Centre for Development of Advanced Computing

A Scientific Society of Ministry of Electronics & Information Technology, Government of India
Innovation Park, Panchavati, Pashan Road, Pune - 411008.
mmg@cdac.in

C-DAC invites ON-LINE bids through Government e-Marketplace (GeM) for Supply, Installation, Testing, Commissioning & Maintenance (SITCM) of AI Cloud with Data Centre at Pune

Tender Ref. No. CDACP/MTG-IDC/25-26/Re434

SECTION I: INSTRUCTIONS TO BIDDERS (ITB)

1. **Introduction:**
   Centre for Development of Advanced Computing (C-DAC) - is a Scientific Society under the administrative control of Ministry of Electronics & Information Technology, Government of India.

   C-DAC invites **ON-LINE Bids through GEM** from eligible bidders for supply, installation, Commissioning, testing, maintenance of AI Cloud with Datacentre solution as per the detailed technical specifications, features, special conditions given in 'Section – IV: Schedule of Requirements', other terms, conditions etc. stipulated in this document.

   This RFP includes both Datacentre (DC) infrastructure and high-performance IT infrastructure including CPU/GPU servers, storage, and AI/ML software stack. The IT components mentioned in this RFP are integral to the overall solution and bidder need to design the overall solution accordingly.

2. **Contact information:**
   Material Management Group
   Centre for Development of Advanced Computing (C-DAC)
   Innovation Park, PANCHAVATI, Pashan Road, PUNE 411008
   E-mail: mmg@cdac.in

3. **Two e-Bids System: Online submission through- GeM**
   A. Online - ePacket No. 1: "Technical e-Bid" shall contain (PDF format only)
   i. Covering letter, as per **Annexure – A.**
   ii. Authority letter, as per **Annexure – B.**
   iii. Document Check list **Annexure-I**
   iv. Scanned copy of Demand draft/BG towards Earnest Money Deposit of Rs. 70,00,000/- (Rupees Seventy Lakhs only) drawn in favour of C-DAC payable at Pune. (The Demand Draft/BG must reach physically at the place of Opening of the Tender on or before the Due Date & Time of the Tender Submission).

      In case of claiming exemption from submission of EMD, the copy of valid exemption document must be submitted. The Bidder claiming EMD exemption must submit an EMD / BG / Bid Security Declaration, as given in **Annexure - E**, agreeing to the conditions stipulated therein along with supporting documents / documentary proof.
   v. A copy of Certificate of Incorporation, Partnership Deed / Memorandum and Articles of Association / any other equivalent document showing date and place of incorporation, as applicable.
   vi. Copies of PAN and GST registration certificates.

vii. Duly filled Technical Bid as per **Section IV** with proper seal and signature of the authorised person (with name, designation, email id & contact no.).
viii. The undertaking from the Principal Manufacturer of DC Solution as per **Annexure – C**
ix. The detailed technical specification, make, model, part number & **compliance of each item offered** need to be supported by the printed catalogue / leaflet published by the Principal Manufacturer.
x. Undertaking from the Bidder to the effect that a Performance Security / PBG of 5% of the order value will be submitted by the bidder within 15 days from placement of PO**.**
xi. A copy of the commercial bid without prices **(prices blocked)** and copy of commercial terms & conditions (in details) shall be included in the commercial bid. C-DAC reserves the right to reject the bid in case of discrepancy observed in the un-priced commercial bid and the actual commercial bid.
xii. Declaration as per **Annexure F** (restrictions on procurement from a bidder of a country which shares a land border with India).
xiii. Declaration as per **Annexure G** (compliance to GoI OM regarding Make in India).
xiv. Integrity Pact as per **Annexure H**
xv. Other documents necessary in support of eligibility criteria, product catalogues, brochures etc.

Note: C-DAC reserves the right to reject the bid if any of the above listed document/s is not submitted.

B. Online Price Bid Submission

Offered Price needs to be submitted through the GeM portal only. The financial break-up as requested in the RFP needs to be submitted with the price quote by the bidder on the GeM portal.

4. Uploading of e-Bids and opening of the technical e-Bids – Online.

The e-bids must be submitted on-line through GEM. The EMD must be submitted/deposited in person or through post/ courier (C-DAC shall not be responsible for any postal delays or any other reason for not submitting the EMD in the specified time and resulting in disqualification / rejection of any bid) **to reach on or before the due date and time of the uploading of the tender.**

In case bidder requires any clarifications / information, they may contact C-DAC address / email as given in 'SECTION 1'.

Note: Please do not put/leak "Commercial e-Bid" (prices quoted) in the technical bid packet.

5. Pre-Bid Meeting – Date/ Time/ Venue / Online:

The pre-bid meeting will be held On-line on **26th May 2025 at 11:00 AM** as given in schedule to sort out/resolve queries raised by the prospective bidders regarding the tender scope, conditions, terms & conditions etc. The prospective bidders requiring any clarification of the bidding document may send their queries in writing through e-mail in the format given below. C-DAC, Pune will respond to these queries during the pre-bid meeting. ***The queries/doubt/clarifications etc. must be sent at least two days prior to the date of pre-bid meeting.***

All the queries, doubts, clarifications etc. must be submitted in xls format only as below.

Name of the Bidder:				
Sr. No.	**Section / Page No**	**Clause Reference**	**Query from Bidder**	**C-DAC Response**

Note:

The bidders are requested to go through the entire tender document thoroughly, before raising any query.

(END OF SECTION I)

SECTION II: GENERAL CONDITIONS OF CONTRACT (GCC)

1. **Locations for Supply, Installation, Commissioning, warranty support etc:**
   C-DAC, Science and Technology Park (STP), First Floor, OLP Group, Savitribai Phule University Campus, Ganeshkhind, Pune 411007, Maharashtra (INDIA)

2. **Delivery Period:**
   The entire solution (both PART-A and PART-B) must be supplied, installed, commissioned, and acceptance within 120 days from the date of placement of order(s).

3. **Order Placement & Release of Payment:**
   Centre for Development of Advanced Computing (C-DAC)
   Innovation Park, PANCHAVATI, Pashan Road, Pashan
   Pune 411008, Maharashtra, INDIA

4. **Eligibility Criteria:**
   a. The Bidder must submit the documents as listed at para 3 - Section – I of this document.
   b. Bidder should be either a principal manufacturer (OEM-Original Equipment Manufacturer) or their respective Indian subsidiary or their OEMs' **authorised** system integrator duly authorised by the principal manufacturer of servers.
   c. If the bid is submitted by the Indian subsidiary of Principal Manufacturer (OEM), the letter from Principal Manufacturer (OEM) must be submitted certifying that the Bidder is the subsidiary company of the Principal Manufacturer (OEM) in India.
   d. Bidder need to submit the declaration from OEM that if in case if the Bidder is failed to provide the support, OEM shall provide the support for all major components (all equipment's of IT, DGSet, UPS1 & UPS2 with batteries, Smart racks with iPDU's, Fire Suppression system along with Cooling Subsystem.)
   e. Both the Principal Manufacturer (OEM) and their Authorised Partner / System Integrator / Reseller should not participate in the tender concurrently.
   f. The Bidder must have supplied, installed, and commissioned at least 1 no's of 100 TF HPC system or single AI facility with minimum 16 GPU cards for training/inference purpose. The order copy along with satisfactory Commissioning report needs to be submitted by the bidder which should be in the Bidder's name.
   g. Smart Rack Solution (with front and back containment) provider OEM should have installed min 5 similar solutions (with min 20 KW cooling load in each site individually) in India in last 7 years. (Client Completion /Commissioning Certificate along with PO copy)
   h. The Bidder must submit the technical compliance sheet/report as per the technical requirements/features; stating deviations if any.
   i. Bidder should have a minimum average annual turnover of 17 Cr. for the last three years ending 31st Mar 2024. The copy of the certificate from a Chartered Accountant

for the last three financial years indicating the annual sales turnover of the Bidder to be submitted.

j. The Bidder must not be blacklisted by C-DAC or any other Educational / R&D / Govt. Organizations, as on the date of Opening of the bids. A certificate or undertaking to this effect must be submitted **(Annexure -A)**.
k. The Bidder must quote and comply with all the items given in Schedule of Requirements – **Section IV** of this document and details of the same to be provided under **Section V & VI.**
l. The Bidder must submit all the documents as per Document Checklist – **Annexure I**, with appropriate page nos. for the same. The flow of the submitted documents must be in the same order/sequence.
m. The bidder must comply with the provisions of the Order No.F.7/10/2021-PPD (1) (Public Procurement No. 4) dated 23.02.2023 issued by Procurement Policy Division, Department of Expenditure, Ministry of Finance, GOI **(Annexure F)**.
n. The solution offered must comply with the provisions of the Make in India Order No. P-45021/2/2017-PP (BE-II)-Part (4) Vol.II dated 19.07.2024 issued by Public Procurement Section, Department of Promotion of Industry, and Internal Trade (DPIIT), Ministry of Commerce & Industry, GoI along with achieving Minimum Local Content as declared by the relevant Ministries/Departments **(Annexure G)**.

Note: If in the view of Bidder, any exemption / relaxation is applicable to them from any of the eligibility requirements, under any Rules / process/ Guidelines/ Directives of Government of India, Bidder may submit their claim for the applicable exemption /relaxation, quoting the valid Rule/ process/ Guidelines/ Directives. In this case the Bidder must submit necessary and sufficient documents along with the technical bid, in support of his claim. The decision about granting the exemption/ relaxation will be taken by the bid evaluation committee which is empowered to grant exemption/relaxation. The relevant and valid certificates in support of claim of exemption must be submitted.

The bidder is hereby strictly advised to visit the site prior to bid submission to ensure awareness of bidder for all the site related information and execution hindrances if any to submit the best executable solution.

5. Amendment to Bidding Documents

a. At any time prior to the deadline for submission of bids, C-DAC may, for any reason, whether on its own initiative or in response to the clarification request by a prospective bidder, modify the bid document.
b. The amendments to the tender documents, if any, will be notified by release of Corrigendum on GEM the amendments/ modifications will be binding on the bidders.
c. C-DAC at its discretion may extend the deadline/Due Date for the uploading of e-Bids if it thinks necessary to do so or if the bid document undergoes changes during

the bidding period, to give prospective bidders time to take into consideration the amendments while preparing their bids.

6. Preparation of e-Bids

A neat and clean e-Bids is expected to be uploaded. Bidder should avoid, as far as possible, corrections, overwriting, erasures, or postscripts in the bid documents. In case however, any corrections, overwriting, erasures, or postscripts must be made in the bids, they should be supported by dated signatures of the same authorized person signing the bid documents. However, Bidder shall not be entitled to amend/ add/ delete/ correct the clauses mentioned in the entire tender document.

7. Earnest Money Deposit (EMD)

a. The Earnest Money Deposit (EMD) must be submitted prior to the DUE DATE of uploading of the online technical bid. The EMD is required to be in the form of Demand Draft / Bank Guarantee (BG) in favour of C-DAC payable at Pune, India, for an amount of Rs.70,00,000/- (Rupees Seventy Lakhs Only). No interest shall be payable on EMD.

b. If in the view of Bidder, any EMD exemption is applicable to them, under any Rules / process of Government of India, Bidder may submit their claim for the applicable EMD exemption, quoting the valid Rule/ process. In this case the Bidder must submit necessary and sufficient documents along with the technical bid, in support of his claim against supply of the required items by C-DAC in this Tender. The bid evaluation committee is empowered to take appropriate decision about the EMD exemption claim of the Bidder. The bid submitted without EMD/valid exemption documents, shall stand rejected. No interest shall be payable on EMD.

c. The Bidder claiming exemption shall submit EMD / Bid Security Declaration, as given in **Annexure - E,** agreeing to the conditions stipulated therein.

d. The EMD will be returned to the Bidder (s) whose offer is not accepted, within 30 days from the date of opening of commercial bid(s). In case of the Bidder whose offer is accepted, the EMD will be returned on submission of Performance Security / Deposit (Refer respective clause under Section III). However, if the return of EMD is delayed for any reason, no interest/ penalty shall be payable to the Bidder.

e. The successful Bidder, on award of contract / order, must send the contract/ order acceptance in writing, within 7-10 days of award of contract/ order & submit PBG within 15 days of award of contract/ order within failing which the EMD will be forfeited and the order will be cancelled.

f. The EMD may be forfeited:

- If the Bidder withdraws the bid during the period of bid validity specified in the tender.
- If the Bidder fails to furnish the acceptance in writing, within 7-10 days of award of contract/ order
- If the bidder fails to submit PBG within 15 days of award of contract/ order.

8. **Period of validity of bids**
   a. Bids shall be valid for **minimum 120 days** from the date of submission. A bid valid for a shorter period shall stand rejected.
   b. C-DAC may ask for the Bidder's consent to extend the period of validity. Such request and the response shall be made through the GeM portal. A bidder agreeing to the request for extension will not be permitted to modify his bid.
   c. The Bid documents shall be neatly arranged. 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 Bidder's signature.

9. **Deadline for submission of e-Bids – Online through GEM.**
   a. Bids must be uploaded, received by C-DAC before the due date and time at the address specified in the tender document.
   b. C-DAC will not be responsible for any issues arising/pertaining with the GEM portal for non-submission, failure in submission of e-Bids online.
   c. C-DAC may extend this deadline/Due Date for uploading of bids by amending the bid documents

10. **Late Bids**

    C-DAC shall not be responsible and liable for the delay in receiving the e-bids for whatsoever reason.

