approved quality in Cement mortar 1:4 (1 cement : 4 coarse sand) by making an inside flush wall leaving a space for fixing new aluminum windows in order to preserve the aesthetical appearance of the building from outside. Window closed area shall be plastered with 12 mm cement plaster of mix 1:4 (1 cement: 4 coarse sand).

3. Fire rated partition

Providing and fixing partition between server room and console room from floor level to slab bottom with Powder coated aluminium frame work with extruded built up standard sections of approved make and fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per the directions of Engineer. ACP sheet of 3mm thick shall be fixed to the aluminum frame for partition wall using silicon up to a height of 90 cm from floor level and from a height of 210 cm to the bottom of slab. Remaining portion of partition wall is to be glazing with 2 hours fire rated wire mesh glass panes of 5.5 mm thickness with EPDM rubber / neoprene gasket etc.

4. False ceiling

Providing and fixing tiled false ceiling of Armstrong ,Techno or equivalent brand GI Metal Ceiling Lay in plain Tegular edge white color tiles of size 600x600 mm, or 595x595 and 0.5mm thick with 8mm drop; made of G I sheet in true horizontal level suspended on inter locking metal grid of hot dipped galvanized steel sections consisting of main "T" runner with suitably spaced joints to get required length and spaced at 1200mm center

to center and cross "T" 1200mm long spaced between main "T" at 600mm center to center to form a grid of 1200x600 mm and secondary cross "T" of length 600mm to be interlocked at middle of the 1200x600mm panel to form grids of 600x600mm and wall angle of size 22x22x0.6 mm.

5. Painting work

Wall painting with fire retardant paint of approved brand and manufacture to give an even shade two or more coats on new work after removing white or colour wash by scrapping and sand papering and preparing the surface smooth including necessary repairs to scratches over one coat of water thinnable cement primer of approved brand and manufacture on wall surface after applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the cleaned wall surface to prepare the surface even and smooth complete. Remaining area like the ceiling of server room and corridor wall and ceiling shall be painting with plastic emulsion paint of approved brand and manufacture to give an even shade One or more coats on old work. Cable tray should be painted with synthetic enamel paint of approved brand and manufacture to give an even shade, two or more coats.

6. Windows and inside door

All existing steel windows should be dismantled including chowkhats, architrave, holdfasts etc and taking out the existing aluminum window which is in good condition and refixing the same in the window opening after closing the window opening with half brick work using locally available brick. New windows shall be fixed for the remaining window opening in order to preserve the aesthetical appearance of the building form outside. All inside doors and windows frame and shutters shall be made of powder coated aluminium frame work with extruded built up standard sections of approved make and fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete. All aluminum windows should be glazed with float glass panes of 4 mm thickness and door with 2 hours fire rated wire mesh glass panes of 5.5 mm thickness. Aluminum doors should be provided with 100mm brass locks (best make of approved quality), aluminium handles of size 125 mm, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws, aluminium tower bolts of size 150x10 mm, ISI marked, anodised transparent or dyed to required colour or shade, with necessary screws. Door to console room should be provide with aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws, door to server door with double action hydraulic floor spring of approved brand and manufacture conforming to IS : 6315, having brand logo embossed on the body / plate with double spring mechanism including cost of cutting floors, embedding in floors as required and making good the same matching to the existing floor finishing and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate With stainless steel cover plate minimum 1.25 mm thickness.

7. Fire rated main door with double shutter

Providing and fixing fire retardent Door made of Hornmann 48mm thick GI shutter of 1.0mm thick & frame of 100 x 57 x 1.6mm thick CRCA sheet with honey comb infill. PU paint shade : RAL-9010 PU pure white (upto 60-80microns) including dorma ball bearing hinges 551 bb 4"x3"x 3mm, door closer ts 68, pull handle 300mm , vision panel:200 x 300 mm single glazed glass, dead lock 950 with euro profile cylinder with 3 keys double leaf shutter. Over all size of door opening :1500X2400.

8. Computer table and wall cabinet for console room

Fame work for computer table, wall cabinet and shoe rack shall be made of Powder coated aluminium extruded built up standard sections of approved make and fixing with dash fasteners of required dia and size. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat

angle. Body and shutter for the same shall be made using 18 mm thick Multi wood board of approved brand ISI. Wall cabinet should be fixed over wall with M.S. clamp with expansion hold fasteners Rawl plug & screws etc. All wall cabinet should be provided with required stain less steel handles 100 mm, S.S. Piano hinges Overall width 35 mm ISI marked finished with nickel plating and fixing with necessary screws , magnetic catcher Double strip (horizontal type) of approved quality in cupboard /ward robe shutters, including fixing with necessary screws. Sliding arrangement for key board, chair shall be provided for computer table.

9. Steel work

Necessary cable tray shall be made in Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc.

10. Miscellaneous works

Existing pelmet and notice board of size 4.4X1.3m on wall should be removed including disposal of unserviceable material to the dumping ground within 50 metres of lead. Making the opening in brick masonry including dismantling in floor or walls by cutting masonry and making good the damages to walls, flooring and jambs complete, to match existing surface i/c disposal of mulba/ rubbish to the nearest municipal dumping ground for cable tray and AC pipes access.

17. Final documentation

TECHNICAL BID

The Technical Bid consists of the following:

1. Company profile , registration details and certification.
2. Engineer certification (CDCP and CDCS).
3. Documents as required for the eligibility criteria. – PO/Work order copies of three similar works executed with Customer reference letters.
4. Declaration of Tenderer that they are not debarred /blacklisted.
5. Manufacturer's Authorization Form for bid.
6. Confirmation letter that the products quoted are not end of life products.
7. Confirmation letter for support including spares, software patches for the project during warranty 3 years + 7 years outside warranty.
8. Confirmation letter that offered products shall be in market for sale minimum next 3 years. How old is this technology & when is going to be discontinued.
9. Valid letter from all OEMs.
10. Certificate from the Principal Manufacturer clearly stating the relationship with the Partner and authorization to the Partner to quote for this Specific TENDER.
11. Clear specification matching as given in the tender document.
12. Model No.
13. Compliance to technical specifications.
14. Product No/catalogue No. (Catalogue in original to be attached).
15. Un-priced Bill of quantities with makes models of equipment.
16. Project Plan and execution time frame.
17. Architectural drawings, layouts, necessary schematics/ 3 D design.
18. Technical Parameters.
19. When is the upgraded/Updated version likely to come
20. Additional features very particulate to the system.
21. If workstation or PC is quoted, its full configuration, brand, model No. etc.
22. Period of warranty as called for in the Tender.
23. AMC coverage items
 - a. Comprehensive (Spares & Labour).
 - b. Labour alone.
24. History of service and maintenance support in the Institute.
25. List of Installations in public sector/private sector with contact person Name & Telephone No.
26. List of essential spares.
27. Tender form fee receipt/Demand draft Rs. 525/-.(Rs.500 + VAT 5%)
28. Certificate of quality like CE,ISO,FDA.

29. Compliance statement as per format.
30. Power consumption.

COMMERCIAL BID

The commercial bid can be proposed for split up of charges where the equipments can be quoted as import purchase, professional

1. Item wise cost of components given in the commercial bid
2. Excise duty if any (For INR Purchase)
3. Customs duty if any (for import purchase)
4. Packing, Forwarding, Freight, Insurance etc if applicable
5. Central Sales Tax/VAT if any
6. Delivery period
7. Mode of 38ispatch
8. Mode of payment
9. AMC rate:
 - a. Comprehensive coverage items
 - b. Labour coverage items
10. Price of essential spares listed in the technical bid. Price frozen for a period of 3 years after warranty period.
11. Agency commission rate.
12. 5% of the total quoted amount /FOB value of the total quoted amount (rates multiplied by quantity) value valid upto 180 days by way of Bank Guarantee/Demand draft in the name of Director, SCTIMST payable at Thiruvanthapuram).

For final documentation; report neatly typed with page numbers and signature and bound to be provided for a permanent record. Report forms shall contain complete test data, drawings and equipment data as specified.

Upon commissioning and final handing over of the installation, the Tenderer shall submit (within 4 weeks) to the Engineer-in-charge.

- Comprehensive operation and maintenance manual and spare parts catalogue for all equipments.
- As built drawings in hard copy and soft copy.
- Test certificates, consolidated control diagram and technical literature on all controls.
- Equipment warranties, software licenses, original software copy etc. from manufacturer’s.
- Rating charts for all equipment.
- Log books as per equipment manufacturer’s standard format.
- List of recommended spares and consumables.
- Detailed circuit diagram, local diagram of various electrical components for control of all equipment provided.
- Sequence operation notes explaining the sequence of operations when operation button is pressed.
- (Any special tools required for the operation or the maintenance of the data centre shall be supplied free)

At the close of the work and before issue of final certificate of completion by the Engineer-incharge, the Tenderer shall furnish a written guarantee indemnifying SCTIMST against defective materials and workmanship for the Defects liability period.