11. **Bid Opening & Evaluation of Bids**
    a. The bids will be examined based on eligibility criteria and documents submitted as stipulated at Para 3 of Section -I and Para 4 of Section – II respectively, to shortlist the eligible bidders.
    b. The technical bids of only the short-listed eligible bidders shall be evaluated based on technical specifications stipulated at Section – IV, V & VI.
    c. The duly constituted Tender Evaluation Committee (TEC) shall evaluate the bids. The TEC shall be empowered to take appropriate decisions on minor deviations, if any.
    d. During evaluation of the bids C-DAC at its discretion may ask the Bidder for clarification of its Bid. The request for clarification and the response shall be in writing, and no change in the prices is permitted.
    e. During the process of evaluation of bids, if any discrepancies are observed in the bid submitted, the bidders may be given an opportunity to clarify on same. If in the view of bidder, any change in quantity, make or model is required or any additional items are required, for clearing the said discrepancy, the bidder must arrange for said change and/or addition of material without any increase in the prices quoted.
    f. C-DAC may invite bidders for the technical presentation to understand the offered solution provided by bidders in the line of the required tender. However, invitation

towards technical presentation does not entitle the Bidder / Bid towards eligibility, shortlisting, and no claims what so ever will be entertained.

12. Comparison of Bids

Only the Technically qualified bids shall be considered for commercial evaluation and comparison which shall be done on the GeM portal as per GeM GTC.

13. Award of Order

a. C-DAC shall award the order to the eligible Bidder whose technical bid has been accepted and determined as the lowest evaluated commercial bid based on the price of the Commercial Bid on GeM.
b. The Bidder should note and agree to the same

14. Purchaser's Right to amend / cancel

a. C-DAC reserves the right to amend the eligibility criteria, commercial terms & conditions, Scope of Supply, technical specifications etc.
b. C-DAC reserves the right to cancel the entire tender without assigning any reasons thereof.
c. C-DAC reserves the right to reject the bid submitted by the lowest evaluated Bidder.
d. If more than one bidder happens to quote the same lowest price, C-DAC reserves the right to place the order with the bidder who has installed a Data Centre with more IT load at single site. The decision of C-DAC shall be final for awarding the contract.
e. C-DAC reserves the right to place an order for additional required items within a maximum period of one year. C-DAC also reserved right to change quantity / drop the selected items as per the requirement before releasing the Purchase Order. The bidder shall be required to supply such items at the same cost as quoted in the commercial bid of this tender.

15. Corrupt or Fraudulent Practices

a. It is expected that the bidders who wish to bid for this project have highest standards of ethics.
b. C-DAC will reject bid if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices while competing for this contract.
c. C-DAC may declare a vendor ineligible, either indefinitely or for a stated duration, to be awarded a contract if it at any time determines that the vendor has engaged in corrupt and fraudulent practices during the award / execution of contract.

16. 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, the interpretation of the clauses by Director General, C-DAC shall be final and binding on all parties.

17. Clause - Integrity Pact

The bidder is required to enter an Integrity Pact with C-DAC. For this, the bidder shall submit the scanned copy of signed, stamped, and notarised Integrity Pact on of appropriate denomination, as part of technical bid, failing which, the Proposal submitted by the concerned bidder will be summarily rejected.

The original document should be couriered to C-DAC. The format for the Integrity Pact is provided in **Annexure H**.

Details of IEM is provided below:

1) Shri. M P Johnson - Email ID- johnsonmp1961@gmail.com
2) Shri. Vijay Kumar Singh Email ID - vijaysinghsls10@gmail.com

(END OF SECTION II)

SECTION III: SPECIAL CONDITIONS OF CONTRACT (SCC)

1. **Prices**
   1.1. The price quoted shall be considered firm and no price escalation will be permitted (Except for Govt levies.)
   1.2. Bidder must offer **in INR only.**
   1.3. The prices quoted must be '**F.O.R.-Pune** inclusive of packing & forwarding, freight, insurance, loading/unloading, and allied charges till the destination.
   1.4. Bidder must provide the price inclusive of applicable GST.
   1.5. The responsibility, cost and risk of the consignment shall rest with the Bidder till receipt of goods is acknowledged by the end user at C-DAC, Pune. However, such receipt/acknowledgement shall not be treated as acceptance of goods.

2. **Software Licenses (if applicable):**
   The software licenses, if any, shall be required in the name of C-DAC. The licenses shall be perpetual licenses (on OEM site/ paper) and at least one set of media (CDs), wherever applicable need to be supplied.

3. **Performance Bank Guarantee (PBG):**
   1. The successful bidder will be required to furnish the Performance Guarantee towards the Data Centre Components supplied, in the form of a Bank Guarantee in INR equivalent to 5% amount of the Supply Order value, as per the format attached to this document **(Annexure – D).**
   2. This bank guarantee should be submitted within 15 days from date of award of PO. The Bank Guarantee shall remain valid for the period of 65 months from the date of installation covering the complete warranty. The PBG must be negotiable at a branch of issuing bank in India. In case of no warranty claims towards the item under warranty, the PBG will be returned on completion of warranty period.
   3. **The PBG should be submitted by the vendor on whose name the Purchase Order is released.**
   4. C-DAC reserves the right to invoke the Performance Bank Guarantee(s) submitted by Bidder, in case of the following:
      i. The Bidder fails to provide the warranty and other services in scheduled time frame, as stipulated in this document or
      ii. The Bidder delays to provide the warranty services as stipulated in this document.

4. **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 Bidder and which are not expressly excluded there from but which – in view of the Bidder - are necessary for the performance of the equipment in accordance with the specifications are treated

to be included in the bid and has to be performed by Bidder. The items which are over & above the scope of supply specified in the Schedule of Requirements may be marked as "Optional Items".

5. Warranty:

a. The Supplier warrants that all the Goods are new, unused, and of the most recent or current models and that they incorporate all recent improvements in design and materials, unless provided otherwise in the contract. The Supplier further warrants that all Goods supplied under this contract shall have no defect arising from design, materials or workmanship (except when the design and/or material is required by the Purchaser's specifications) or from any act or omission of the Supplier. All the supplied IT equipment shall not reach end of life and end of support for min. 7 years from the date of supply. The warranty should be comprehensive on-site, repair/replacement basis free of cost.

b. The comprehensive onsite warranty of 5 years for all the deployed components under this tender to be provided (applicable to both IT and Non-IT infrastructure, items, components, Software's etc.). Warranty will start after deployment and signing of Acceptance test. All the items supplied must have onsite comprehensive warranty with 4hrs response time and Next Business Day resolution, covering all parts & labour, starting from the date after the successful installation, demonstration of performances and acceptance by C-DAC, Pune (i.e. within 45 days from the date of supplies).

c. After the warranty period, vendor will have to undertake comprehensive maintenance of the entire hardware components, equipment, support and accessories supplied by the vendor at the place of installation of the equipment.

d. The defects, if any, during the guarantee/warranty period are to be rectified free of charge by arranging free replacement wherever necessary. It should be completed within Next Business Day resolution for entire solutions after the intimation of fault.

e. Operation and Maintenance of the datacentre: Appropriate manpower to support DC and IT infrastructure need be provided in case of any major issues. The manpower shall be made available at site with-in 4 hrs. from the time of report of the problem.

f. Goods requiring warranty replacements must be done on free of cost basis.

g. All such replacements or repairs must be completed within 24 hours of issue detection or notification. Any delay beyond this specified period shall attract a penalty.

h. Please note that, no Hard disks will be returned back as part of warranty replacement.

i. An additional 10% of each type of cable (Fibre & Copper) must be supplied as spare.

6. Acceptance Criteria (Please also refer Performance Evaluation and Criterion under Point No.2 under Section IV Part A).

PART A:

The Scope of work pertaining to IT equipment shall include:

a. Submission of FAT (Factory Acceptance Test) as per demand.
b. Installation of all equipment in the specified racks.
c. The CPU-based servers must undergo a complete Power-On Self-Test (POST) to validate hardware and memory integrity and readiness before deployment.
d. NAS storage configuration must support and be validated for access protocols including NFS, CIFS/SMB, and iSCSI for interoperability and data accessibility across systems. Must show case SNAPSHOT mechanism.
e. Requirements specified under Section IV Part A – 2.3 and 2.4 regarding MLPerf parameters must be fully satisfied.
f. Deployment of Firewall solution as a High Availability (HA) pair of physical appliances with support for AI-enabled Sandbox, Analyzer, and centralized Management functionalities, along with all necessary ports, transceivers, and compatibility with quoted infrastructure from Day 1.
g. Shall demonstrate the SANDBOX functionality i.e. invoking of scanning through pre-loaded client Software.
h. The Scope of work pertaining to IT shall also include Installation and configuration of Virtualization Software (Opensource Hypervisors like Proxmox/KVM/KUBEVIRT/K8s etc.), Operating Systems, AV/EDR, Network and Storage configuration, provisioning of storage access to VMs and physical servers, patch updates, and assisting in deployment of Kubernetes (K8s) cluster.

PART B:

a. All equipment supplied and installed under the Smart Rack solution, including UPS, PDUs, In-Row Cooling units, fire suppression, monitoring systems, and sensors, must strictly conform to the technical specifications provided in the tender document.
b. Room temperature must be recorded at multiple points inside the data centre, especially at the top, middle, and bottom of the racks (U positions), at both front and rear, to identify and eliminate hot spots.
c. A live demonstration must be carried out to validate the behaviour of the UPS system under electrical mains (EB) failure and restoration. This test will include verification of backup time from the installed Li-Ion battery bank.
d. Submission of complete “As-Built” drawings is mandatory. These must include electrical, cooling, sensor layout, containment plans, and architectural changes implemented during project execution.
e. A simulated fire signal using Cross Zoning Input must be demonstrated to test the functionality of the fire suppression system, including the triggering of the magnetic solenoid valve connected to the NOVEC cylinder manifold.

f. The functionality of the VESDA (Very Early Smoke Detection Apparatus) and the Water Leak Detection System (WLDS) must be demonstrated as per the system design.
g. All safety standards and protective measures must be strictly adhered to during the entire project execution, testing, and commissioning phase.
h. The bidder must submit warranty certificates directly issued by the respective OEMs for all major components including Li-Ion batteries, in-row cooling units, pumps, and fire suppression systems.
i. The Building Management System (BMS) interface must be fully functional with an effective graphical user interface (GUI). It must provide monitoring of all field devices such as temperature and humidity sensors, UPS, PDUs, and alarms. The system should allow both automatic and manual mode control of all connected actuators. Manual mode should be accessible via both the BMS interface and dedicated hardware switches.
j. The aesthetics and interior finish of the smart rack setup should meet professional-grade datacentre standards. This includes organized cabling, proper containment, airflow optimization, labelling, and overall visual alignment with the submitted design and layout plans.

7. Payments Terms:

(i) No payment shall be released until the required Performance Guarantee is submitted by the bidder. The bidder needs to submit the Performance Guarantee within the stipulated time as mentioned in the RFP.

(ii) **Milestone1:** 70% of the payment of **PART-B Items** will be done towards supply of Major items which include Smart Rack Solution, IT and Non-IT UPS along with batteries, DG Set, Electrical panels & Room Cooling items.

(iii) **Milestone 2:** Remaining 30% of cost of above items mentioned under pt. (i) above along with 100% of other items of the Datacentre will be released on final commissioning of entire Datacentre.

(iv) **Milestone 3:** 80% of the payment of **PART-A IT equipment** will be released after installation & commissioning of Datacentre and delivery of all the IT equipment.

(v) **Milestone 4:** Balance 20% payment of IT equipment as per pt. (iii) above will be released on fulfilling the acceptance criteria.

8. Bill to/ Ship to: C-DAC, Pune
Ship To: Pune (Warranty Services, Support at Pune)

9. Penalty for delayed Delivery /Services

9.1. C-DAC reserves the right to levy penalty @ of 0.5 % of order value per week of delay beyond the scheduled deliveries / execution of the order successfully, subject to maximum of 5% of the order value. The delay in delivery not attributed to Supplier viz. delay in site preparation, delay in submission of required documents by C-DAC etc. and the conditions arising out of Force

Majeure will not be considered for calculating penalties. C-DAC reserves the right to cancel the order(s) in case of delays of more than 10 weeks.

9.2. Uptime of the IDC solution must be maintained as per table below:

Parameters	Penalty
Less than 98.5% but more than 97.5% in a quarter	Penalty @0.2% of the order value per quarter.
Less than 97.5%	Penalty @1% of the order value per quarter.
Less than 95%	CDAC reserves the right to terminate the contract and invoke the performance bank guarantee.
Capping	The maximum penalty as stipulated above put together including Point 9.1 and 9.2 will be capped to 10% of the order value.

10. Jurisdiction:

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

11. Force Majeure:

C-DAC 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 / state agencies, the direct and indirect consequences of wars (declared or undeclared), pandemic, hostilities, national emergencies, civil commotion and strikes at successful Bidder's premises or any other act beyond control of the Bidder.

12. Risk and Ownership:

Upon the payment of 80% towards IT equipment as mentioned in payment schedule, C-DAC can become owners of goods ordered but all risks, responsibilities; liabilities thereof in all goods shall remain with selected Bidder. Part deliveries shall not be treated as deliveries. Only full deliveries of all items ordered will be considered as delivery.