18. Quality management system

All the components in the integrated data system should be reliable on 24 x 7 x 365 days for the institute. The components should confirm reputed make and quality. As a guide line to the Tenderer some of the equipment has been mentioned against desired make or equivalent. Irrespective of the guideline the Tenderer shall design the system utmost quality, reliability and ensure trouble free operation. Recommended make of equipment for the data centre infrastructure may be as follows :-

SI No	Description	MAKES
1	Access Control System	

a	Access Control System with all accessories	Smart I / Bioscrypt / F10 / SmartI/ Honeywell/ Schneider/Lenel
b	CCTV System	Honeywell / Capture / Hikvision / Everfocus/ Schneider /Axis/Lenel
2	Precision Air Conditioners	
	Precision Air conditioners (PAC system)	Emerson/APC/Rittal/IBM
3	Fire Alarm, Fire Detection & Fire Suppression system	
a	Analogue Addressable Fire Alarm & Detection System	Honeywell / Morleys / Fire Pro/Seimens
b	NOVAC123 gas based Automatic Fire suppression system	Kidde / Nitie / Super Fire/UTC/Siemens
4	Water Leak Detection System	Sontay – Saini / Europlex
5	Transient Voltage Surge Suppressor	Emerson/APC/Rittal/IBM
a	TVSS in the Input Electrical Panel	Emerson/APC/Rittal/IBM
b	MCB	ABB/Seimens/APC
6	Complete Electrical Supplies (CPRI Approved)	
	Complete Electrical supplies	MS Fabricated Panels (Siemens Grey)
	Datacenter Input LT panels	ABB / L&T / Siemens (MCCB)
	Dual output "power distribution board" (PDB)	Legrand / Merlin Gerin (MCB)
	Electrical distribution system (Cabling & Wiring)	Polycab / Universal / Finolex / Teracom / Havells
	Electrical Switches	Anchor Roma / MK / Crabtree
7	Server Rack	
	42U-19" Aluminium Frame SERVER rack	Emerson/ Schneider/Rittal/IBM
8	Network Power Switch	
	Network Power Switch (6kVA) – 2U	Emerson/APC/Rittal/IBM
9	IP KVM Switch and Softwares	Avocent/APC/Fujitsu Siemens
10	False ceiling	Armstrong/Equivalent
11	Door	Hornmann/Equivalent

12	Floor	Marbonite/ Nitco / Kajaria
13	Rodent System	CSystem/Honeywell
14	Room Light Fixures	Philips/Crompton
15	Room Partition	2 hours fire rated wall made out of gypsum
16	Chairs	Godrej PCH-5002T/Equivalent

SECTION VI: COMPLIANCE TO TECHNICAL SPECIFICATION

- All the hardware specifications mentioned in the TENDER are the required minimum, higher or better specifications would be acceptable.
- The selected Tenderer shall be responsible for providing all materials, components, and services, specified or otherwise, which are required to fulfill the intent of ensuring operability, maintainability, and reliability of the complete component covered under this specification within the quoted price. This work shall be in compliance with all applicable standards, statutory regulations and safety requirements in force of the date of award of this contract.
- The selected Tenderer shall also be responsible for deputing qualified personnel for installation, testing, commissioning and other services under his scope of work as per this specification. All required tools for completing the scope of work as per the specification is also the responsibility of the selected Tenderer.

I.	In rack/In row cooling solution	Compliance
	Modular Integrated Server Racks (factory manufactured, fully-integrated & self-contained with Precision Cooling (35 KW with 100% reliability on 24 x7 basis with adequate standby for system redundancy.)) - Supply, Installation, Testing & Commissioning of integrated server cabinet cooling solution for Data Centre. 8 (42U) Racks to operate 24 x 7 x 365 days with redundant Precision Air Conditioners having Humidity Control, Power Distribution, Environment Controls, Fire Alarm, Fire Detection , Fire Suppression system, Water Leakage Detection System, Transient Voltage Surge Suppressor, Dual adaptive PDU's (for each rack), Biometric Access Control System (for each rack) & IP based CCTV system, SNMP connectivity for UPS & PAC for E-mail notifications, Intrastructure Management and Monitoring systems, IP KVM Switch & Softwares etc. as per tender document. Monitoring hardware and software to be considered seperately for existing DC	
	(Buyback - 5 numbers of 42U rack with front glass door, three metal doors, 2 -PDU and tray with 4 fans) - Negative Value	
	Split units for room	
	Civil & interior works	

	Description in detail	Compliance
1	Power Supply	
a	Transient Voltage Surge Suppressor	
	Supply, Installation testing and commissioning of TVSS in the Input Electrical Panel for transient voltage protection from incoming high line voltages with 10 mode protection as per IEEE standards (100kA) with load balance. The panel board shall include separate, isolated neutral and safety-ground busbars. The load panel to provide AC power to Precision AC, Control Panel ,Fire Suppression System, Backup Fans etc. PROVISION FOR FUTURE EXPANSION	
b	Complete Dual Redundant Electrical Supplies	
	Complete Electrical supplies for Datacenter area. This includes supply of Datacenter Input LT panel fitted with redundant 3 Ph MCCB, Outgoing MCCB for UPS/PAC/Lights,	

	Digital EDM meters & indicators. This Datacenter LT panel is fed from 1 No independent power source feeders from client side. PAC, PDU REDUNDANT etc. Cable Trays & Ladders for movement of cables inside the Server racks Power distribution architecture with Copper Flexible cable feeders supporting all racks. Earthing system inside the Datacenter for server dedicated earth, common body ground as per Datacenter standards. CABLING CONTROL WIRING EARTHING TO BE CONSIDERED AS A LUMP SUM FOR ALL RACK AND EQUIPMENTS	
2	Precision Air Conditioner 10 TR (35 KW) with adequate stand by for system redundancy (The total load is the important and tenderer can quote multiple units as per manufacturers units)	
a	Supply, Installation testing and commissioning of Precision Air-conditioners in redundancy Comprising Double skin insulated Panel indoor unit connected to one / More outdoor units with R-407/R134 refrigerants. Units to have Variable speed Scroll/Inverter compressors with EC fans, cooling variance from 20% to 100%, low noise, high reliability, longer compressor life with reduced frequency of system start and stop, automatic over temperature protection, Bluefin coated hydrophylic Al. fins, Imported Micro processor panel and for precise control and energy savings system to have rapid dehumidification and hot gas reheat. Including charging of Refrigerant, Dehumidifier, Heaters, Wet floor sensors, master controller with touch key pads, alarms & indicators and air sensors. with inbuilt team mode for synchronising the units to work as a single system , load sharing mode , cascade mode and sequencing etc. for further power savings, complete with Modbus output for BMS Compatibility, Heater, humidifier, condenser drain pump, Dust Filter etc. Emergency ventilation (automatic door opening) should work in case of power /PAC failure. - - 35KW working. Air-conditioning system is to have 100 % reliability on 24 x 7 basis with a total cooling capacity of 35 KW and with adequate standby for system redundancy. (Failure of any single unit; still to meet the total cooling requirement of 35 KW). Tenderer to provide proof for the technical basis on their redundancy assumption to achieve the uptime objective. The area dimensions in the drawings should not be changed in case number of CRAC UNITS increase. (ie. Total length of rack and cooling units to fit in the room with sufficient gaps for staff movement.)	
b	Precision AC copper pipes as per site condition with 19mm thick nitrile rubber insulation with glass cloth and foster paint coating / weather proof coating, supply of other items including supply of outdoor unit stands required for 3 units of PAC, humidifier and drain line as per site condition, gas charging with R407C/R410A. All transmission wiring between indoor to outdoor unit is kept in PVC conduit. APPROX 90 RM	
3	Server Rack	
a	Supply, Installation testing and commissioning of 42U-19" SERVER racks with shelf, cable manager & blanking panels; with rugged & light weight Aluminium body structure with glass door in front & rear non perforated door for effective air flow having a load bearing of >500KG's suited for BLADE chassis mountings with earthing copper strip with insulators. This has to be kept together and PAC system to be intragrated along with all accessories, cable manager vertical and horizontal (Mounting Hardware Packages) etc. required for the DC. The front door shall be a single front door with a full-height, , scratch- and impact-resistant clear acrylic insert to allow for external viewing of customer equipment. Electromagnetic lock (each door 02 nos.) PDU with input power cord and appropriate circuit breaker protection type IEC19/13, 12 Nos and C19 (3 nos) ; 2 PDU per rack.	
b	Integrated backup fan system with gravity dampers to provide emergency airflow to electronic loads inside the server cabinets.. The Backup Fan system shall activate when a high temperature condition is sensed inside and shall be powered via the Control Panel and Fire Suppression System.[Rack size:600 mm X1000 mm -7 nos &800 mm X 1000 mm -1no]	
4	Intelligent Data Center Infrastructure Monitoring System	
	SNMP connectivity (Hardware) for triggering alerts/traps from UPS & PAC on Email & SMS. Separate monitoring system required for existing DC. Temperature, humidity, fan, compressor over load, filter , smoke single phasing preventers, reverse phasing, phase in balancing, phase failure and over load tripping to be represented. All sensors and software and cabling to be	

	considered.	
	(2 IP Points to be given by client).	
5	IP KVM Switch & Software	
a	32 port - 4 user remote access; virtual media support, 28 ports for servers (virtual media server interface module for vga and usb 2.0), 4 ports serial with power source	
b	16 port - 2 user remote access; virtual media support,16 ports for servers (virtual media server interface module for vga and usb 2.0)	
c	Centralized remote management software, which gets integrated with KVM switches. The same should comply to RSA second factor authentication	
6	SAFETY and security systems	
	Fire Alarm, Fire Detection & Fire Suppression system with control panel	
a	Primary fire suppression using linear heat sensitive tube connected to the Extinguisher container with pressure release valve	
b	Analogue Addressable Fire Alarm & Detection System complete with multicriteria detectors (1 / Rack) AND CONTROL PANEL WITH fault isolator module, monitor & control modules AND REQUIRED CABLING , manual call point & 1 sounders & 1 hooter. PANEL HAS TO BE BMS COMPATBLE	
c	Supply, Installation testing and commissioning of NOVAC 123 gas based Automatic Fire suppression system complete with required Kg of gas in 1 nos cylinders, discharge nozzles, Gas release panel, Manual release & abort function	
7	Access Control System & IP based CCTV system	
a	Supply, Installation testing and commissioning of Biometric Access Control System with all accessories for racks , INCLUDING ONE SET OF HARDWARE AND SOFTWARE FOR BIOMETRIC FINGER PRINT SENSOR AND CARD READER AND LOCKS INCLUDING POWER SUPPLY CONTROL CABLING AND ALL OHER ACCESORIES	
b	Supply, Installation testing and commissioning of IP based CCTV System comprising of 1 nos CCD Colour Dome Camera With switches and cabling and power supply. All accesories for instalation to be included	
8	Network Power Switch	
	Supply, Installation testing and commissioning of Network Power Switch (6kVA) – 2U, Single Phase, Dual Pole for uninterrupted, safe & reliable transfer of “Single Power” critical loads (RACK mountable)	
9	Water Leakage Detection System	
	Supply, Installation testing and commissioning of Water Leak Detection System complete with Water leakage sensor cables along with Intelligent zone monitoring panel and alarm system. To be considered for both sides of the hot aisle and wherever necessary in the server room.	
10	Rodent repellent system	
	Ultra modern sound based rodent repellent system which will work on different sound frequencies.	
11	Roof Insulation	
	supply & fixing of 12 mm thick class o nitrile rubber insulation with adhesive as per the recommendation of the manufacture with density 45-55kg/m3.	
12	Exhaust ducting	
	Ducting for emergency exhaust system as per site condition with 24 SWG GSS ducting with bird cowl and necessary accessories. Emergency Fan Provision for Exhaust Air Ventilation in case of PAC failure.	
13	Temperature alarm system(humidity,fan ,suction,filter)	
	Both the server rooms existng and new should have one independent temperature sensor that needs to be wired to the basement floor AC plant bms room which should be connected to a signal light and a hooter that needs to sound alarm when the temperature increases and flash light. light should go off once the temperature decreases. sound can be switched off by a push button by staff. all control wiring and light and panel box with hooter nd sesors need to be considered	

	Supply installation testing & commissioning of Additional Audio & Lamp indication alarm unit with reset button for audio alarm. GREEN Light will be ON, if temperature of Rack is within limits. If it increases above the set point, GREEN indication goes OFF and RED will glow. Audio Alarm starts. The Operator can reset the audio alarm to stop it but RED indication will remain, till the fault is rectified. If the temperature attains the required value, RED lamp will go OFF and GREEN will glow. Such two additional units are to be installed in the AC Plant for the old and the new Servers. Cabling from the server to the AC Plant is to be done by the Tenderer.	
14	Split units	
	Supply, Installation testing and commissioning of split air cooled Air-conditioners each complete with scroll compressor, air cooled condensor, GSS casing, filters, cooling coils, fan motors, insulated copper refrigerant piping as per drawing, control wiring, refrigerant controls and accessories, including MICRO-PROCESSOR CONTROL with indication lamps for the operation of the system with thermostat fixed in the respective rooms to adjust the temperature according to the equipments requirements with Micro-processor control panel for each machine. Tenderer to elaborate the features of Micro-processor panel. GI painted frame works for outdoor units & making good of civil work's. HIGH LENGTH PIPING (30 M) TO BE SELECTED.	
	2 TR Cassette Split unit (1 working 1 stand by)Darin pumping system.	
	1 TR Highwall Split unit	
15	Professional/Service charge for Project Execution and rack integration	
	Detailed project plan showing execution time for each stage etc.	
16	WARRANTY & ANNUAL MAINTENANCE CONTRACT	
	Warranty	
	Comprehensive on site Warranty - 3 years for the total system	
17	Annual maintenance contract	
	Annual maintenance contract charges including spares, gas and consumables for the above data centre per year for 7 years on lumpsum basis and percentage increase every year for 7 years after warranty period of 3 year. The frequency of servicing shall be one in 3 months every year for routine service and immediate on break down calls.	
	For cases like cooling; within 2 hours from the time of logging the call. In case of faults related to other components like intelligent security system shall be attended to within the next business day.	
	1st year	
	2nd year	
	3rd year	
	4th year	
	5th year	
	6th year	
	7th year	

II.	Civil and Interior works						Compliance		
Detailed Estimate									
Sl.No	DSR 2014 code.	Description	No	L	B	D	Qty		Compliance
							Qty	Unit	
1.0	15.12.1	Dismantling doors, windows and clerestory windows (steel or wood) shutter of area 3 sq. metres and below including chowkhats, architrave, holdfasts etc. complete and stacking within 50 metres lead. Of area 3 sq. metres and below							
		Exi: Lecture hall steel window	4.00	0.60	-	1.82	4.37		
		"	2.00	1.16	-	1.82	4.22		
							8.59		
						Say	9.00	m²	
2.0	15.13	Taking out doors, windows and clerestory window shutters (steel or wood) including stacking within 50 metres lead :Of area beyond 3 sq. metres							
		Lecture hall main door	1.00	1.50	-	2.70	4.05		
		windows	1.00	1.16	-	1.82	2.11		
		windows	1.00	0.60	-	1.82	1.09		
							7.25		
						Say	8.00	m²	
3.0	LMR	Labour charge for refixing the aluminium windows in window opening area.							
		Two windows	1.00	-	-	-	1.00		
						Say	1.00	Job	
4.0	LMR	Labour charge for Removing the existing pelmet in Lecture hall & taking out notice board of size 4.4X1.3m on wall all as per the direction of Engineer in Charge.							
		Removing pelmet and notice board	1.00	-	-	-	1.00		
						Say	1.00	Job	
5.0	14.4	Making the opening in brick masonry including dismantling in floor or walls by cutting masonry and making good the damages to walls, flooring and jambs complete, to match existing surface i/c disposal of mulba/ rubbish to the nearest municipal dumping ground.							
		For Cable tray,AC pipes etc.	Ls				2.00		

							Say	2.00	m²
6.0	14.1.2	Repairs to plaster of thickness 12 mm to 20 mm in patches of area 2.5 sq. meters and under, including cutting the patch in proper shape, raking out joints and preparing and plastering the surface of the walls complete, including disposal of rubbish to the dumping ground within 50 metres lead :With cement mortar 1:4 (1cement: 4 coarse sand)							
		Door removed area	1.00	2.80	0.20	-		0.56	
			1.00	1.60	0.20	-		0.32	
		Window removed area	2.00	5.96	0.10	-		1.19	
			4.00	4.80	0.10	-		1.92	
								3.99	
							Say	5.00	m²
7.0	6.4.2	Half brick masonry with best quality locally available bricks of approved quality in superstructure above plinth level up to floor V level in Cement mortar 1:4 (1 cement :4 coarse sand)							
		For closing existing window opening	4.00	0.58	-	1.82		4.22	
			2.00	1.16	-	1.82		4.22	
								8.44	
							Say	10.00	m²
8.0	6.15	Extra for providing and placing in position 2 Nos 6mm dia. M.S. bars at every third course of half brick masonry.							
		For closing existing window opening	4.00	0.58	-	1.82		4.22	
			2.00	1.16	-	1.82		4.22	
								8.44	
							Say	10.00	m²
9.0	13.4.1	12 mm cement plaster of mix 1:4 (1 cement: 4 coarse sand)							
		Window closed area	8.00	0.58	-	1.82		8.44	
			4.00	1.16	-	1.82		8.44	
								16.89	
							Say	20.00	m²
10.0	LMR	Providing and fixing fire retardent Door made of Hornmann 48mm thick GI shutter of 1.0mm thick & frame of 100 x 57 x 1.6mm thick CRCA sheet with honey comb infill. PU paint shade : RAL-9010 PU pure white (upto 60-80microns) including dorma ball bearing hinges 551 bb 4"x3"x 3mm, door closer ts 68, pull handle 300mm , vision panel:200 x 300 mm single glazed glass, dead lock 950 with euro profile cylinder with 3 keys double leaf shutter.over all size of door opening :1500X2400							
		Server room main door	1.00	-	-	-		1.00	
							Say		E

							1.00	
11.0	LMR	Providing and fixing biometric access where the biometric reader should have an inbuilt smart card reader and exit by smart card reader made of HID I class SE in main door of server room. (Optional)						
		For server room main door	1.00	-	-	-	1.00	
						Say	1.00	Nos
12.0	15.23.2	Dismantling mosaic tile work in floors for thickness of tiles above 25 mm and up to 40 mm laid in cement mortar including stacking material within 50 metres lead.						
		Exi: Lecture Hall	1.00	8.95	5.95	-	53.25	
						Say	60.00	m²
13.0	15.6	Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means, including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all leads including all lifts involved.						
		Dismantled mosaic tile	1.00	8.95	5.95	0.12	6.39	
						Say	8.00	m³
14.0	11.7	Cement concrete pavement with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), including finishing complete.						
		Exi: Lecture Hall	1.00	8.95	5.95	0.07	3.73	
						Say	4.00	m²
15.0	11.41.4	Providing and laying stain free mat finish vitrified floor tile of size 1000 x 1000 mm of Marbonite/ Nitco / Kajaria brands in light shade and color (premium quality) laid on floor and skirting over 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc., complete as per instruction of Engineer in charge.						
		Exi: Lecture Hall flooring	1.00	8.95	5.95	-	53.25	
		Exi: Lecture Hall skirting	2.00	8.95	-	0.15	2.69	
		Exi: Lecture Hall skirting	2.00	5.95	-	0.15	1.79	
							57.72	
						Say	60.00	m²
16.0	14.43	Removing white or colour wash by scrapping and sand papering and preparing the surface smooth including necessary repairs to scratches etc. complete						
		Exi: Lecture Hall wall	2.00	8.95	-	4.10	73.39	
		Exi: Lecture Hall wall	2.00	5.95	-	4.10	48.79	
							122.18	

							Say	130.00	m²
17.0	13.80	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.							
		Exi: Lecture Hall wall	2.00	8.95	-	4.10		73.39	
		Exi: Lecture Hall wall	2.00	5.95	-	4.10		48.79	
								122.18	
							Say	130.00	m²
18.0	13.43	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface							
		Exi: Lecture Hall wall	2.00	8.95	-	4.10		73.39	
		Exi: Lecture Hall wall	2.00	5.95	-	4.10		48.79	
								122.18	
							Say	130.00	m²
19.0	14.53.1	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade One or more coats on old work							
		Exi: Lecture Hall ceiling	1.00	8.95	5.95	-		53.25	
		Corridor wall	2.00	25.00	-	2.70		135.00	
		Corridor ceiling	1.00	25.00	2.50	-		62.50	
								250.75	
							Say	270.00	m²
20.0	13.6	Wall painting with fire retardent paint of approved brand and manufacture to give an even shade two or more coats on new work							
		Exi: Lecture Hall wall	2.00	8.95	-	4.10		73.39	
		Exi: Lecture Hall wall	2.00	5.95	-	4.10		48.79	
								122.18	
							Say	130.00	m²
21.0	13.61.1	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade, two or more coats on new work							
		For cable tray	Ls	-	-	-		8.00	
							Say	8.00	m²