13. Limitation of Liability:

The liability of the Bidder / Contractor arising out of breach of any terms/conditions of the tender / contract/work order and addendums/amendments thereto, misconduct, wilful default will be limited to the total contract value. However, liability of the Bidder in case of death/injury/damage caused to the personnel/property due

to/arising out of/incidental to any act/omission/default/ deficiency of bidder/contractor will be at actuals.

In no event shall either Party, its officers, directors, or employees be liable for any form of incidental, consequential, indirect, special, or punitive damages of any kind.

14. Termination:

Validity of purchase order will remain till fulfilment of all obligations (Including but not limited to providing comprehensive warranty/support till Completion of Five years from acceptance of the entire integrated solution as a whole) by the successful Bidder. In case of the delays in providing the stipulated services, and /or defect/delay/under or non- Performance pertaining to the services / products supplied by the Bidder, C-DAC will give written notice to the Bidder directing to set the things right within 30 days of notice. If Bidder fails to comply with the requirements, C-DAC shall have the right to terminate the contract and / or cancel the order/s. The successful Bidder agrees and accepts that he shall be liable to pay damages claimed by C-DAC, in the event of termination of contract / cancellation of order, as detailed in this RFP. The successful Bidder may terminate the contract by at least 30 days' written notice, only in the event of non-payment of undisputed invoices for 90 days from the due date. Except this situation, the successful Bidder shall have no right of termination. C-DAC reserves the right to terminate the contract / cancel order with or without cause/ reason, by giving 90 days' notice to the successful Bidder.

C-DAC will release the due amount payable to successful Bidder towards the material and / or services provided till the date of termination, those are accepted by C-DAC/ end user. However, the amount towards penalty, if any will be deducted from the payable amounts.

15. Indemnity:

The successful Bidder shall indemnify, protect, and save C-DAC and host institutions from/against all claims, losses, costs, damages, expenses, action suits and other proceeding, resulting from/arising out of:

a. Infringement of any law pertaining to intellectual property, patent, trademarks, copyrights etc. by the Bidder or
b. such other statutory infringements in respect of all the equipment's supplied by successful Bidder, or
c. Any act/omission/performance/under or non or part performance/failure of the Bidder.

16. Assignment:

Selected bidder/ Party shall not assign, delegate, or otherwise deal with any of its rights or obligation under this Contract without prior written permission of C-DAC.

17. Severability:

If any provision of this Contract is determined to be invalid or unenforceable, it will be deemed to be modified to the minimum extent necessary to be valid and enforceable. If it cannot be so modified, it will be deleted and the deletion will not affect the validity or enforceability of any other provision.

(END OF SECTION III)

SECTION IV – SCHEDULE OF REQUIREMENT

This Section covers the general and technical requirements of IT hardware and Data Centre components. **This tender requires successful bidder to supply IT Hardware for AI and setup a datacentre to host the Hardware. It consists of two parts: Part- A is pertaining to IT Hardware and Part-B is pertaining to Data-Centre.**

Part- A

1. Hardware Resources with Specification

Sr. No.	Hardware Resources with Specification	Qty
1.	**CPU-Server-Type-01** **Processor:** 1. Each server shall be dual-socket (fully populated) with CPUs having a minimum of 64 cores, 5th generation or latest x86_64-bit processor, running at min. 2.0 GHz. 2. The server must support Secure BIOS with TPM 2.0, digitally signed firmware, BIOS lockdown/write protection, and be compatible with Windows Server editions and listed in the OEM hardware compatibility list (HCL). Supply shall include latest Windows Data Centre Edition with each Server. **Memory:** 1. The server must include minimum 512 GB ECC DDR5 5600 RAM in a balanced configuration with minimum stream traid performance of 400 GB/s per server. **Storage:** 1. Server must include two 960 GB Hot Swappable NVMe SSD configured in RAID 1 for operating system installation. 2. Should include usability space of 10TB Hot Swappable NVMe SSD / SAS SSD after RAID 6 implementation. **Networking:** 1. The server must have Onboard 2 × 10 Gbps ethernet ports, Onboard 1 × 1 Gbps IPMI (or equivalent) management port, 1 no. of 100Gbps interface with RDMA (RoCE)enabled 2. It must come with fibre transceivers of required length to complete the connectivity , OM3 or better patch cables for 10 Gbps and 100 Gbps interfaces, plus one 1 Gbps copper Ethernet cable (factory crimped). **Power & Form Factor:** 1. The server must include Platinum-grade redundant power supplies. 2. The complete system should not exceed 2U in height, suitable for standard rack installation. 3. The supply shall include suitable Rack-mounting kit compatible to 600x1200 smart rack.	**10**

2.	**CPU-GPU-Server-Type-02** **Processor:** 1. Each server shall be dual-socket (fully populated) with CPUs having a minimum of 64 cores, 5th gen and above x86_64-bit compatible, running at min. 2.0 GHz. 2. The server must support Secure BIOS with TPM 2.0, digitally signed firmware, BIOS lockdown/write protection, and be compatible with Ubuntu 22.04 LTS / RHEL 9.x and listed in the OEM hardware compatibility list (HCL). 3. The supply should include Ubuntu Pro for enterprises Server Infra support. Bidder need to showcase the back-to -back support documents. **Memory:** The server must include minimum 1024 GB ECC DDR5 5600 RAM in a balanced configuration with minimum stream traid performance of 400 GB/s per server. **Storage:** Server must include two 960 GB Hot Swappable NVMe SSDs configured in RAID 1 for operating system installation. **GPU / Accelerators:** 1. The server must support and include 4 × NVIDIA H200 cards, fully compatible with NVIDIA driver stack and ML frameworks must be connected with 4-way NV Link bridge. **Networking:** 1. The server must have Onboard 2 × 10 Gbps Ethernet ports, and Onboard 1 × 1 Gbps IPMI (or equivalent) management port, 1 no. of 100Gbps ethernet port RDMA (RoCE) enabled . 2. It must come with MM, OM3 or better fibre transceivers of required length to complete the connectivity patch cables for 10 Gbps and 100 Gbps interfaces, plus one 1 Gbps copper Ethernet cable (factory crimped). **Power & Form Factor:** 1. The server must include Platinum-grade or better redundant power supplies. 2. The complete system should not exceed 4U in height, suitable for standard rack installation. 3. The supply shall include suitable Rack-mounting kit compatible to 600x1200 smart rack. **Certifications & Compliance:** 1. Servers should be certified by GPU Controller / Accelerator OEM, the Certificate or listing of offered Server model in GPU Controller / Accelerator OEM website must be submitted along with bid. **2.** Supply shall include NVL License for the quoted nos. of Nvidia GPU cards.	**08**
3.	**CPU-GPU-Server-Type-03** **Processor:**	**02**

	Each server shall be dual-socket (fully populated) with CPUs having a minimum of 56 cores, x86_64-bit compatible, running at min. 2.0 GHz. **Memory:** 1. The system features 2 TB of system memory and a total GPU memory of 1,128 GB, distributed across 8 NVIDIA H200 Tensor Core GPUs, each with 141 GB memory. 2. Performance reaches up to 32 petaflops FP8. The platform includes 4 NVIDIA NV Switch™ components to enable high-speed inter-GPU communication. **Networking:** 1. Networking interfaces include 4 x OSFP ports serving 8x single-port NVIDIA ConnectX-7 VPI adapters (up to 400 Gb/s). 2. The network interfaces shall include 10 Gbps on-board NIC, 100Gbps Ethernet NIC RDMA (RoCE)enabled, and a host baseboard management controller (BMC) with RJ45. 3. It must come with MM, OM3 of required length cables for 10 Gbps and 100 Gbps interfaces, plus one 1 Gbps copper Ethernet cable (factory crimped). **Storage:** Operating system storage is supported by 2 x 1.92 TB NVMe M.2 drives, and internal data storage includes 8 x 3.84 TB Hot Swappable NVMe U.2 drives. **Software and OS:** The system must come factory preinstalled OS Ubuntu. Shall include AI Stack. **Certifications and Support:** 1. Servers should be certified by GPU Controller / Accelerator OEM, the Certificate or listing of offered Server model in GPU Controller / Accelerator OEM website must be submitted along with bid. **Power & Form Factor:** OEM specific High Performance Power supplies in N+1 configuration need to be supplied. The supply shall include suitable Rack-mounting kit compatible to 600x1200 smart rack.	
4	**Mgmt-CPU-Server-Type-04** **Processor:** 1. Each server shall be with Single socket populated with CPU having a minimum of 16 cores, 5th generation or latest x86_64-bit processor, running at min. 3.0 GHz. 2. The server must support Secure BIOS with TPM 2.0, digitally signed firmware, BIOS lockdown/write protection, and be compatible with Windows Server editions, Ubuntu 22.04 LTS / RHEL 9.x and listed in the OEM hardware compatibility list (HCL). **Memory:**	**02**

	1. The server must include minimum 64 GB ECC DDR5 5600 RAM **Storage:** 1. Server must include two 960 GB NVMe SSD Hot Swappable configured in RAID 1 for operating system installation. 2. Should include usability space of 10TB on NL-SAS (Hot Swappable) after RAID 6 implementation. **Networking:** 1. The server must have Onboard 2 × 10 Gbps Ethernet ports, Onboard 1 × 1 Gbps IPMI (or equivalent) management port. 2. It must come with MM, OM3 or better fibre transceivers of required length cables for 10 Gbps, plus one no. of 1Gbps copper Ethernet cable (factory crimped). **Power & Form Factor:** 1. The server must include Platinum-grade redundant power supplies. 2. The complete system should not exceed 1U in height, suitable for standard rack installation. **3.** The supply shall include suitable Rack-mounting kit compatible to 600x1200 smart rack.	
5.	**EDR** **Scope of Work:** 1. The current procurement is for Supply, Installation, configuration, and deployment of Endpoint Security Solution for C-DAC on-prem with all necessary hardware, software, subscriptions/licenses for 5 years. Bidders may ensure to meet the Technical Specifications and the Scope of Work given in this section which will be the decisive compliance framework for technical evaluation. 2. All the features mentioned should be available and supported by all the operating systems from the day 1. 3. Supply of solution shall include required hardware, software and associated licenses/subscriptions for the deployment and implementation of solution. 4. The solution shall not confine to the traditional antivirus. 5. License/Subscription – License subscription required for 5 years. License provided shall be able to manage all security services/features supported by product. 6. Bidder needs to ensure that OEM provides support for the solution and the escalation matrix about 24x7 support. 7. Bidder is overall responsible for providing support for installation and configuration of Endpoint security agent on all endpoints. Resolving all types of errors if any i.e. blue screens, memory dump, recovery mode etc. 8. Onsite training for Endpoint security solution deployed.	**30**

	9. Support services for 5 years should include upgrades, updates, patches, and releases for all security modules including threat intelligence feeds. 10. OEM/Bidder will be responsible for overall deployment of solution, training, documentation, and support required to install agent on all Endpoints. 11. OEM Responsibility: a. The OEM is required to provide the Manufacturer Authorization Form as per Para 4.e of Section-II. In addition to the standard terms of authorization, the OEM is required to certify the competence of the bidder to undertake the work as per the terms of the contract and the scope of work. b. The OEM will assign a designated technical expert to oversee all installation, configuration, deployment, and training activities. c. The OEM assigned expert will be required to guide and validate all documentation supporting the installation and deployment as per the scope. d. An OEM assigned and named expert will be provided to support the Seller to complete all activities. **Infrastructure Integration Requirements**: 1. Solution should have capability to ingest a third-party threat intelligence feed using STIX, TAXII or API. In case of API integration, efforts towards development and integration with third party threat Intel feed shall be in the scope of bidder. 2. Integration to MITRE ATT&CK mapping into technology platforms and creating custom/preset response playbooks/policies/rules or equivalent mechanism for response automation. 3. The solution must support the creation of custom/preset response playbooks/policies/rules or equivalent mechanism to exclude specific addresses/IP range. **Prevention and Detection Capabilities:** 1. Machine Learning: Leverage machine learning to identify unknown threats. 2. Malware Detection: The Endpoint Security solution must detect a wide range of malware, including viruses, worms, ransomware, spyware, and advanced persistent threats (APTs) 3. Fileless Attack Detection: The Endpoint security should identify and mitigate fileless attacks that use legitimate tools like PowerShell or WMI. 4. Behavioural Analysis: The solution should employ behavioural analysis to detect anomalous activities indicative of zero-day threats. 5. Real-Time Monitoring: Continuous monitoring and real-time threat detection are required for all endpoints.	

	6. The solution must identify malicious files and prevent them from execution, including viruses, Trojans, ransomware, spyware, crypto miners and any other malware type. 7. The solution must identity malicious behaviour of executed files, running process, registry modifications, rootkits and memory access and terminate them at runtime or raise an alert (exploits, file less, Macros, PowerShell, WMI etc.) 8. The solution must identify and block privilege escalation attacks (process monitoring) reconnaissance attacks (network traffic monitoring). Also block usage of attack tools like Metasploit, Empire, etc. covering DDOS attack, network port scanning, and flooding etc. 9. The solution must identify, and block credentials attempt form either memory (credentials dump, brute force) or network traffic behavioural analysis. (e.g. ARP spoofing, DNS responder) The solution must identify, block and alert on lateral movement (SMB relay, pass the hash, port scanning etc.) 10. The solution must identify user account malicious behaviour, indicative of compromise. The solution must identify user account malicious interaction with data files. i.e. Decoy files. **Operations Capabilities:** 1. The solution should provide a unified web-based console to allow administrators to access the management interface for all functionalities. 2. Solution shall provide the visibility of all clients on the centralized console. Solution should be able to manage the client remotely for installation and uninstallation. 3. The proposed solution should support role-based access control (RBAC). 4. Solution should have minimal impact on endpoint performance in terms of CPU, memory, and disk usage. 5. The proposed solution should have full remote shell capabilities for all operating system (Windows, Linux and Mac). 6. The proposed solution should have capability logged and audited the management activity, with the ability to send logs to an external source (like SIEM/SYSLOG etc.) 7. The solution should support device control blocking for USB external devices such as external HDD, pen drive etc. 8. The solution must co-exist with all commodity and proprietary software on the endpoints. 9. The endpoints should be able to perform the operations independently without the requirement of console/server. 10. The solution should have centralized policy management and reporting architecture and can be managed from a single console.	