22.0	21.1	Providing and fixing Powder coated aluminium frame work for doors, windows, ventilators and partitions with extruded built up standard sections of approved make and fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per the directions of Engineer-in-charge with all leads and lifts.							
A	21.1.1.2	For fixed portion							
		Windows outside lecture room	3.00	0.58	-	1.82	3.17		
		Windows outside lecture room	1.00	1.16	-	1.82	2.11		
		For partition b/w server room and console room	1.00	8.95	-	4.10	36.70		
		"	1.00	1.80	-	4.10	7.38		
		For cup board and computer table	1.00	1.20	-	2.10	2.52		
		For cup board and computer table	1.00	1.80	-	2.10	3.78		
		"	1.00	4.00	-	0.90	3.60		
							59.25		
		Weight of aluminum @4kg/m ²					237.01		
						Say	250.00	kg	
B	21.1.2.2	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required.							
		Windows outside lecture room	3.00	0.58	-	1.82	3.17		
		Windows outside lecture room	1.00	1.16	-	1.82	2.11		
		Inside door to server room	1.00	1.50	-	2.10	3.15		
		Inside door to console room	1.00	1.00	-	2.10	2.10		
							10.53		
		Weight of aluminum @4.5kg/m ²					47.38		
						Say	50.00	kg	
23.0	10.25.2	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.							
		In cable tray	Ls	-	-	-	200.00		
						Say	200.00	kg	

24.0	21.13	Providing and fixing 100mm brass locks (best make of approved quality) for aluminium doors including necessary cutting and making good etc. complete.						
		Inside door to server room	1.00	-	-	-	1.00	
		Inside door to console room	1.00	-	-	-	1.00	
						Say	2.00	E
25.0	9.100.1	Providing and fixing aluminium handles of size 125 mm, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete :						
		Inside door to server room	1.00	-	-	-	1.00	
		Inside door to console room	1.00	-	-	-	1.00	
						Say	2.00	E
26.0	9.97.4	Providing and fixing aluminium tower bolts of size 150x10 mm, ISI marked, anodised transparent or dyed to required colour or shade, with necessary screws etc. complete :						
		Inside door to server room	1.00	-	-	-	1.00	
		Inside door to console room	1.00	-	-	-	1.00	
						Say	2.00	E
27.0	9.84	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete.						
		Inside door to console room	1.00	-	-	-	1.00	
						Say	1.00	E
28.0	21.4.1	Providing and fixing double action hydraulic floor spring of approved brand and manufacture conforming to IS : 6315, having brand logo embossed on the body / plate with double spring mechanism and door weight upto 125 kg, for doors, including cost of cutting floors, embedding in floors as required and making good the same matching to the existing floor finishing and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate With stainless steel cover plate minimum 1.25 mm thickness etc. complete as per the direction of Engineer-in-charge.						
		Server room	2.00	-	-	-	2.00	
						Say	2.00	E
29.0	LMR	Providing and fixing ACP sheet 3mm thick in partition b/w server room and console room.						
		For partition b/w server room and console room	1.00	8.95	-	3.00	26.85	

		"	1.00	1.80	-	3.00	5.40	
							32.25	
						Say	35.00	m²
30.0	21.3.2	Providing and fixing glazing with 2 hours fire rated wire mesh glass panes of 5.5 mm thickness in aluminium door and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the directions of engineer-in-charge with all leads and lifts.						
		For partition b/w server room and console room including door	1.00	8.95	-	1.30	11.64	
		"	1.00	1.80	-	1.30	2.34	
							13.98	
						Say	15.00	m²
31.0	21.3.1	Providing and fixing glazing with float glass panes of 4 mm thickness in, window, ventilator shutters etc. with EPDM rubber / neoprene gasket etc. complete as per the directions of engineer-in-charge with all leads and lifts.						
		Windows outside lecture room	3.00	0.58	-	1.82	3.17	
		Windows outside lecture room	1.00	1.16	-	1.82	2.11	
							5.28	
						Say	6.00	m²
32.0	12.52.1	Providing and fixing tiled false ceiling of Armstrong ,Techno or equivalent brand GI Metal Ceiling Lay in plain Tegular edge white color tiles of size 600x600 mm, or 595x595 and 0.5mm thick with 8mm drop; made of G I sheet in true horizontal level suspended on inter locking metal grid of hot dipped galvanized steel sections consisting of main "T" runner with suitably spaced joints to get required length and spaced at 1200mm center to center and cross "T" 1200mm long spaced between main "T" at 600mm center to center to form a grid of 1200x600 mm and secondary cross "T" of length 600mm to be interlocked at middle of the 1200x600mm panel to form grids of 600x600mm and wall angle of size 22x22x0.6 mm and						
		laying false ceiling tiles of approved texture in the grid including, cutting/making, opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc wherever required. Main "T" runners to be suspended from ceiling using GI cleats fixed to ceiling with anchor fasteners of approved pattern and hanger with GI adjustable rods with galvanized butterfly level clips spaced at 1200mm center to center along main T, bottom exposed width of all T-sections and sheet shall be pre-painted with polyester paint, all complete at all heights as per specifications drawings and as directed by Engineer-in-charge.						

		Server room and console room	1.00	8.95	5.95	-	53.25	
						Say	55.00	m²
33.0	LMR	Providing, and fixing 18 mm thick Multi wood board of approved brand ISI, for cupboard, wall cabinet, work table, computer table etc as per instructions.						
		For cup boards inside server room						
		Front and back side	2.00	1.80	-	2.10	7.56	
		Sides	2.00	0.60	-	2.10	2.52	
		Top and bottom	2.00	0.60	1.80	-	2.16	
		Horizontal inside sections	5.00	0.60	1.80	-	5.40	
		Vertical inside sections	4.00	0.60	-	2.10	5.04	
		For cup boards in side console room						
		front side and back side	2.00	2.70	-	2.10	11.34	
		Sides	4.00	0.60	-	2.10	5.04	
		Top and bottom	2.00	0.60	2.70	-	3.24	
		Horizontal inside sections	5.00	0.60	1.20	-	3.60	
		Vertical inside sections	6.00	0.60	-	2.10	7.56	
		For computer table inside console room						
		Top area and bottom area	3.00	4.00	0.60	-	7.20	
		Sides	5.00	0.60	-	0.90	2.70	
		Cup board door shutter	1.00	4.00	-	0.90	3.60	
		For key board pad	4.00	0.50	0.70	-	1.40	
		For shoe rack						
		sides	2.00	0.50	-	1.00	1.00	
		Back	1.00	1.60	-	1.00	1.60	
		Horizontal rack	3.00	1.60	0.50	-	2.40	
							73.36	
						Say	76.00	m²
34.0	10.25.2	Providing and fixing M.S. clamp with expansion hold fasteners Rawl plug & screws etc complete for wall cupboards / racks etc.						
						Ls	30.00	kg
35.0	LMR	Providing and fixing stain less steel handles 100 mm with screws etc. complete:						
		For cup boards inside server room	16.00	-	-	-	16.00	
		For cup boards in side console room	20.00	-	-	-	20.00	
		For computer table inside console room	10.00	-	-	-	10.00	
							46.00	

							Say	50.00	E
36.0	LMR	Providing S.S. Piano hinges Overall width 35 mm ISI marked finished with nickel plating and fixing with necessary screws etc., complete.							
		For cup boards inside server room	3.00	2.10	-	-		6.30	
		For cup boards inside console room	6.00	2.10	-	-		12.60	
		For computer table inside console room	3.00	0.90	-	-		2.70	
								21.60	
							Say	22.00	m
37.0	9.114.2	Providing and fixing magnetic catcher Double strip (horizontal type) of approved quality in cupboard /ward robe shutters, including fixing with necessary screws etc. complete.							
		For cup boards inside server room	6.00	-	-	-		10.00	
		For cup boards inside console room	10.00	-	-	-		10.00	
		For computer table inside console room	5.00	-	-	-		10.00	
								30.00	
							Say	35.00	E
38.0		Unforeseen items							

SECTION VII: TECHNICAL BID – COVER LETTER FORMAT

a) Name of the Tenderer (company):

b) Incorporated as _____ in year _____ at _____
(State Sole Proprietor, Partnership, Private Limited or Limited Firm)

c) Whether any Legal/Arbitration/proceedings is instituted the vendor or the vendor has lodged any claim in connection with works carried out by them. If yes, please give details.

d) Tenderer's Address :

Name of the top executive :

Designation :

Telephone Numbers :

Fax Numbers :

E-mail :

Mobile No. :

e) Established in the year :

f) Registration with statutory bodies : Enclose attested photocopy of documents

Central Service Tax No. :

Local Service Tax No. :

Income Tax No.(PAN) :

(Enclose Photocopies of PAN card, Service Tax & VAT registration certificate)

g) Infrastructure

Manpower Numbers

Technical

Non-Technical

Operating Staff

Sub-Staff

Total Strength

h) Latest Income Tax Clearance Certificate/Return: (Enclose copy)

Year of Assessment PAN No:-

Amount Paid to IT during

2014-2015

2015-2016

2016-2017

i) Annual turnover in similar services as mentioned in the document.

2014-2015

2015-2016

2016-2017

j) Details of client with similar setup (s):-

Name and Address of Organization	Name & Designation of Nodal Officer	Telephone & Email Address	Period (dates)

k) Has your firm ever been black listed by the Govt. or any other authority?
If affirmative, please give details and reasons thereof.

Note: There should not be any indication of price/rate/charges in Technical Bid of the tender. Conditional tenders will not be accepted.

Signature
Name of the Authorized Signatory.....
Seal of Company.....

SECTION VIII: COMMERCIAL BID

Financial Bid for Submission of Gross Total Value Prices should be quoted in Indian Rupees and indicated both in figures and words. Price in words will prevail, in the event of any mismatch.

Grand Total Value (GTV) for setting up the Mini Data Centre with three year warranty	Rs.
(Rupees _____) in words	

Note: Please ensure that the Grand Total Value (GTV) must match with the individual costs

Signature
Name of the Authorized Signatory.....
Seal of Company.....
Dated.....

I. Commercial - In rack/In row cooling solution							
Sl	Item Description	Unit	Qty	Rate in Rs	VAT Rate (%)	Service Tax Rate (%)	Total in figure and words
	Description in detail						
1	Power Supply						
a	Transient Voltage Surge Suppressor						
	Supply, Installation testing and commissioning of TVSS in the Input Electrical Panel for transient voltage protection from incoming high line voltages with 10 mode protection as per IEEE standards (100kA) with load balance. The panel board shall include separate, isolated neutral and safety-ground busbars. The load panel to provide AC power to Precision AC, Control Panel ,Fire Suppression System, Backup Fans etc. PROVISION FOR FUTURE EXPANSION	Lot	1				
b	Complete Dual Redundant Electrical Supplies						
	Complete Electrical supplies for Datacenter area. This includes supply of Datacenter Input LT panel fitted with redundant 3 Ph MCCB, Outgoing MCCB for	No	1				

	UPS/PAC/Lights, Digital EDM meters & indicators. This Datacenter LT panel is fed from 1 No independent power source feeders from client side. PAC, PDU REDUNDANT etc. Cable Trays & Ladders for movement of cables inside the Server racks Power distribution architecture with Copper Flexible cable feeders supporting all racks. Earthing system inside the Datacenter for server dedicated earth, common body ground as per Datacenter standards. CABLING CONTROL WIRING EARTHING TO BE CONSIDERED AS A LUMPSUM FOR ALL RACK AND EQUIPMENTS					
2	Precision Air Conditioner 10 TR (35 KW) with adequate stand by for system redundancy (The total load is the important and tenderer can quote multiple units as per manufacturers units)					
a	Supply, Installation testing and commissioning of Precision Air-conditioners in redundancy Comprising Double skin insulated Panel indoor unit connected to one / More outdoor units with R-407/R134 refrigerants. Units to have Variable speed Scroll/Inverter compressors with EC fans, cooling variance from 20% to 100%, low noise, high reliability, longer compressor life with reduced frequency of system start and stop, automatic over temperature protection,) Bluefin coated hydrophylic Al. fins, Imported Micro processor panel and for precise control and energy savings system to have rapid dehumidification and hot gas reheat. Including charging of Refrigerant, Dehumidifier, Heaters, Wet floor sensors, master controller with touch key pads, alarms & indicators and air sensors. with inbuilt team mode for synchronising the units to work as a single system , load sharing mode , cascade mode and sequencing etc. for further power savings, complete with Modbus output for BMS Compatibility, Heater, humidifier, condenser drain pump, Dust Filter etc. Emergency ventilation (automatic door opening) should work in case of power /PAC failure. - - 35KW working. Air-conditioning system is to have 100 % reliability on 24 x 7 basis with a total cooling capacity of 35 KW and with adequate standby for system redundancy. (Failure of a any single unit; still to meet the total cooling requirement of 35 KW). Tenderer to provide proof for the technical basis on their redundancy assumption to achieve the uptime objective The area dimensions in the drawings should not be changed in case number of CRAC UNITS increase. (ie. Total length of rack and cooling units to fit in the room with sufficient gaps for staff movement.)	Lot	1			
b	Precision AC copper pipes as per site condition with 19mm thick nitrile rubber insulation with glass cloth and foster paint coating / weather proof coating, supply of other items including supply of outdoor unit stands required for 3 units of PAC, humidifier and drain line as per site condition, gas charging with R407C/R410A. All transmission wiring between indoor	Lot	1			

	to outdoor unit is kept in PVC conduit. APPROX 90 RM						
3	Server Rack						
a	Supply, Installation testing and commissioning of 42U-19" SERVER racks with shelf, cable manager & blanking panels; with rugged & light weight Aluminium body structure with glass door in front & rear non perforated door for effective air flow having a load bearing of >500KG's suited for BLADE chassis mountings with an earthing copper strip with insulators. This has to be kept together and PAC system to be integrated along with all accessories, cable manager vertical and horizontal (Mounting Hardware Packages) etc. required for the DC. The front door shall be a single front door with a full-height, , scratch- and impact-resistant clear acrylic insert to allow for external viewing of customer equipment. Electromagnetic lock (each door 02 nos.) PDU with input power cord and appropriate circuit breaker protection type IEC19/13, 12 Nos and C19 (3 nos) ; 2 PDU per rack.	No	8				
	Integrated backup fan system with gravity dampers to provide emergency airflow to electronic loads inside the server cabinets.. The Backup Fan system shall activate when a high temperature condition is sensed inside and shall be powered via the Control Panel and Fire Suppression System.[Rack size:600 mm X1000 mm -7 nos &800 mm X 1000 mm -1no]						
4	Intelligent Data Center Infrastructure Monitoring System						
	SNMP connectivity (Hardware) for triggering alerts/traps from UPS & PAC on Email & SMS. Separate monitoring system required for existing DC. Temperature, humidity, fan, compressor over load, filter , smoke single phasing preventers, reverse phasing, phase in balancing, phase failure and over load tripping to be represented. All sensors and software and cabling to be considered.	Lot	1				
	(2 IP Points to be given by client).						
5	IP KVM Switch & Software						
a	32 port - 4 user remote access; virtual media support, 28 ports for servers (virtual media server interface module for vga and usb 2.0), 4 ports serial with power source	Lot	1				
b	16 port - 2 user remote access; virtual media support,16 ports for servers (virtual media server interface module for vga and usb 2.0)	Lot	1				
c	Centralized remote management software, which gets integrated with KVM switches. The same should comply to RSA second factor authentication	Lot	1				
6	Safety and security systems						
	Fire Alarm, Fire Detection & Fire Suppression system with control panel						
a	Primary fire suppression using linear heat sensitive tube connected to the Extinguisher container with pressure release valve	Lot	1				
b	Analogue Addressable Fire Alarm & Detection System complete with multicriteria detectors (1 / Rack) AND	Lot	1				

	CONTROL PANEL WITH fault isolator module, monitor & control modules AND REQUIRED CABLING , manual call point & 1 sounders & 1 hooter. PANEL HAS TO BE BMS COMPATBLE						
c	Supply, Installation testing and commissioning of NOVAC 123 gas based Automatic Fire suppression system complete with required Kg of gas in 1 nos cylinders, discharge nozzles, Gas release panel, Manual release & abort function	Lot	1				
7	Access Control System & IP based CCTV system						
a	Supply, Installation testing and commissioning of Biometric Access Control System with all accessories for racks, INCLUDING ONE SET OF HARDWARE AND SOFTWARE FOR BIOMETRIC FINGER PRINT SENSOR AND CARD READER AND LOCKS INCLUDING POWER SUPPLY CONTROL CABLING AND ALL OHER ACCESORIES	Lot	1				
b	Supply, Installation testing and commissioning of IP based CCTV System comprising of 1 nos CCD Colour Dome Camera With switches and cabling and power supply. All accesories for instalation to be included	Lot	1				
8	Network Power Switch						
	Supply, Installation testing and commissioning of Network Power Switch (6kVA) – 2U, Single Phase, Dual Pole for uninterrupted, safe & reliable transfer of "Single Power" critical loads (RACK mountable)	No	2				
9	Water Leakage Detection System						
	Supply, Installation testing and commissioning of Water Leak Detection System complete with Water leakage sensor cables along with Intelligent zone monitoring panel and alarm system. To be considered for both sides of the hot airsle and wherever necessary in the server room.	Lot	1				
10	Rodent repellent system	No	1				
	Ultra modern sound based rodent repellent system which will work on different sound frequencies.						
11	Roof Insulation						
	supply & fixing of 12 mm thick class o nitrile rubber insulation with adhesive as per the recommendation of the manufacture with density 45-55kg/m3.	Sq.mt	50				
12	Exhaust ducting						
	Ducting for emergency exhaust system as per site condition with 24 SWG GSS ducting with bird cowl and necessary accessories. Emergency Fan Provision for Exhaust Air Ventilation in case of PAC failure.	Lot	1				
13	Temperature alarm system(humidity, fan ,suction, filter)						
	Both the server rooms existing and new should have one independent temperature sensor that needs to be wired to the basement floor AC plant bms room which should be connected to a signal light and a hooter that needs to sound alarm when the temperature increases and flash light. light should go off once the temperature decreases. sound can be switched off by a push button by staff. all control wiring and light and	Lot	2				

	panel box with hooter and sensors need to be considered					
	Supply installation testing & commissioning of Additional Audio & Lamp indication alarm unit with reset button for audio alarm. GREEN Light will be ON, if temperature of Rack is within limits. If it increases above the set point, GREEN indication goes OFF and RED will glow. Audio Alarm starts. The Operator can reset the audio alarm to stop it but RED indication will remain, till the fault is rectified. If the temperature attains the required value, RED lamp will go OFF and GREEN will glow. Such two additional units are to be installed in the AC Plant for the old and the new Servers. Cabling from the server to the AC Plant is to be done by the Tenderer.					
14	Split units					
	Supply, Installation testing and commissioning of split air cooled Air-conditioners each complete with scroll compressor, air cooled condensor, GSS casing, filters, cooling coils, fan motors, insulated copper refrigerant piping as per drawing, control wiring, refrigerant controls and accessories, including MICRO-PROCESSOR CONTROL with indication lamps for the operation of the system with thermostat fixed in the respective rooms to adjust the temperature according to the equipments requirements with Micro-processor control panel for each machine. Tenderer to elaborate the features of Micro-processor panel. GI painted frame works for outdoor units & making good of civil work's. HIGH LENGTH PIPING (30 M) TO BE SELECTED.					
	2 TR Cassette Split unit (1 working 1 stand by)Darin pumping system.	No	2			
	1 TR High wall Split unit	No	1			
15	Professional/Service charge for Project Execution and rack integration	No	1			
	Detailed project plans showing execution time for each stage etc.	Lot	1			
	Subtotal					
	Grand total					
	Total inclusive of tax					
16	WARRANTY & ANNUAL MAINTENANCE CONTRACT					
	Warranty					
	Comprehensive on site Warranty - 3 years for the total system		1			
			1			
17	Annual maintenance contract		1			
	Annual maintenance contract charges including spares, gas and consumables per year for 7 years on lump sum basis and percentage increase every year for 7 years after warranty period of 3 year. The frequency of servicing shall be one in 3 months every year for routine service and immediate on break down calls.		1			
	For cases like cooling; within 2 hours from the time of logging the call. In case of faults related to other components like intelligent security system shall be attended to within the next business day.		1			
	1st year		1			