	11. The solution must provide a central distribution of updates without the need of user intervention and restarting endpoints. 12. The solution should support and schedule threat database update, patching, update and upgrade of entire solution for server and endpoints in an offline mode. 13. The solution must have the ability to specify a schedule for downloading the updates, including the ability to disable automatic update. 14. The solution must provide report in Excel, PDF and CSV formats. And able to send scheduled reports to individual users or group of users by email. 15. The solution should provide options for exclusions for HASH, path, certificate or signer ID, file types, IP address and websites. 16. Solution should support compliance standards such as GPDR, HIPAA, and PCI-DSS etc.	
6.	**NAS Storage - 1PB** **Capacity:** The total usable capacity of the storage shall be 1PB after implementing the RAID 6 or better redundancy. The storage shall be scalable to 1.5PB without adding additional controllers and disk enclosures. **Performance:** The storage shall provide 10GB/sec write throughput and 2.5Lakhs IOPS. **Redundancy:** The proposed storage shall support RAID6 or better protection. The storage shall be configured as No Single Point of Failure w.r.to controllers, disks, Power supplies, Fans, and connectivity. The proposed controllers shall work in active – active load balancing mode with Batterry Backed Write Cache (BBWC) or equivalent. **Protocols:** NFS, CIFS and ISCSI protocols. Shall support GPU Direct. CSI support for dynamic storage provisioning. Should support REST API. Should provision integration of Storage with cloud stack. **Features:** Storage shall support SNAPSHOT, WORM functionality on identified Partition/Volumes. Storage shall support Data at rest Encryption. **Storage Delivery:** Shall have min. 2nos. of 100Gbps ports (RDMA/RoCE enabled) per controller. **License:** License shall include proposed storage capacity, SNAPSHOT, Compression and De-duplication. **Power and Rack Space:** Consumption shall not exceed 20KW and 20U rack space. Supply shall include Rack Mounting kits for the Controllers, Storage enclosures. **Miscellaneous:**	**01**

	Supply shall include 5mts. MM, OM3 or better 100Gbps Patch cables along with required Transceivers compatible to the quoted switch.	
7.	**48-Port 100Gbps Ethernet Switch** **Performance and Architecture:** 1. Device should be a high-performance capable of supporting 100Gbps ethernet (QSFP28). 2. Device should support wire rate L2 and L3 forwarding. 3. Device should be based on industry standard virtual output queue-based architecture to avoid head-of-line blocking issues. 4. Device should support redundant hot-swappable fans and redundant hot-swappable power supplies. 5. Device should have deep packet buffers / System memory 8GB or more. 6. Device should be able to support up to 100K MAC address. 7. Device should support 4K VLANs, 9200 bytes Jumbo frame. 8. Device should be able to support 256K IPv4 routes. 9. Support VRF. 10. Device should support Role based access control, AAA with TACACS+ and RADIUS. 11. Device should support ACL with Layer-2, L3 and L4 parameters. 12. Device should have support 10K or more ingress/egress hardware ACL entries. 13. Device should support control plane policing to safeguard system from DOS attacks. 14. Device should support policing, shaping, Marking, DHCP/COS classification and ACL based classification. 15. Device should support priority queuing. 16. Device should support PFC/DCBX. 17. Device should have virtual output queuing-based architecture, such that every input port will have a virtual output queue for every output port on the switch. 18. Should advance automation with support for on-board python and bash, API. 19. Should support custom application installation with RPM install and docker containers. 20. Device should support streaming telemetry that is not dependent on SNMP, for example device should be able to stream CPU process information, LLDP information and much more. 21. Device should support SNMP v3, IPFIX/NetFlow/SFlow and logging. 22. Device should support on-board tcpdump/Wireshark for troubleshooting purpose and should support mirroring to L3 destination using GRE encapsulation. 23. Switch should support RDMA (RoCE)enabled traffic & Overall Switch throughput should be of minimum 9.6 Tbps.	**01**

	Management: 1. Switch should support traffic flow analytics, resource utilization monitoring, event notification through email & message. 2. Minimum one Out-Of-Band Management port (1x 1G RJ45). **General:** 1. Should operate at AC ~50Hz, 220-240V. 2. Should have safety and standards certifications as below: ROHS, UL or Equivalent, IEC or equivalent. 3. Should have LED indicator for per port status. 4. Should include suitable Rack mounting kit and brackets.	
8.	**48-Port 10Gbps Ethernet Switch** **Performance and Architecture:** 1. Device should be a high-performance 48-port capable switch, capable of supporting 10G ports. It should support 10G SFP+ Transceivers. 2. At least 2Ports shall be 1/10G autosensing (with adequate Transceivers) to connect to the quoted Mgmt. Switch. 3. Device should support wire rate L2 and L3 forwarding. 4. Device should be based on industry standard virtual output queue-based architecture to avoid head-of-line blocking issues. 5. Device should support redundant hot-swappable fans and redundant hot-swappable power supplies. 6. The Leaf-spine fabric should support distributed gateway-based architecture with support for symmetric integrated routing and bridging. 7. Device should have deep packet buffers / System Memory of 8GB or more. 8. Device should be able to support up to 200K MAC address. 9. Device should support 4K VLANs, 9200 bytes Jumbo frame. 10. Device should support LLDP and LACP to bundle links and detect mis-cabling issues. 11. Device should be able to support 256K IPv4 routes. 12. Support VRF. 13. Device should support Role based access control, AAA with TACACS+ and RADIUS. 14. Device should support ACL with Layer-2, L3 and L4 parameters. 15. Device should have support 10K or more ingress/egress hardware ACL entries. 16. Device should support control plane policing to safeguard system from DOS attacks. 17. Device should support policing, shaping, Marking, DHCP/COS classification and ACL based classification. 18. Device should support priority queuing. 19. Device should support PFC/DCBX. 20. Should advance automation with support for on-board python and bash, API.	**02**

	21. Should support custom application installation with RPM install and docker containers. 22. Device should support streaming telemetry that is not dependent on SNMP, for example device should be able to stream CPU process information, LLDP information and much more. 23. Device should support SNMP v3, IPFIX/NetFlow/SFlow and logging. 24. Device should support on-board tcpdump/Wireshark for troubleshooting purpose and should support mirroring to L3 destination using GRE encapsulation. 25. All proposed switches in the network should be able to run on same OS image and managed from single dashboard for simplified operations with minimal security exposure. 26. Switch should support RDMA (RoCE)enabled traffic & Overall Switch throughput should be of minimum 1Tbps. **Management:** 1. Switch should support traffic flow analytics, resource utilization monitoring, event notification through email & message. 2. Minimum one Out-Of-Band Management port (1x 1G RJ45). **General:** 1. Should operate at AC ~50Hz, 220-240V. 2. Should have safety and standards certifications as below: ROHS, UL or Equivalent, IEC or equivalent. 6. Should have LED indicator for per port status. 7. Should include suitable Rack mounting kit and brackets.	
9.	**48-Port Management Switch (1G)** **Performance and Architecture:** 1. Device should support a minimum of 48x 1G Copper RJ45 Ports. 2. Device should have a minimum of 2 x 10G SFP+ ports populated with multimode LC transceivers from day-1. 3. Device should support wire rate L2 and L3 forwarding. 4. Device should be able to support up to 32K MAC addresses. 5. Device should support 4K VLANs, 9200 bytes Jumbo frame. 6. Device should support graceful restart. 7. Device should support policy-based routing. 8. Device should support active-active layer-2 and layer-3 forwarding. 9. Device should support Role-based access control, AAA with TACACS+ and RADIUS. 10. Device should support ACL with Layer-2, L3, and L4 parameters. 11. Device should support ACL-based classification. 12. Device should support priority queuing. 13. Device should support, SNMP v3, IPFIX/NetFlow/SFlow, and logging. **Management:** 1. Minimum one Out-Of-Band Management port (1x 1G RJ45) should be	**01**

	available.	
10.	**Firewall Features:** 1. Certified FIPS 140-2, EAL 4+ / Common Criteria compliant. 2. Must be a Next-Generation Firewall (NGFW) with separate data and control/management planes. Supply shall include physical appliances towards 1nos. of AI enabled SANDBOX, 1 no. of Analyser with built in Hard disk and the manager for Mgmt. 3. The supply shall include 20 clients to invoke SANDBOX scan from the client directive. 4. Must have 8 x 10G MM Fiber Ports, 8 x 1G Fiber Ports, 8 x 1 GE RJ45, 1x RJ45 management port from Day 1. 5. All required transceivers must be provided from Day 1 and must be compatible with the quoted switches, Storage & Servers. 6. The solution must have sufficient physical RAM and CPU to deliver the requested performance throughput. 7. Threat prevention throughput must be 1Gbps in a real-world enterprise mix with all security engines (IPS, application control, web filtering, anti-malware) enabled. 8. Should support client-based VPN and at least 10 concurrent SSL VPN users. Licenses and Software required towards the same need to be provisioned. 9. Firewall, SANDBOX, Analyser and Manager shall be a hardware appliance. 10. Firewall must integrate IPSEC and SSL VPN, Anti-Malware, IPS, Web and Application Control, DDoS prevention, Traffic-Shaping/Bandwidth Management, and Routing functionalities. 11. Must support NAT (SNAT and DNAT) in Static, Dynamic, PAT, Nat66 (IPv6-to-IPv6), Nat64 (IPv6-to-IPv4), Nat46 (IPv4-to-IPv6), DNS64, and DHCPv6 modes. 12. Must support unlimited IP/User devices. 13. Firewall must support at least 4 virtual firewall domains/instances. 14. Each virtual firewall domain must support Firewall, IPSEC and SSL VPN, IPS, Web and Application Control, Anti-Malware, Traffic Shaping, Policy-Based Routing, DDoS, User and Group Management, Logging, and Reporting. 15. Must support all standard RFCs related to firewall functionality. 16. Must support REST API. 17. Must use a hardened OEM operating system. 18. Must support Static Routing, Policy-Based Routing, BGP, OSPF, and VXLAN inspection. 19. Must support bi-directional integration with Anti-APT/Sandbox for threat intelligence and automated zero-day mitigation. 20. Must support automatic failover based on ICMP, TCP, or UDP and	**01**

	outbound traffic load sharing. 21. Must support vulnerability and exploit signatures, protocol validation, anomaly detection, behaviour-based detection, and multi-element correlation up to Layer 7 including SSL/TLS. 22. Must support firewall policies based on IP, network, port, protocol, user, application, and zone. 23. Firewall policies must support IPS, web & application filtering, anti-malware, DDoS prevention, traffic shaping, and scheduling by time/date/period. 24. Firewall policies must support configuration of exceptions for specific features. 25. Must support DNS client and NTP client. 26. Must support link aggregation (IEEE 802.3ad) and Ethernet bonding for full mesh deployment. 27. Must support SNMP v1, v2, and v3. 28. Must support simultaneous user authentication via Local Database, LDAP, RADIUS, TACACS+, and PKI (PKCS#7, PKCS#10). 29. Must support two-factor authentication without external hardware. 30. Must support Windows Active Directory single sign-on via agent, clientless, or captive portal. 31. Must support second-factor authentication through email, certificate, SMS, or RSA token. 32. Must support creation of custom application signatures and profiles. 33. Must allow granular control within applications (e.g., allow Facebook chat but block file transfers). 34. Must support SSL traffic inspection in both forward-proxy and inbound connections. 35. Must support SSH tunnel traffic inspection in both inbound and outbound connections. 36. Must support TLSv1.3 decryption in all modes. 37. Must support data filtering to prevent leakage of sensitive, confidential, and proprietary information. 38. Must support DoS prevention policies per zone (e.g., outbound to inbound, inbound too outbound). 39. Must support DoS policies for various attacks like UDP Flood, ICMP Flood, SYN Flood, IP Sweeps, Spoofing, Port Scanning, Ping of Death, Teardrop, and unknown protocols. 40. Must support policy-based forwarding based on zone, IP address, port, application, user, and service. 41. Must perform anti-malware scanning on HTTP, SMTP, IMAP, POP3, and FTP traffic. 42. Must detect and prevent malicious DNS requests and integrate third-party threat intelligence for blocking IPs, domains, and URLs.	

	43. Must dynamically update firewall policy using external threat intelligence feeds. 44. Must support “block and continue” behaviour for websites, allowing user override with time restriction. 45. Must protect against phishing and malicious JavaScript. 46. Must support creation of QoS policies per rule based on address, application, group, port, or service. 47. Must support authentication protocols like LDAP, RADIUS (vendor-specific attributes), and token-based methods. 48. Firewall appliance must include at least 100 GB local hard disk storage for logs and statistics. **Management:** 1. Solution must provide real-time monitoring, event logs collection, and policy enforcement over a GUI interface using HTTPS or an equivalent secure mechanism. Management of appliances must also be available using SSH and direct console access. 2. Must support real-time logging of all traffic and provide a correlated log view based on other logging activities. 3. Must support management access control using profile/role-based mechanisms for granular control. Local access to appliances must support role-based access. 4. Must support configurable options for email or SMS alerts (via SMS gateway) for event triggers. Provision must exist to send emails or SNMP traps to EMS in response to system failures or threshold violations of health attributes. 5. Must provide real-time health status of NGFW on a dashboard, including CPU and memory utilization, state table, total number of concurrent connections, connections per second counter, and real-time bandwidth utilization of individual IPs, applications, protocols, ports, interfaces, or zones. 6. Must support exporting reports into formats such as PDF, HTML, CSV, or XML. 7. Must support standard report templates and dashboards with the ability to schedule reports. 8. Must support sending scheduled reports via email and must support forwarding logs to multiple syslog servers in an open standard log format for redundancy. 9. Must support configuration backup and restore to/from a remote system via GUI or CLI using HTTPS, SSH, or an equivalent secure mechanism. 10. Must support firmware, OS, and software updates with version rollback functionality and multiple OS/firmware images for booting options. 11. Must support hardware sensor monitoring capabilities for reporting hardware health.	

	12. Must support scheduled updates configurable for specific days and times. **General:** 1. Should operate at AC ~50Hz, 220-240V. Supply shall include redundant Power Supplies. 2. Should have safety and standards certifications as below: ROHS, UL or Equivalent and FCC OR equivalent. 3. Supply shall include appropriate Rack Mounting kits and Brackets. 4. Supply should include necessary console and power cables. 8 nos. of 3 Meters 10G multimode LC Fiber patch Cables, 8 nos. of 3 mts. 1G MM Fiber cables and 8 nos. of 3 meters CAT6 patch cables.	

Note:

1. Training on supplied IT systems (GPU Servers, EDR, Firewall, Storage and Switches need to be provided to C-DAC Technical staff of at least 10 members. The training period shall be of min. 7 days.
2. For all the IT equipment (Servers, Switches, Appliances), supply shall include IEC type Power cables compatible to C13 & C19 Power sockets mentioned as part of iPDU's.

2. Performance Evaluation and Criterion

1. Following benchmark will be used for Acceptance and Performance Test. Bidder shall demonstrate below mentioned benchmarks as part of Acceptance Test.
2. Bidder shall provide compliance against MLPerf Inference and Training **v4.1** or **latest available version** at time of bid submission. H200-specific submissions from NVIDIA, Q56DD, HPE, etc. shall be referenced where applicable. Older benchmarks may not be acceptable for new-generation hardware.
3. This table 1 need to be submitted along with the bid. Published benchmarks / OEM Website results need to be submitted.
4. Table 2 parameters shall be Published on MLPerf Website.

Performance metrics for Inference (GPU) to be met

Area	Task	Model	QSL Size	Server latency constraint	Latest Version Available (MLPerf)
Vision	Image classification	Resnet50-v1.5	1024	15ms	N/N-1 Version
Vision	Object detection	Retinanet	64	100ms	
Vision	Medical image segmentation	3D UNET	16	N/A	
Language	LLM – Q&A	Llama 2 70B	24576	TTFT: 2s & TPOT: 200ms	
Language	LLM – Summarization	GPT-J 6B	13368	20 seconds	
Language	LLM – Text generation (Question Answering, Math and Code Generation)	Mixtral 8x7B	15000	TTFT: 2s & TPOT: 200ms	
Image	Image Generation	SDXL 1.0	5000	20 seconds	
Language	Language processing	BERT-large	10833	130ms	
Speech	Speech-to-text	RNNT	2513	1000ms	
Vision	Object detection (large)	SSD-ResNet34	64	100ms	
Vision	Object detection (small)	SSD-MobileNets-v1	256	10ms	

Performance Metrics for training (GPU)

Area	Benchmark	Reference Implementation Model	Latest Version Available (MLPerf)
Vision	Image classification	ResNet-50 v1.5	N/N-1 version
Vision	Image segmentation (medical)	3D U-Net	
Vision	Object detection (light weight)	RetinaNet	
Language	NLP	BERT-large	
Language	LLM	GPT3	
Language	LLM finetuning	Llama 2 70B	
Graph neural network	Graph neural network (GNN)*	R-GAT	
Vision	Object detection (heavy weight)	Mask R-CNN	
Language	Speech recognition	RNN-T	
Research	Reinforcement learning	Mini Go (based on Alpha Go paper)	
Vision	Object detection (light weight)	SSD	
Language	Translation (recurrent)	NMT	
Language	Translation (non-recurrent)	Transformer	

Bidder must submit line by line compliance to above technical specifications and Bill of quantity.

Part- B

1. Background

C-DAC, Pune, wished to set up an AI Cloud at Science and Technology Park, Savitribai Phule Pune University Campus, Ganeshkhind, Pune, Maharashtra 411007, which includes IT Solution, Smart Rack Solution and DC set up as described below.

2. Data Centre on Turn-key Basis

The Data Centre is required to be built on 'Turn-key' basis. The successful bidder should build the entire data centre infrastructure which includes civil works, interiors, environmental controls like humidity, temperature etc., security (including access/ monitoring equipment), electrical systems, uninterrupted power systems with battery banks, In Row coolers, Fire suppression, BMS etc. as specified. The responsibility towards required material/items/equipment's, work, man power etc. rests with the successful bidder. The overall requirements and available information/ data/documents are included in this Section. The bidders are advised to go through same and visit the site before working out the details in this perspective and submit the solution document complete in all respects.

3. General Requirements

i. It is strictly advised for the bidder to visit the site for a survey before submitting bids. The bidder must conduct a one-time site inspection to assess the existing conditions and ensure compliance with project requirements.
The Site inception/Visting date: 20th to 23rd May 2025 at Science and Technology Park, Savitribai Phule Pune University Campus, Ganeshkhind, Pune, Maharashtra 411007.

ii. The general requirements applicable to the data centres are given below. Other than these requirements, depending on the site conditions, the bidder may propose appropriate changes in other requirements. However, the responsibility towards successful installation and commissioning and smooth running of data centre rests with bidder only.

iii. The solution shall comprise of supply, installation, testing, commissioning, training, and handing over of all materials, equipment, hardware, software, appliances, and necessary labour to commission said system complete with all the required components strictly as per the latest IS, IEC, IEEE, ASHRAE, ASHRAE TC9.9 2017, NBC etc. codes references mentioned in the Applicable Standards.

iv. Also, the scope includes the supply, installation & commissioning of any material or equipment including civil works that are not specifically mentioned in the specifications and design details but are required for successful commissioning of the project.

v. The vendor shall provide detailed design, documentation, make, and model, efficiency including user, system and operation manuals along with the necessary diagrams, design drawings and details bifurcation of Bill of Quantity (BOQ) along

with details description. Design drawing should include but not limited to Single Line Diagram, Discrimination curves, Lighting drawing, P & ID (Process and Instrumentation Diagram), equipment sizing and selection along product selection calculations etc. with clear sectional drawings for server and utility room, interior, raised flooring, false ceiling, fire rated partitions, complete BMS system required for data centre etc.

vi. The vendor shall take the necessary clearance / approval of the drawings, design, quality of material, make and model of the quoted material etc. prior to the execution of the project

vii. The Data Centre should be complete in all respects.

viii. Electrical power and water during construction will be provided at one location. Client i.e. C-DAC, Pune shall not provide any accommodation for the contractor and his staff including labour.

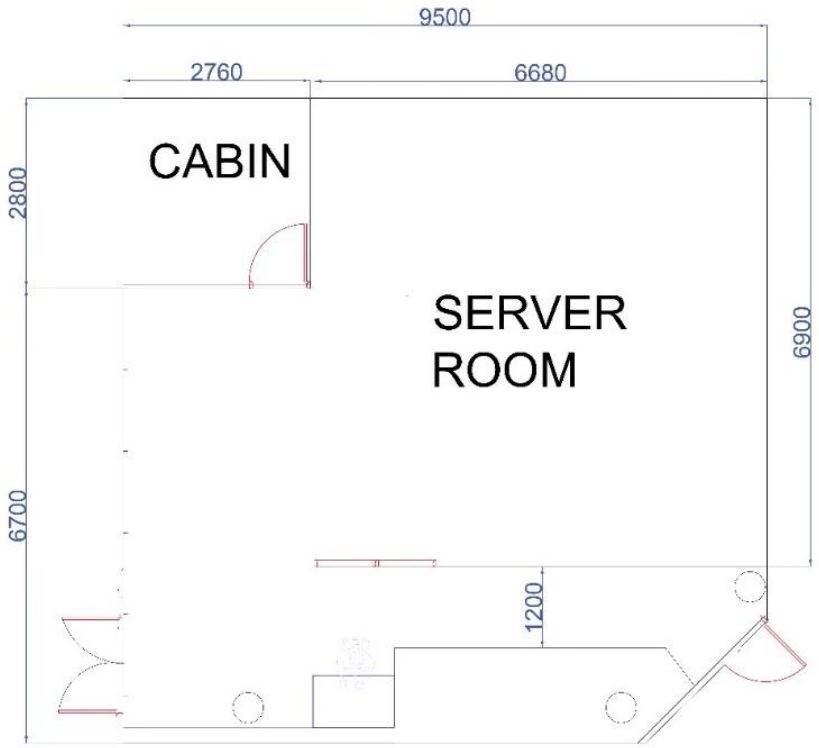
ix. The scope of installation, configuration, integration, and commissioning shall mean to install and configure all components and subsystems as well as providing all data to the existing Building Management System with the required components, integrating the entire facility and make the system operational as per scope of work.

x. Post-Tender Presentation (Mandatory in technical evaluation stage)
   a. C-DAC may demand Technical Presentation from the participated bidders as part of Technical Evaluation of Bids. Call for presentation does not qualify any bidder and bidders cannot claim their bid validity or eligibility towards this Tender/RFP.
   b. The presentation shall cover the detailed Technical Solution covering all aspects of IT and NON-IT Solution offered in this Tender/RFP to C-DAC.

1. **Existing Room Dimensions: -**

The Shown below is the tentative dimensions of existing room just for reference

Dismantling Existing Rooms:



FF-FC – 2200 mm
TF-FF – 450 mm
TF-TC – 2950 mm
(Room is having beam of 300mm it is through in the server room)
Data Centre is at ground floor.

2. **Design Inputs**

1. Tables given below are the details of exact load parameters. These values are given to the bidders to come out with appropriate configuration and sizing. The major sub systems of the DC infrastructure are:
2. The table below is for reference only. Modifications are permissible if the bidder proposes a more optimized solution, ensuring compliance with industry standards.

		SERVER	QTY	Power per server KW	Total KW as per rating	Rack Space-U	Total Space-U
RACK 1		CPU	4	1.6	6.4	2	8
		GPU	3	4.2	12.6	4	12
		CPU (SS)	2	0.80	1.6	1	2
		DGX H200	0	11.46	0	8	0
		Switches	0	0.5	0	1	0
		Storage 1 PiB	0	8	0	30	0
	TOTAL				**20.6**		**22**
RACK 2		CPU	2	1.6	3.2	2	4
		GPU	1	4.2	4.2	4	4
		DGX H200	0	11.46	0	8	0
		Switches	0	0.5	0	1	0
		Storage 1 PiB	1	15.0	15.0	20	20
	TOTAL				**22.4**		**28**
RACK 3		CPU	2	1.6	3.2	2	4
		GPU	2	4.2	8.4	4	8
		DGX H200	1	11.46	11.46	8	8
		Switches	4	0.5	2	1	4
		Storage 1 PiB	0	8	0	0	0
	TOTAL				**25.06**		**24**
RACK 4		CPU	2	1.6	3.2	2	4
		GPU	2	4.2	8.4	4	8
		DGX H200	1	11.46	11.46	8	8
		Switches	0	0.5	0	1	0
		Storage 1 PiB	0	8	0	30	0
	TOTAL				**23.06**		**20**

Major Subsystems/Equipment's of DC required: -

a) Smart Rack Solution (5 no's IT racks ,10 Numbers (5+5) of 63 AMPS IPDU for IT Load Distribution, 1 No. Utility Rack, 5 no's (4+ 1 R) Inrow Inverter Scroll Cooling Units of Minimum Rated Capacity of 35 KW, NOVEC 1230 Fire Suppression System, WLD, VESDA, Smoke/Heat DETECTORS, Rodent Repellent Systems, Access Control etc.)
b) Diesel Generator 250 KVA & AMF Panel
c) IT Modular UPS- minimum frame size of 200 KVA/KW (120KW (N) module sizing) With Li-ON Battery 15 Mins backup