	2nd year		1				
	3rd year		1				
	4th year	Lot	1				
	5th year	Lot	1				
	6th year	Lot	1				
	7th year	Lot	1				
	8th year	Lot	1				
	9th year	Lot	1				
	10th year	Lot	1				
	GRAND TOTAL FOR WARRANTY & AMC						
	Note						
	UPS power to racks - connectivity from central UPS three phase 230V with dual power source.						
	Power to Precision AC - 3-phase, 4-wire, three phase voltage - 400 Volts backed by DGS (Approximately 200Amps with MCB/MCCB Unit)						
	Software integration of all items CCTV system, fire alarm, fire suppression system, electrical system, racks, PAC, Access control system etc. to be included in the above price.						
	CONSIDERATION THAT ITS 2 X 10 TR UNITS IS assumed. In case this is changed by the Tenderer to acheive tonage, then all additional electrical panels and components and other items asked in this tender has to be quoted accordingly.						
	(Buyback - 5 numbers of 42U rack with front glass door, three metal doors, 2 -PDU and tray with 4 fans) - Negative Value						

II. Commercial – Civil & Interior Works											
SI.No	DSR 2014 code.	Description	No	L	B	D	Qty		Unit Rate	Tax amount	Total with tax in figures and words
							Qty	Unit			
1.0	15.12.1	Dismantling doors, windows and clerestory windows (steel or wood) shutter of area 3 sq. metres and below including chowkhats, architrave, holdfasts etc. complete and stacking within 50 metres lead. Of area 3 sq. metres and below									
		Exi: Lecture hall steel window	4.00	0.60	-	1.82	4.37				
		"	2.00	1.16	-	1.82	4.22				
							8.59				
						Say	9.00	m²			
2.0	15.13	Taking out doors, windows and clerestory window shutters (steel or wood) including stacking within 50 metres lead :Of area beyond 3 sq. metres									
		Lecture hall main door	1.00	1.50	-	2.70	4.05				
		windows	1.00	1.16	-	1.82	2.11				
		windows	1.00	0.60	-	1.82	1.09				
							7.25				
						Say	8.00	m²			
3.0	LMR	Labour charge for refixing the aluminium windows in window opening area.									
		Two windows	1.00	-	-	-	1.00				
						Say	1.00	Job			
4.0	LMR	Labour charge for Removing the existing pelmet in Lecture hall & taking out notice board of size 4.4X1.3m on wall all as per the direction of Engineer in Charge.									
		Removing pelmet and notice board	1.00	-	-	-	1.00				
						Say	1.00	Job			
5.0	14.4	Making the opening in brick masonry including dismantling in floor or walls by cutting masonry and making good the damages to walls, flooring and jambs complete, to match existing surface i/c disposal of mulba/ rubbish to the nearest municipal dumping ground.									
		For Cable tray,AC pipes etc.	Ls				2.00				
						Say	2.00	m²			

6.0	14.1.2	Repairs to plaster of thickness 12 mm to 20 mm in patches of area 2.5 sq. meters and under, including cutting the patch in proper shape, raking out joints and preparing and plastering the surface of the walls complete, including disposal of rubbish to the dumping ground within 50 metres lead :With cement mortar 1:4 (1cement: 4 coarse sand)									
		Door removed area	1.00	2.80	0.20	-	0.56				
			1.00	1.60	0.20	-	0.32				
		Window removed area	2.00	5.96	0.10	-	1.19				
			4.00	4.80	0.10	-	1.92				
							3.99				
							Say	5.00	m²		
7.0	6.4.2	Half brick masonry with best quality locally available bricks of approved quality in superstructure above plinth level up to floor V level in Cement mortar 1:4 (1 cement :4 coarse sand)									
		For closing existing window opening	4.00	0.58	-	1.82	4.22				
			2.00	1.16	-	1.82	4.22				
							8.44				
							Say	10.00	m²		
8.0	6.15	Extra for providing and placing in position 2 Nos 6mm dia. M.S. bars at every third course of half brick masonry.									
		For closing existing window opening	4.00	0.58	-	1.82	4.22				
			2.00	1.16	-	1.82	4.22				
							8.44				
							Say	10.00	m²		
9.0	13.4.1	12 mm cement plaster of mix 1:4 (1 cement: 4 coarse sand)									
		Window closed area	8.00	0.58	-	1.82	8.44				
			4.00	1.16	-	1.82	8.44				
							16.89				
							Say	20.00	m²		
10.0	LMR	Providing and fixing fire retardent Door made of Hornmann 48mm thick GI shutter of 1.0mm thick & frame of 100 x 57 x 1.6mm thick CRCA sheet with honey comb infill. PU paint shade : RAL-9010 PU pure white (upto 60-80microns) including dorma ball bearing hinges 551 bb 4"x3"x 3mm, door closer ts 68, pull handle 300mm , vision panel:200 x 300 mm single glazed glass, dead lock 950 with euro profile cylinder with 3 keys double leaf shutter.over all size of door opening :1500X2400									
		Server room main door	1.00	-	-	-	1.00				
							Say	1.00	E		

11.0	LMR	Providing and fixing biometric access where the biometric reader should have an inbuilt smart card reader and exit by smart card reader made of HID I class SE in main door of server room. (Optional)										
		For server room main door	1.00	-	-	-	1.00					
						Say	1.00	Nos				
12.0	15.23.2	Dismantling mosaic tile work in floors for thickness of tiles above 25 mm and up to 40 mm laid in cement mortar including stacking material within 50 metres lead.										
		Exi: Lecture Hall	1.00	8.95	5.95	-	53.25					
						Say	60.00	m²				
13.0	15.6	Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means, including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all leads including all lifts involved.										
		Dismantled mosaic tile	1.00	8.95	5.95	0.12	6.39					
						Say	8.00	m³				
14.0	11.7	Cement concrete pavement with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), including finishing complete.										
		Exi: Lecture Hall	1.00	8.95	5.95	0.07	3.73					
						Say	4.00	m²				
15.0	11.41.4	Providing and laying stain free mat finish vitrified floor tile of size 1000 x 1000 mm of Marbonite/ Nitco / Kajaria brands in light shade and color (premium quality) laid on floor and skirting over 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc., complete as per instruction of Engineer in charge.										
		Exi: Lecture Hall flooring	1.00	8.95	5.95	-	53.25					
		Exi: Lecture Hall skirting	2.00	8.95	-	0.15	2.69					
		Exi: Lecture Hall skirting	2.00	5.95	-	0.15	1.79					
							57.72					
						Say	60.00	m²				
16.0	14.43	Removing white or colour wash by scrapping and sand papering and preparing the surface smooth including necessary repairs to scratches etc. complete										
		Exi: Lecture Hall wall	2.00	8.95	-	4.10	73.39					
		Exi: Lecture Hall wall	2.00	5.95	-	4.10	48.79					
							122.18					
						Say	130.00	m²				

17.0	13.80	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.										
		Exi: Lecture Hall wall	2.00	8.95	-	4.10	73.39					
		Exi: Lecture Hall wall	2.00	5.95	-	4.10	48.79					
							122.18					
						Say	130.00	m²				
18.0	13.43	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface										
		Exi: Lecture Hall wall	2.00	8.95	-	4.10	73.39					
		Exi: Lecture Hall wall	2.00	5.95	-	4.10	48.79					
							122.18					
						Say	130.00	m²				
19.0	14.53.1	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade One or more coats on old work										
		Exi: Lecture Hall ceiling	1.00	8.95	5.95	-	53.25					
		Corridor wall	2.00	25.00	-	2.70	135.00					
		Corridor ceiling	1.00	25.00	2.50	-	62.50					
							250.75					
						Say	270.00	m²				
20.0	13.6	Wall painting with fire retardent paint of approved brand and manufacture to give an even shade two or more coats on new work										
		Exi: Lecture Hall wall	2.00	8.95	-	4.10	73.39					
		Exi: Lecture Hall wall	2.00	5.95	-	4.10	48.79					
							122.18					
						Say	130.00	m²				
21.0	13.61.1	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade, two or more coats on new work										
		For cable tray	Ls	-	-	-	8.00					
						Say	8.00	m²				

22.0	21.1	Providing and fixing Powder coated aluminium frame work for doors, windows, ventilators and partitions with extruded built up standard sections of approved make and fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per the directions of Engineer-in-charge with all leads and lifts.									
A	21.1.1.2	For fixed portion									
		Windows outside lecture room	3.00	0.58	-	1.82	3.17				
		Windows outside lecture room	1.00	1.16	-	1.82	2.11				
		For partition b/w server room and console room	1.00	8.95	-	4.10	36.70				
		"	1.00	1.80	-	4.10	7.38				
		For cup board and computer table	1.00	1.20	-	2.10	2.52				
		For cup board and computer table	1.00	1.80	-	2.10	3.78				
		"	1.00	4.00	-	0.90	3.60				
							59.25				
		Weight of aluminum @4kg/m ²					237.01				
						Say	250.00	kg			
B	21.1.2.2	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required.									
		Windows outside lecture room	3.00	0.58	-	1.82	3.17				
		Windows outside lecture room	1.00	1.16	-	1.82	2.11				
		Inside door to server room	1.00	1.50	-	2.10	3.15				
		Inside door to console room	1.00	1.00	-	2.10	2.10				
							10.53				
		Weight of aluminum @4.5kg/m ²					47.38				
						Say	50.00	kg			
23.0	10.25.2	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.									
		In cable tray	Ls	-	-	-	200.00				
						Say	200.00	kg			

24.0	21.13	Providing and fixing 100mm brass locks (best make of approved quality) for aluminium doors including necessary cutting and making good etc. complete.										
		Inside door to server room	1.00	-	-	-	1.00					
		Inside door to console room	1.00	-	-	-	1.00					
						Say	2.00	E				
25.0	9.100.1	Providing and fixing aluminium handles of size 125 mm, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete :										
		Inside door to server room	1.00	-	-	-	1.00					
		Inside door to console room	1.00	-	-	-	1.00					
						Say	2.00	E				
26.0	9.97.4	Providing and fixing aluminium tower bolts of size 150x10 mm, ISI marked, anodised transparent or dyed to required colour or shade, with necessary screws etc. complete :										
		Inside door to server room	1.00	-	-	-	1.00					
		Inside door to console room	1.00	-	-	-	1.00					
						Say	2.00	E				
27.0	9.84	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete.										
		Inside door to console room	1.00	-	-	-	1.00					
						Say	1.00	E				
28.0	21.4.1	Providing and fixing double action hydraulic floor spring of approved brand and manufacture conforming to IS : 6315, having brand logo embossed on the body / plate with double spring mechanism and door weight upto 125 kg, for doors, including cost of cutting floors, embedding in floors as required and making good the same matching to the existing floor finishing and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate With stainless steel cover plate minimum 1.25 mm thickness etc. complete as per the direction of Engineer-in-charge.										
		Server room	2.00	-	-	-	2.00					
						Say	2.00	E				
29.0	LMR	Providing and fixing ACP sheet 3mm thick in partition b/w server room and console room.										
		For partition b/w server room and console room	1.00	8.95	-	3.00	26.85					

		"	1.00	1.80	-	3.00	5.40				
							32.25				
						Say	35.00	m²			
30.0	21.3.2	Providing and fixing glazing with 2 hours fire rated wire mesh glass panes of 5.5 mm thickness in aluminium door and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the directions of engineer-in-charge with all leads and lifts.									
		For partition b/w server room and console room including door	1.00	8.95	-	1.30	11.64				
		"	1.00	1.80	-	1.30	2.34				
							13.98				
						Say	15.00	m²			
31.0	21.3.1	Providing and fixing glazing with float glass panes of 4 mm thickness in, window, ventilator shutters etc. with EPDM rubber / neoprene gasket etc. complete as per the directions of engineer-in-charge with all leads and lifts.									
		Windows outside lecture room	3.00	0.58	-	1.82	3.17				
		Windows outside lecture room	1.00	1.16	-	1.82	2.11				
							5.28				
						Say	6.00	m²			
32.0	12.52.1	Providing and fixing tiled false ceiling of Armstrong ,Techno or equivalent brand GI Metal Ceiling Lay in plain Tegular edge white color tiles of size 600x600 mm, or 595x595 and 0.5mm thick with 8mm drop; made of G I sheet in true horizontal level suspended on inter locking metal grid of hot dipped galvanized steel sections consisting of main "T" runner with suitably spaced joints to get required length and spaced at 1200mm center to center and cross "T" 1200mm long spaced between main "T" at 600mm center to center to form a grid of 1200x600 mm and secondary cross "T" of length 600mm to be interlocked at middle of the 1200x600mm panel to form grids of 600x600mm and wall angle of size 22x22x0.6 mm and									
		laying false ceiling tiles of approved texture in the grid including, cutting/making, opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc wherever required. Main "T" runners to be suspended from ceiling using GI cleats fixed to ceiling with anchor fasteners of approved pattern and hanger with GI adjustable rods with galvanized butterfly level clips spaced at 1200mm center to center along main T, bottom exposed width of all T-sections and sheet shall be pre-painted with polyester paint, all complete at all heights as per specifications drawings and as directed by Engineer-in-charge.									
		Server room and console room	1.00	8.95	5.95	-	53.25				

							Say	55.00	m ²			
33.0	LMR	Providing, and fixing 18 mm thick Multi wood board of approved brand ISI, for cupboard, wall cabinet, work table, computer table etc as per instructions.										
		For cup boards inside server room										
		Front and back side	2.00	1.80	-	2.10		7.56				
		Sides	2.00	0.60	-	2.10		2.52				
		Top and bottom	2.00	0.60	1.80	-		2.16				
		Horizontal inside sections	5.00	0.60	1.80	-		5.40				
		Vertical inside sections	4.00	0.60	-	2.10		5.04				
		For cup boards in side console room										
		front side and back side	2.00	2.70	-	2.10		11.34				
		Sides	4.00	0.60	-	2.10		5.04				
		Top and bottom	2.00	0.60	2.70	-		3.24				
		Horizontal inside sections	5.00	0.60	1.20	-		3.60				
		Vertical inside sections	6.00	0.60	-	2.10		7.56				
		For computer table inside console room										
		Top area and bottom area	3.00	4.00	0.60	-		7.20				
		Sides	5.00	0.60	-	0.90		2.70				
		Cup board door shutter	1.00	4.00	-	0.90		3.60				
		For key board pad	4.00	0.50	0.70	-		1.40				
		For shoe rack										
		sides	2.00	0.50	-	1.00		1.00				
		Back	1.00	1.60	-	1.00		1.60				
		Horizontal rack	3.00	1.60	0.50	-		2.40				
								73.36				
							Say	76.00	m ²			
34.0	10.25.2	Providing and fixing M.S. clamp with expansion hold fasteners Rawl plug & screws etc complete for wall cupboards / racks etc.										
							Ls	30.00	kg			
35.0	LMR	Providing and fixing stain less steel handles 100 mm with screws etc. complete:										
		For cup boards inside server room	16.00	-	-	-		16.00				
		For cup boards in side console room	20.00	-	-	-		20.00				
		For computer table inside console room	10.00	-	-	-		10.00				
								46.00				
							Say	50.00	E			

36.0	LMR	Providing S.S. Piano hinges Overall width 35 mm ISI marked finished with nickel plating and fixing with necessary screws etc., complete.									
		For cup boards inside server room	3.00	2.10	-	-	6.30				
		For cup boards inside console room	6.00	2.10	-	-	12.60				
		For computer table inside console room	3.00	0.90	-	-	2.70				
							21.60				
						Say	22.00	m			
37.0	9.114.2	Providing and fixing magnetic catcher Double strip (horizontal type) of approved quality in cupboard /ward robe shutters, including fixing with necessary screws etc. complete.									
		For cup boards inside server room	6.00	-	-	-	10.00				
		For cup boards inside console room	10.00	-	-	-	10.00				
		For computer table inside console room	5.00	-	-	-	10.00				
							30.00				
						Say	35.00	E			
38.0		Unforeseen items									

Note:

This price bid format is indicative; tenderer may quote for additional items, if any required for successful completion of entire project/ all activities.

Do not quote optional items against the requirement mentioned in this TENDER.

Discount (if any) to be offered should be mentioned against in the respective cell provided above. In case it is mentioned elsewhere it will not be considered for the purpose of price comparison.

SECTION IX : PERFORMA OF BANK GUARANTEE TOWARDS EMD

(on non-judicial paper of appropriate value)

To

The Director,
Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum
Thiruvananthapuram Pin – 695011
Kerala, India

Bank Guarantee No. -----

GUARANTEE BOND FOR EARNEST MONEY DEPOSIT

In consideration of the Director, SreeChitraTirunal Institute for Medical Sciences & Technology, Thiruvananthapuram, Kerala (hereinafter called the "Institute") having agreed to exempt M/s.....(hereinafter called the said "Tenderer") from the demand under the terms and conditions of TENDER No.....dated.....issued by the Institute to the said Tenderer for Rs.....(Rupees.....only) of Earnest Money Deposit for the due fulfillment by the said Tenderer of the terms and conditions contained in the said TENDER on production of a bank guarantee for Rs....., we, Bank of.....do hereby undertake to indemnify and keep indemnified the Employer to the extent of Rs.....against any loss or damage caused to or suffered by the Institute by reason of any breach by the said Tenderer of any of the terms and conditions contained in the said TENDER.

We, Bank offurther agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the finalisation of the said TENDER and that it shall continue to be enforceable till the TENDER is finally decided and order placed on the successful Tenderer or tillwhichever is earlier.

We, Bank of.....lastly undertake not to revoke the guarantee during its currency except with the previous consent of the Institute in writing.

Notwithstanding anything stated above, our liability under this guarantee is restricted to Rs.....Our guarantee shall remain in force until unless a demand in writing to enforce a claim under this guarantee is filed against us before that date, all your rights under the said guarantee shall be released and discharged from all liability there under. -----day of at_____ of-----at----- of----- (month & year).

Signature
(Full name in capital letters)
Designation with bank stamp

Witness No.1
Signature

(Full name and address in capital letters)

Witness No.2

Signature

(Full name and address in capital letters)

Attorney as per power of attorney

No -----

Date -----

SECTION X : PERFORMA OF PERFORMANCE BANK GUARANTEE

(on non-judicial paper of appropriate value)

Dated:

To

The Director,

Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum

Thiruvananthapuram Pin – 695011

Kerala, India

BANKS GUARANTEE NO:

Dear Sir(s),

This has reference to the Supply Order No. _____ Dated _____ placed by Director, SreeChitraTirunal Institute For Medical Sciences and Technology, Trivandrum on M/s _____ for supply, Design, Engineer, Install, Test, Commission Service and Operate the Air-conditioning Systems and other infrastructure for a Mini Data Centre with modular integrated server racks in row; based on direct expansion refrigerant cooling solution. The conditions of this order provide that the Tenderer shall,

1. Arrange to deliver the items listed in the said order to the consignee, as per details given in said order, and
2. Arrange to install and commission the items listed in said order at client's site, to the entire satisfaction of SCTIMST and
3. Arrange for the comprehensive warranty service support towards the items supplied by Tenderer on site in SCTIMST as per the warranty clause in said purchase order.

M/s _____ has accepted the said purchase order with the terms and conditions stipulated therein and have agreed to issue the performance bank guarantee on their part, towards promises and assurance of their contractual obligations vide the Supply Order No. _____ on M/s. _____ holds an account with us and has approached us and at their request and in consideration of the promises, we hereby furnish such guarantees as mentioned hereinafter.

SCTIMST shall be at liberty without reference to the Bank and without affecting the full liability of the Bank hereunder to take any other undertaking of security in respect of the suppliers obligations and / or liabilities under or in connection with the said contract or to vary the terms vis-a – vis the supplier or the said contract or to grant time and or indulgence to the supplier or to reduce or to increase or otherwise vary the prices or the total contract value or to forebear from enforcement of all or any of the obligations of the supplier under the said contract and/or the remedies of SCTIMST under any security (ies) now, or hereafter held by SCTIMST and no such dealing(s) with the supplier or

release or forbearance whatsoever shall have the effect of releasing the bank from its full liability of SCTIMST hereunder or of prejudicing right of SCTIMST against the bank.