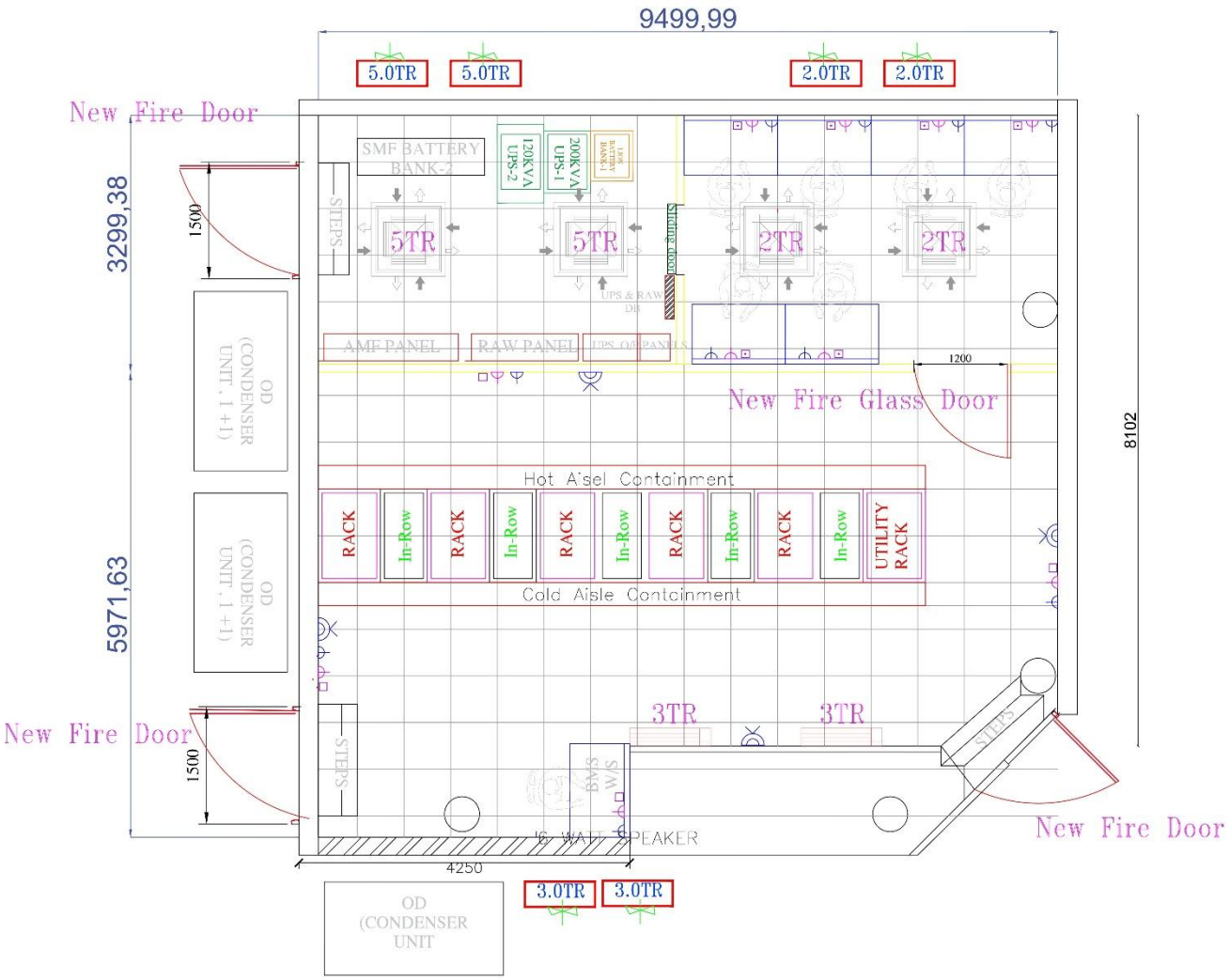
d) Non-IT Industrial UPS-120 KVA With SMF Battery 15 Mins backup
e) Raised Flooring and Metal False Ceiling, Partitions
f) Electrical Panels (RAW, UPS-IT, UPS-NON-IT) and cable
g) Electrical Points Distributions in rooms (6 AMP Raw Points + 6 AMP UPS Points +16 AMP Raw Points) + Data Point Distribution in rooms
h) Access Control, CCTV and I-BMS System
i) Illumination system (2x2 LED Lights-Raw & Emergency)
j) Mesh Earthing System
k) Civil & Interior Work

Note: -

a. The quantity and specifications of the components are minimum indicative requirements and bidders may propose higher capacity and specification solutions based on project requirements and operational needs. The final deployment will be subject to assessment and approval as per the actual needs of the datacentre.
b. The specifications and requirement of the entire solution is stipulated in the RFP with respect to the design and solution are only indicative inputs like layout, SLD, Drawings etc. Bidder may follow the indicative inputs provided in this RFP or come out with better design/solution which is optimal and cost effective without violating any of the specifications or basic requirements given.

REFERENCE DESIGN DRAWINGS

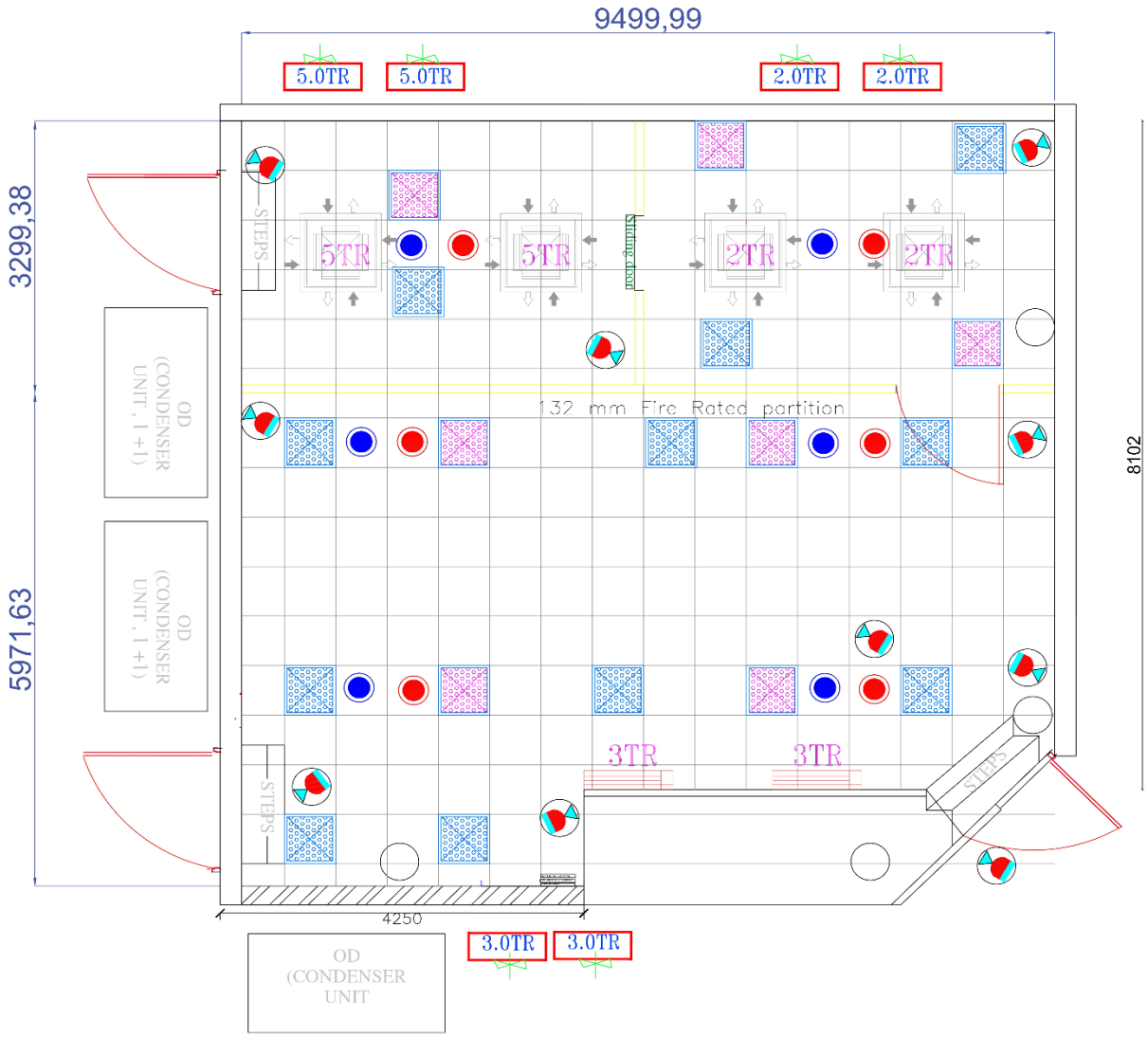
1. GENRAL ALIGNMENT DRAWING



NEW DG SET
250 KVA

Sr. No.	Syb.	Description	Sr. No.	Syb.	Description
1		Recessed type light fixture grid 2 X 2 light led (Raw)	6		A set of 2 no's of 6A socket with 6A switch (Raw)
2		Recessed type light fixture grid 2 X 2 light led (UPS)	7		A set of 2 no's of 6A socket with 6A switch (UPS)
3		IP CCTV Camera -2MP	8		1 no's of Data Outlet
4		Multisensor Detector (RV)	9		1 no's of 16A. 3PN Socket with 1 no's of 16A switch for UPS
5		6W Speaker			

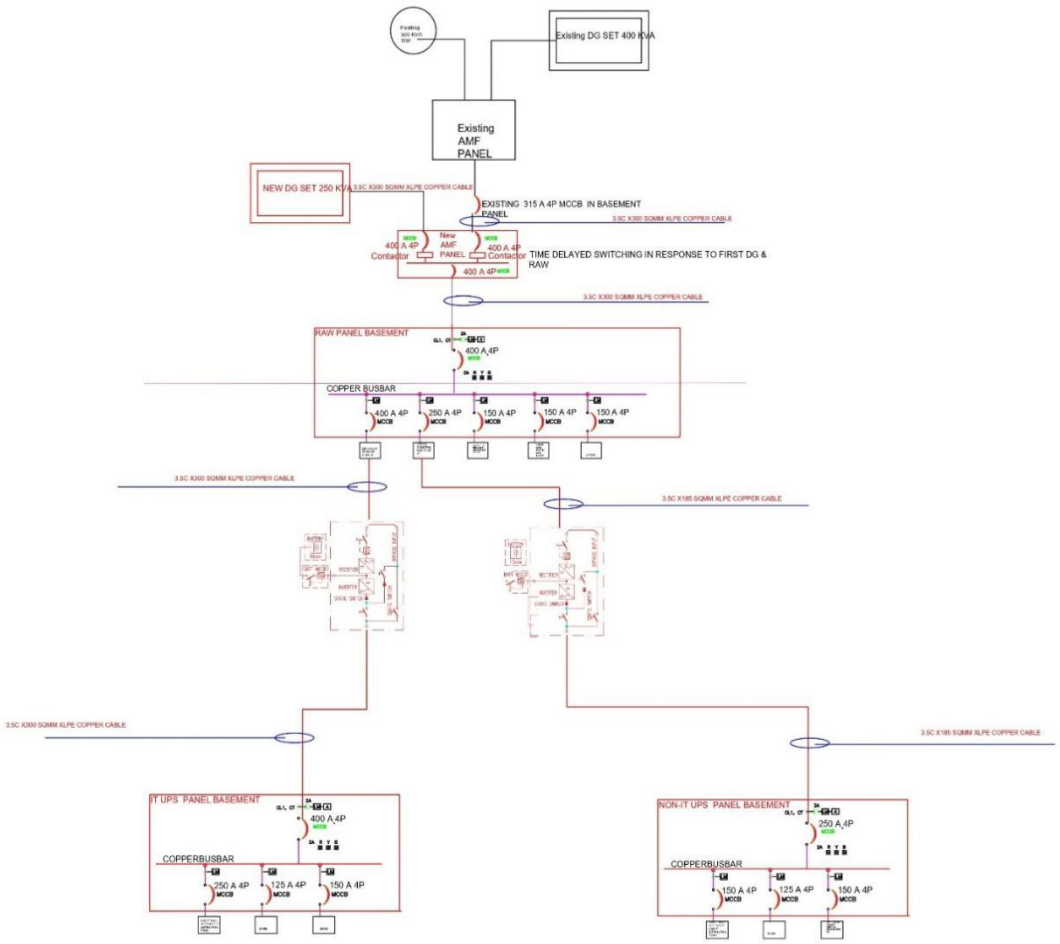
2. LIGHTING-CCTV-SPEAKER-SMOKE DETECTOR ETC DRAWING

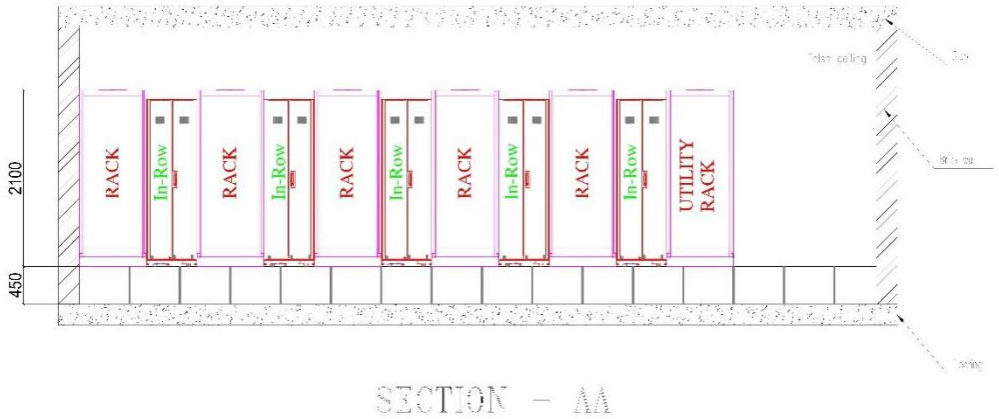


NEW DG SET
250 KVA

Sr. No.	Syb.	Description	Sr. No.	Syb.	Description
1		Recessed type light fixture grid 2 X 2 light led (Raw)	6		A set of 2 no's of 6A socket with 6A switch (Raw)
2		Recessed type light fixture grid 2 X 2 light led (UPS)	7		A set of 2 no's of 6A socket with 6A switch (UPS)
3		IP CCTV Camera -2MP	8		1 no's of Data Outlet
4		Multisensor Detector (RV)	9		1 no's of 16A. 3PN Socket with 1 no's of 16A switch for UPS
5		6W Speaker			

3. ELECTRCICAL SLD





SECTION – AA

Note:

The above architectural drawings are for reference only, if necessary, then minor changes can be done. Bidder can also propose the alternative solutions or improvements to the existing design and structure.