This undertaking guarantee shall be a continuing undertaking guarantee and shall remain valid and irrevocable for all claims of SCTIMST and liabilities of the supplier arising up to and until _____.

This undertaking guarantee shall be in addition to any other undertaking or guarantee or security whatsoever that SCTIMST may now or at any time have in relation to its claims or the supplier's obligations/liabilities under and / or in connection with the said contract and SCTIMST shall have the full authority to take recourse to or enforce this undertaking guarantee in preference to the other undertaking or security (ies) at its sole discretion and no failure on the part of SCTIMST in enforcing or requiring enforcement of any other undertaking or security shall have the effect of releasing the bank from its full liability hereunder.

We _____ hereby agree and irrevocably undertake and promise that if in your (SCTIMST's) opinion any default is made by M/s. _____ in performing any of the terms and /or conditions of the agreement or if in your opinion they commit any breach of the contract or there is any demand by you against M/s. _____, then on notice to us by you, we shall on demand and without demur and without reference to M/s. _____, pay you, in any manner in which you may direct, the amount of Rs. _____/- (Rupees _____ Only) or such portion thereof as may be demanded by you not exceeding the said sum and as you may from time to time require. Our liability to pay is not dependent or conditional on your proceeding against M/s _____ and we shall be liable & obligated to pay the aforesaid amount as and when demanded by you merely on an intimation being given by you and even before any legal proceedings, if any, are taken against M/s _____.

The Bank hereby waives all rights at any time inconsistent with the terms of this undertaking guarantee and the obligations of the bank in terms hereof shall not be anywise affected or suspended by reason of any dispute or disputes having been raised by the supplier (whether or not pending before any arbitrator, Tribunal or Court) or any denial of liability by the supplier or any order or any order or communication whatsoever by the supplier stopping or preventing or purporting to stop or prevent payment by the Bank to SCTIMST hereunder.

The amount stated in any notice of demand addressed by SCTIMST to the Bank as claimed by SCTIMST from the supplier or as suffered or incurred by SCTIMST on the account of any losses or damages or costs, charges and/or expenses shall as between the Bank and SCTIMST be conclusive of the amount so claimed or liable to be paid to SCTIMST or suffered or incurred by SCTIMST, as the case may be and payable by the Bank to SCTIMST in terms hereof.

You (SCTIMST's) shall full liberty without reference to us and without affecting this guarantee, postpone for any time or from time to time the exercise of any of the powers and rights conferred on you under the contract with the said M/s _____ and to enforce or to forbear from endorsing any power or rights or by reason of time being given to the said M/s _____ which under law relating to the sureties would but for the provisions have the effect of releasing us.

You will have full liberty without reference to us and without affecting this guarantee, postpone for any time or from time to time the exercise of any of the powers and rights conferred on you under the contract with the said M/s. _____ and to enforce or to forbear from endorsing any power or rights or by reason of time being given to the said M/s. _____ which under law relating to the sureties would but for the provisions have the effect of releasing us.

Your right to recover the said sum of Rs. _____ (Rupees _____ only) from us in manner aforesaid will not be affected/or suspended by reason of the fact that any dispute or disputes have been

raised the said M/s _____ and/ or that any dispute or disputes are pending before any officer, tribunal or court or Arbitrator.

The guarantee herein contained shall not be determined or affected by the liquidation or winding up, dissolution or change of the constitution or insolvency of the said M/s. _____ but shall in all respects and for all purposes be binding and operative until payment of all dues to SCTIMST in respect of such liability or liabilities.

Our liability under this guarantee is restricted to Rs. _____ (Rupees _____ Only). Our guarantee shall remain in force until unless a suit action to enforce a claim under guarantee is filed against us within six months from (which is the date of expiry of guarantee) all your rights under the said guarantee shall be forfeited and we shall be relieved and discharged from all liabilities thereunder.

We have power to issue this guarantee in your favour under the Memorandum and Articles of Association of our Bank and the undersigned has full power to do under the power of Attorney dated.

Notwithstanding anything contained herein:

A. Our liability under this guarantee shall not exceed Rs _____ (in words)

B. This bank guarantee shall be valid up to _____ & unless a suit for action to enforce a claim under guarantee is filed against us within six months from the date of expiry of guarantee. All your rights under the said guarantee shall be forfeited and we shall be relieved and discharged from all liabilities thereafter i.e. after six months from the date of expiry of this Bank guarantee

C. We are liable to pay the guaranteed amount or any parts thereof under this bank guarantee only and only if you serve upon us a written claim or demand or before _____

D. The Bank guarantee will expire on _____

Granted by the Bank

Yours faithfully,

For (Name of Bank)

SEAL OF THE BANK Authorised Signatory

SECTION XI: MANUFACTURER AUTHORISATION FORMAT

(On manufacturer's letterhead)

Date:

To

The Director,
Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum
Thiruvananthapuram Pin – 695011
Kerala, India

Subject: Design, Engineer, Install, Test, Commission Service and Operate the Air-conditioning Systems and other infrastructure for a Mini Data Centre with modular integrated server racks in row; based on direct expansion refrigerant cooling solution.

Dear Sir,

"We, M/s. _____ (*Name of the manufacturer*) having registered office at (*address of the manufacturer*) are the principal manufacturer (OEM) for _____ (*Name of the product/s*) and are participating in this TENDER.

We, M/s. _____ (*Name of the manufacturer*), certify that we have not issued any authorisation to any of our authorized dealer/ agent to participate in this TENDER."

OR

We, M/s _____ (*Name of the manufacturer*) having registered office at _____ (*address of the manufacturer*) by virtue of being manufacturer for _____ (*Name of the product/s*), hereby authorize M/s _____ (*Name of the Tenderer*) having their office at _____ (*Address of Tenderer*) to submit quote, negotiate, supply, install and provide after sales support for our range of products quoted by them to meet the above mentioned TENDER requirements.

M/s _____ (*Name of the manufacturer*) within the scope of requirement as per the TENDER mentioned above through its authorized partner M/s _____ (*Name of the Tenderer*) shall provide support & product warranty services for a minimum period of three years form the date of installation.

The undersigned is authorized to issue such authorization on behalf of M/s _____ (*Name of the manufacturer*).

For M/s _____ (*Name of the manufacturer*)

Signature & company seal

Name

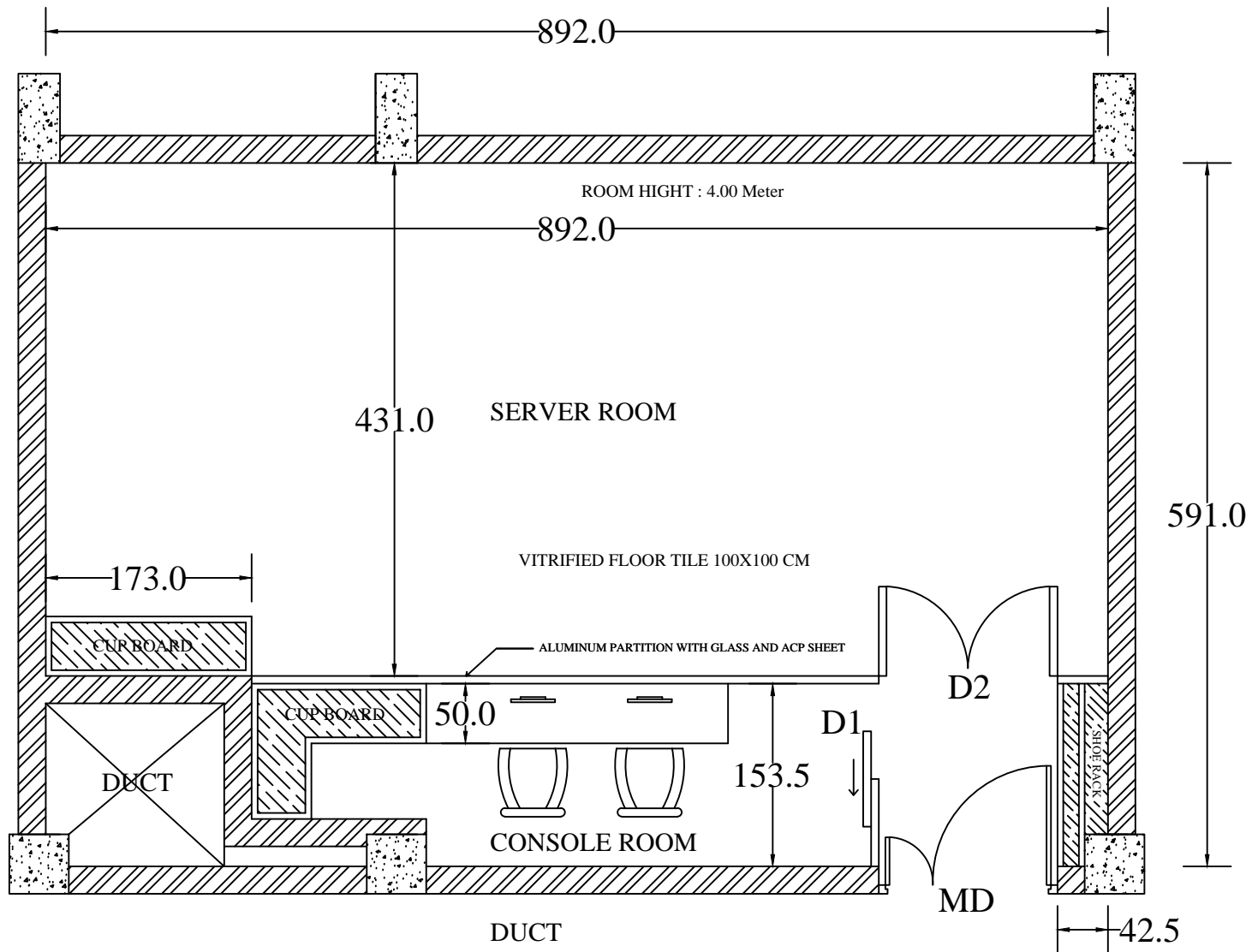
Designation

Email

Mobile No.

Annexure II : Proposed room with proposed partition

PROPOSED SERVER ROOM



ALL DIMENSIONS ARE IN CM'S