3. Technical Specification of Smart Rack Solution – 5 IT Racks

(A) Smart Rack Solutions

Sr. No.	Description of Requirements	Compliance (Y/N)
1	**Scope of Work**	
1.1	This specification covers inbuilt infrastructure, standalone system design, engineering, manufacture, assembly, testing at manufacturer's works, supply, delivery at site, unloading, handling, proper storage at site, erection, testing and commissioning at site of complete Smart Racks Infrastructure/Solution for the proposed Data Centre to be installed at CDAC Pune, as detailed in the specification, complete with all accessories required for efficient and trouble-free operations	
1.2	Modular and scalable design for power and cooling: The critical components like UPS Power Distribution (N+1 Path-2 Numbers of 63 A IPDU for each IT Racks) & In row Cooling Units (N+1) used to design the system should be with inbuilt redundancy and in the Events of failure the components can be maintained easily. All the components of the infrastructure should be such that it can be easily dismantled and relocated to different location.	
2	**Requirements**	
2.1	Smart Rack DC Infrastructure with inbuilt hot and cold aisle containment of minimum 300-400 mm width at back and front side of solution for better energy efficiency. Total 05 numbers of IT racks should combinedly cater OPERATIONAL IT load up to 120kW.	
2.2	Smart Rack DC Infrastructure essentially should include internal redundant or backup power supplies (UPS and Raw), Environmental controls (Precision air conditioning, fire suppression, smoke detection, Water leak detection and humidity sensors), and security devices. Both Critical systems like Modular IT UPS distribution path & In-Row Cooling system have N+1 redundant topology respectively. Environmental monitoring shall be done from IP based software.	
2.3	The detailed specifications of the intelligent integrated/inbuilt infrastructure, standalone system shall be in adherence to standard Data Centre guidelines thus	

	shall be composed of multiple active power and cooling distribution paths. Shall have redundant components.	
2.4	Major Component's for Smart Racks Data Centre Solution –(Five No's IT Racks, Utility Rack, IT UPS I/C DB, NON-IT UPS I/C DB , Back up RAW POWER supply for cooling units using ATS in case of failure of UPS supply, Inrow Cooling Units(Minimum 35 Kw Rated, 9500 CMH), 2 Nos. 63 A -3 PHASE Intelligent rack PDUs in each IT Rack, Water leak Detection System, NOVEC 1230 Fire Monitoring and Suppression System, Horns & Alarm Systems and Environment monitoring system along with temperature & humidity sensor, Centralised Monitoring Systems, biometric access control for each rack etc.). **Critical Component's** IT Racks, Utility Rack, IN-Row Cooling Units, I-PDUs & Centralised Monitoring Systems should be from same & single OEM for Seamless Integration & better Service Supports.	
2.5	The Smart Rack solution must be CE /UL OR EQUIVALENT INDIAN STANDARDS certified.	
2.6	The Smart Rack OEM should have its own manufacturing & testing facility in India for wide range of Rack, & Precision air conditioning units for high availability of the critical infrastructure AND better after sale support during the whole project duration	
3	**The Smart Rack DC Infrastructure shall have following components:**	
3.1	In-Row closed loop Air-Conditioning	
3.1.1	Solution should have In-row Variable capacity Inverter Scroll Compressor Inrow cooling units (N+1) to provide closed loop precision cooling system which should be able to cool the equipment's uniformly right from 1st U to 42nd U of Rack	
3.1.2	Each DX based Inrow Precision Air Cooling solution should deliver more than Minimum 30 kW net sensible capacity, Rated 35KW & 9500 CMH @ 42°C Ambient Temperature of Pune, supply air temperature @ 22±1°C and return air temperature of 35°C. It is mandatory to submit OEM software selection output of the proposed unit & CFD Analysis Report of the solution in both N and N+1 Running Condition considering 110 KW Heat Load. Precision Air Conditioner (Inrow) should have following Features:	

	a. Cooling System should be DX (Variable Capacity-Inverter Scroll Compressor) type in N+1 Topology. b. The unit incorporates a high efficiency DC brushless compressor with a crankcase heater, filter dryer, moisture indicating sight glass, and an electronic expansion valve. c. The compressor is equipped with an environment-friendly refrigerant (R410A), and a DC brushless type arrangement with variable capacity operation of 30% to 100%. d. The unit is equipped with EC fans. The fan speed is variable and can be automatically regulated by the highly intelligent controller through all modes of operation. The fans pull air through the coil and is located on the front side of the unit. The EC fan has the characteristics of high efficiency, energy saving, space saving and hot swappable. Each Unit should be capable of horizontal airflow pattern and is rated at minimum 9500 CMH. e. Each unit should have inbuilt heater, humidifier & EEV (Electronics Expansion Valve) f. Outdoor Unit with fan speed controller g. Micro Processor should have capacity to store up to 1000 historical event records. h. 7-inch HMI colour screen or LCD screen with simple user interface operation. The multi-level password protection feature can effectively prevent unauthorized operation. i. The unit is equipped with two G4 rated air filters following with EU4, located within the cabinet, and accessible from the rear side of the unit. A filter clog alarm is also available as an option to alert clogging of the filter.	
3.2	Power Distribution	
3.2.1	Vertical Mounted Intelligent Rack PDU i.e. PDU level monitoring with minimum no's of 24 outlet sockets of hybrid nature which can be utilized as either C13 or C19 outlet, 3 phase, 63A MCB. (Each rack having two PDU's). The IPDU should have following features: 1. Monitoring: Unit Monitoring (kWh, W, VA & etc), Phase (A, B, C) Monitoring (kWh, W, VA, V, A) 2. CE/UL Certified	
3.4	Main Electrical Panel and Cabling	

3.4.1	02 nos. DB panel shall be provided for redundancy with diversified path. First DB Panel should be mounted on to utility rack & other can be rack/wall mounted with all internal cabling integrated into the same. Essential MCB/MCCB should be provided with electrical system. DB panel mounted on Utility rack shall be covered with NOVEC 1230/FK-5-1-12 Gas based fire suppression system along with IT Racks.	
3.5	Fire Detection and Suppression	
3.5.1	Fire detection and suppression system: Fire detection and suppression system should be mounted in panel/Utility rack adjacent to Smart IT Racks to avoid consumption of any usable U space an In-rack built-in feature of solution. It should have Fire alarm and fire suppression unit and the fire suppression agent should be NOVEC 1230/ FK-5-1-12 Gas as per NFPA 2001 guidelines	
3.6	Environmental Controls	
3.6.1	Each set of intelligent rack should include basic environmental controls: 1. Smoke Detector 2. Water Leak Detection system 3. Temperature and Humidity Sensors for measuring Temperature at 3 levels i.e. Top, Middle and Bottom, at both front & rear of the rack, while the Middle Temperature should have Humidity measurement sensor. 4. Door Sensor 5. Alarm beacon	
3.7	IT Rack & U Space	
3.7.1	05 no IT racks with integrated hot & cold aisle containment. Smart rack solution should have followed configuration: 1. 05 no. 42 U, 800 mm x 1200 mm with integrated hot & cold aisle containment of minimum 300-400 mm each. 2. Smart racks should have minimum 208 U space available for IT equipment's and network equipment.	
3.8	Monitoring	
3.8.1	Detailed Monitoring & Diagnostics thru rack mountable monitoring unit, with redundant power supplies & capable of single window monitoring of all the environmental parameters along with UPS & air conditioning through a	

	single window dashboard over ethernet & Capable for sending Email Alerts	
3.8.4	Capable for Email Alerts	
3.8.5	Monitoring unit should support dual power input.	
3.9	Other features:	
3.9.1	The Intelligent integrated infrastructure would provide much functionality and some of the key functionalities are both cold aisle & hot aisle containment, of minimum 300-400 mm each for airflow, Airtight Thermally insulated cabinet, remote Management.	
3.9.2	Rack based Biometric access control points provided should be controlled by common access control panel with control for both front as well as rear doors. IP based Access control with user exclusive authentication	
3.9.3	Critical Component's for Smart Racks Data Centre Solution (Rack, Cooling, intelligent rack PDU and central monitoring system) should be from same & single OEM for Seamless Integration & better Service Supports.	
3.9.4	Electrical Distribution board within Utility Cabinet to have fire detection & NOVEC 1230/ FK-5-1-12 Based Fire Suppression system	
3.9.5	Status based LED Lights within Smart Racks	
3.9.6	HMI Panel – Graphical User Interface display should be mounted on the smart rack solution for local monitoring.	
3.10	Fire Safety & Security	
a.	**Fire Alarm and Fire Suppression System** The integrated infrastructure solution should be designed as a complete stand-alone unit with security, fire detection and fire suppression systems. Each of the systems is inter-operable and interconnected. Environmentally friendly NOVEC 1230/FK-5-1-12 agent is used to ensure that no harm to human beings and environment is caused. **Following systems should be installed:** 1. NOVEC 1230/FK-5-1-12 Clean Agent for fire suppression system 2. Fire detection and alarm systems, with detectors and panel 3. Protected area: The entire enclosed volume of the Intelligent Rack containment including electrical panel mounted in utility cabinet should be protected with fire detection and fire suppression system.	

	4. The NOVEC 1230/FK-5-1-12 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.	
b.	**Biometric Based Access Control** The IP based Access Control System shall be used to serve the objective of allowing access to authorized personnel only. The system deployed will be based on Biometric Technology. The front rack doors will be provided with magnetic locks and will operate on fail-safe principle through one common Biometric access control system. **The system would be designed and implemented to provide following functionality:** 1. Configurable system for user defined access. 2. Built-in Real Time Clock (RTC), calendar; complete Database stored locally and shall be capable of operating offline on standalone mode. 3. Record, report, and archive each activity (permission granted and / or rejected) with log formats 4. Fail safe operation in case of no-power condition and abnormal condition such as fire, theft, intrusion, loss of access control, etc. 5. 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.	
3.11	Monitoring	
	Supply and installation 1U rack mountable monitoring system with Sensors & notification system for the Smart Rack Solution. The system shall continuously collect critical information from network connected devices such as Cooling Units, temperature & humidity sensors, Door sensors, Water Leak sensor and other dry contact monitoring. The solution should have Beacon, Buzzer-Sound and Flash Led Alarm. Based on pre-set parameters, automated email alerts should be sent to the intended recipients.	
	Protection level-IP20	
	Certification- The monitoring unit gateway should meet CE claims, UL Certified, FCC Certified	

3.12	Smart server rack IT Racks: Each Smart server rack load bearing 1200kgs, 42U, 800x1200, UL/CE certified Front Door: Glass Door, Rear Door: Steel Door (Split), Basic Frame: Steel Standard Finish: Powder Coated	
3.13	Warranty	
	Warranty for the complete system shall be 5 years from the date completion of installation & commissioning.	
3.14	Maintenance and Support	
	After Sale Service 1. Service shall be guaranteed by supplier during defect liability period/Warranty Period. 2. Bidders shall have back-to-back agreement with the product OEM to offer 24 x 7 services through their authorized service engineer for warranty period. 3. Product OEM shall provide warranty from the date of taking over of the equipment after the acceptance tests. 4. Basic training and operational training to be provided after the successful installation of DC Quarterly PM to be carried out during the warranty period	
3.15	70% blanking panel need to be considered for all racks	
3.16	Power Cable entry will be from Top; Bidder need to consider boxing arrangement or cable manager or cable trunking system	

4. Uninterrupted Power Supply (UPS) System: -

1.	**<u>IT Load UPS</u>**	
a.	SITC of True Online double conversion IGBT Based Modular UPS of minimum 120kVA/kW(N) Modular UPS scalable to Minimum 200kVA/kW (Frame).	
b.	The UPS Frame shall be of modular architecture with power modules rating of 20KW or higher having (N+1) redundant. Each power module in each UPS shall have its own intelligent control logic to avoid single point of failure (i.e., peer to peer control). There shall not be any common controller that controls all power modules in connected in parallel. That means instead of having main Or Redundant controller, system shall be having independent controller for each Power module.	
c.	The UPS shall be rated for kVA = kW at 40 ℃ Continuous	
d.	It shall be possible to insert & remove (Plug In-Plug Out) sub power module from the UPS frame while the UPS is in Online	

	Double Conversion Mode of operation i.e., Sub Power modules shall be swappable without putting the UPS in bypass/battery operation.		
e.	Failure of any sub power module in individual UPS Frame shall not lead to entire Frame Capacity Down but only the failed sub power module capacity shall go down. i.e., In case of Failure of any one Sub Power module, rest of the available power module in the frame shall continue to operate in normal double conversion mode of operation with reduced capacity. This shall also be applicable to all UPS's operating in parallel configuration.		
f.	It shall be possible to interchange the sub power modules among each other in the frame or from any of the other similar Frame without the need of shutdown or programming required by the OEM / Service Team.		
	UPS other technical specification		
A.	**General Characteristics**		
i.	Continuous duty three phase double conversion uninterruptible power system (UPS); The UPS shall utilize a standard rack mountable power module & scalable array architecture		
ii.	Hot swappable power module should have its own controller and contains a full rated rectifier, full rated inverter, and battery charging circuit.		
iii.	UPS comprises a user replaceable centralized continuous duty hot swappable bypass static switch module.		
iv.	All the conformal coated PCBs shall be used in the modules		
v.	External battery circuit breaker with necessary shunt tripping shall be provided for external battery banks.		
B.	**System Characteristics**		
	Dimensions, W × D × H (in mm)	Bidder to specify	
	Weight (in kg)	Bidder to specify	
	Noise within 1m	Not more than 70db	
	Operating temperature	0 ~ 50. 0~40, at full load; 40~45, 90% load; 45~50, 80% load	
	Relative humidity	0 to 95%, non-condensing	
	Efficiency @ Double conversion mode at 400VAC	Up to 95% at 100% Load	
	Protection degree, IEC (60529)	IP20	
C.	**Input Characteristics**		
	Rated AC input voltage	380/400/415 V (3-phase 4-wire (+PE) TN/TT/IT power distribution system)	

	Input voltage tolerance	305-478 at full load; 228 – 305 at line derated load conditions without battery discharge	
	Frequency	50Hz (tolerance: 40~70)	
	Power factor	0.99 (30-100% Load)	
	Harmonic current distortion (THDI%)	<=3 with linear load at full load operation	
D.	**Intermediate DC Circuit**		
	Battery bus voltage	Specify	
	Total Battery Capacity (as per backup time) AH	Specify	
	Charging Mode	Constant current and constant voltage	
	Temp. compensation (mV/°C/cl)	-3.0 (selectable from 0 to -5.0 around 25°C or 30°C, or inhibit)	
	Ripple voltage (% V float)	≤1	
	Ripple current (%)	≤5	
E	**UPS Output characteristics**		
	Rated AC voltage	380/400/415 (three-phase four-wire, with neutral reference to the bypass neutral)	
	Frequency	50/60 Hz	
	Overload (%)	105% for long term 125% for 10 min 150% for 60 sec >150% for 200 ms	
	Non-linear load capability %	100%	
	Steady state voltage stability (%)	±1 (balanced load), ±3 (100% unbalanced load)	
	Transient voltage response	±5 %	
	Total harmonic voltage (%)	<2 (100%linear load), <4 (100%non-linear load)	
	Synchronization window (Hz)	Upper limit: 0.5 Hz, 1 Hz, 2 Hz, 3 Hz, +10%; Default: +10%. Lower limit: -0.5 Hz, -1 Hz, -2 Hz, -3 Hz, -10%; Default: -10%	
	Slew rate (max change rate of synchronization frequency) Hz/s	0.6; setting range: 0.1 ~ 3	
	Transfer time (ms)	Frequency converter mode: transfer without interruption	

		0ms; transfer with interruption < =5-20 ms; ECO mode: 4 ms; Dynamic online mode: 0 ms.	
F	**Bypass Input Characteristics**		
	Rated AC voltage	380/400/415, three-phase four-wire, sharing neutral with the rectifier input and providing neutral reference to the output	
	Overload	110% for continuous 125% for 10 min 150% for 60 sec 400% for 200 ms; >400% for 100 ms	
	Frequency	50/60 Hz	
	Bypass voltage tolerance (%Vac)	Upper limit: +10, +15 or +20, default: +15 Lower limit: -10, -20, -30 or –40, default: -20	
	Bypass frequency tolerance	±10 or ±20, default: ±10	
G	**Conformity and Standards**		
	General and safety requirements for UPS used in operator access areas	IEC 62040-1	
	Electromagnetic compatibility (EMC) requirements for UPS	IEC 62040-2 (Class C3)	
	Method of specifying the performance and test requirements of UPS	IEC 62040-3 (VFI SS 111)	
	Environmental aspects - requirements and reporting	IEC 62040-4	
H	**Battery Backup**	Minimum 15 min battery back @ 120kW IT load via Li-ion Batteries	
	Battery Bank	Via Li-ion Battery **(5 YEARS WARRANTY+10 YEAR LIFE)**	
I	**Installation, Testing & Commissioning**		
	1. The entire system shall be installed as per manufacturer's recommendations & instructions including all interconnections for supply & control circuits. 2. Under supervision of manufacturer's representative all system functions, operations, protective features shall be checked & pre-set to ensure compliance or specifications.		

K	**Warranty**	
	Warranty for the complete system shall be 5 years from the date completion of installation & commissioning.	
L	**Maintenance and Support**	
	After Sale Service 1. Service shall be guaranteed by supplier during defect liability period/Warranty Period. 2. Bidders shall have back-to-back agreement with the product OEM to offer 24 x 7 services through their authorized service engineer for warranty period. 3. Product OEM shall provide warranty from the date of taking over of the equipment after the acceptance tests. 4. Basic training and operational training to be provided after the successful installation of DC 5. Quarterly PM to be carried out during the warranty period	

5. Uninterrupted Power Supply (UPS) System: -

1.	**General Description: (for Non- IT Load)**	
a.	SITC of True Online double conversion IGBT Based Double Conversion UPS of 120 kVA Industrial Grade UPS for Cooling Equipment applications with 15-minute VRLA SMF Battery backup, Battery DC Breakers, cabling and MS FRAME etc. Input & Output wiring: - 3 ph + neutral Efficiency in double conversion mode (full load) :94% Inverter/rectifier topology: - IGBT with PWM Audible Noise: - ≤65 dB at 1 m, 75% load Input Power Factor 0.99 Output Power Factor 0.9(Minimum) Input ITHD < 5% Output UTHD < 2% at 100% load **Compliance: -** Safety- (CB certified) IEC 62040-1 EMC- IEC 62040-2, EMC Category C3 Performance- IEC 62040-3	

6. Additional Scope of Interior/Civil, Electrical, AC, CCTV, Fire Monitoring & Prevention work for DC ROOM, UPS ROOM, STAFF ROOM: -

The design of the Datacentre (DC) provided in this document is intended to serve as a reference architecture.

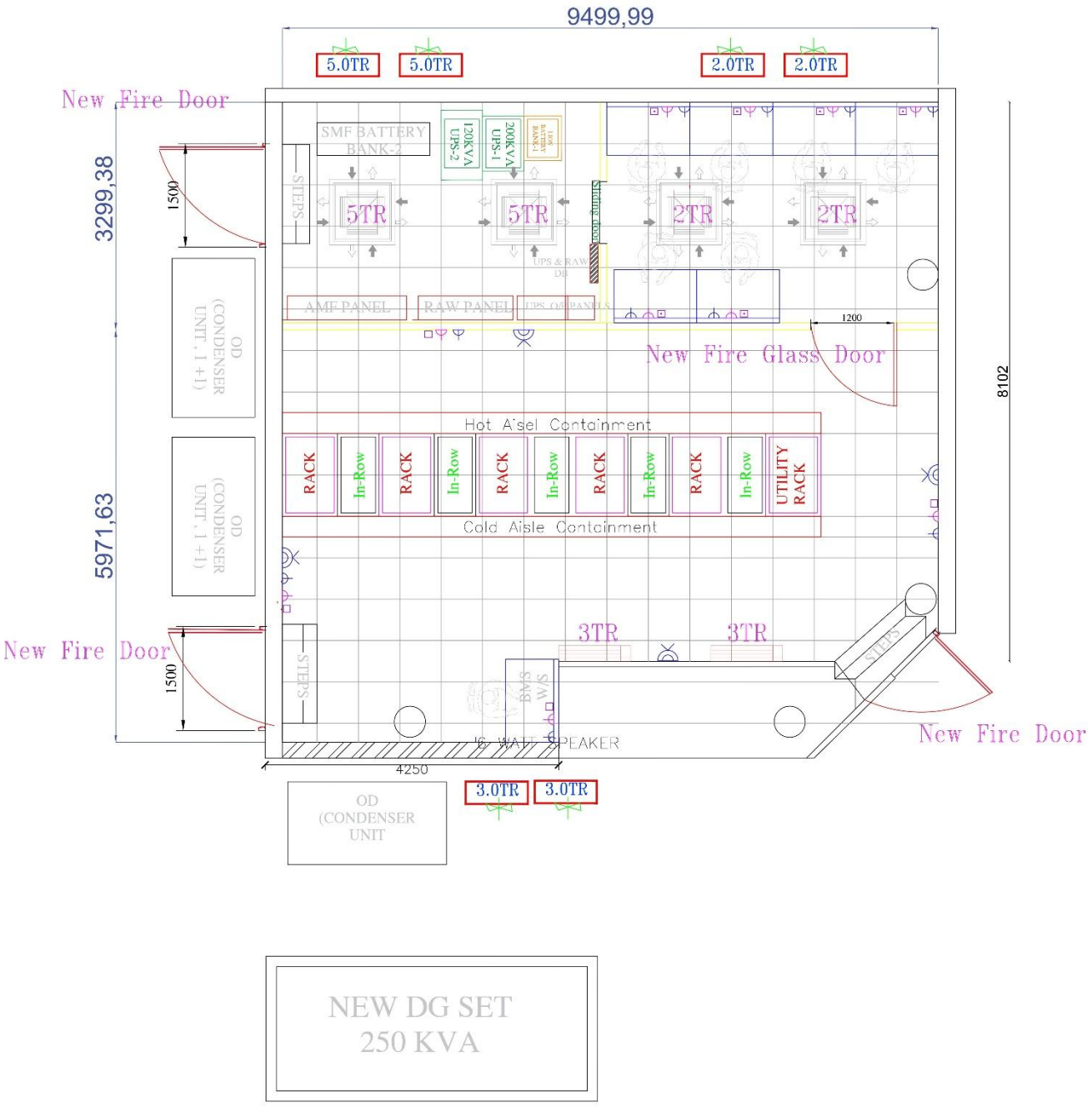


Fig: Reference Architecture of DC

Bidders are encouraged to submit alternative or improved designs that meet or exceed the specified requirements in terms of performance, efficiency, scalability, and compliance.

The vendor so finalized would be required to make the necessary shop drawings, provide layouts and GA drawings, Technical Data sheets etc to arrive at a final scheme in line with the requirements and in accordance with the requirements of Indian standards, IEC, IS, IEEE, NBC etc. The testing and commissioning methodology with detailed set up shall be part of the technical submittal for approval. The above shall be subject to approval by C-

DAC, whose decision will be final and project will have to be executed as per that. However, no change whatsoever in the price schedules would be allowed after the award of the work and the price shall remain firm throughout the project and the entire works is to be executed within the quoted price schedules.

The shop drawings and technical data during execution should include the following, but is not limited to,

a) Floor plan with equipment layout and detailed drawings, showing necessary sections etc.
b) Layout of raised floor and false ceiling layout with data sheet of each item.
c) Fire detection and suppression system capacity calculations, plan/ layout with technical data sheet of each item along with Installation and O&M manuals of all important components.
d) Access Control System layout with technical data sheet of each item, Installation and O&M manuals of all important components.
e) Surveillance camera placement plan and wiring, Installation and O&M manuals of all important components.
f) Environment monitoring system placement plan with technical data sheet of each item, Installation and O&M manuals of all important components

Sr. No.	Item Description	Quantity / Units
A	**Interior/Civil Works (Warranty – 5 Years)**	
1	**General (Refer Drawings)**	LS
	1. Demolition of Existing infrastructure/Interior in ENTIRE DC AREA it includes False floor, false ceiling, cabin, PAC, Piping etc 2. Waterproofing on Existing internal wall and ceiling of server room 3. Metal False ceiling (600mm x 600mm) in all the area server room + ups room + staff room 4. Raised flooring (600mm x 600mm) is required in in all the area server room + ups room+ staff room 5. Scrapping the old plastered internal surface with sand paper and coating the entire surface with mixture of whiting or glue and linseed oil including scaffolding etc. complete as directed. a. All windows shall be dismantled and sealed using AAC blocks from the outside, followed by 15 mm plastering on both sides. b. Internal walls of the server room shall be finished with full-height ceramic/glazed tiles, ensuring a waterproof and durable surface. 6. Internal wall of server room IN BETWEEN raised floor and Metal False Ceiling need to cover with PVC Tiles/Panels a. Steps need to be created at entry door, emergency fire door of server room & emergency fire door of UPS room. MS channel	

	gate needs to supplied accordingly with required civil works, also new door will be required of wooden material b. Curtain Cover Vitrified tiles will be required outside the server room area.	
2	**Raised flooring (Server Room + UPS Room+ Staff Room)**	LS
	Providing and fixing of Raised flooring using 600mm x 600mm flooring tile: 1. Suitable raised false flooring as per prevailing standards should be provided as per site requirements. The entire Access floor system shall be made from high density Calcium sulphate / cementinous board and provide Class O as per BS 476 PART 6 for Fire propagation index and Class 1 as per BS 476 Part 7. 2. Fire Ratings tested as per CIRC 91/61 or BS 476 Part 6 & 7 fire resistance up to 60 min as per NFPA. System should have antistatic property and air leakage resistance. The system shall be able to withstand a minimum UDL of 2450 kg. Per sqmt. and a point load of minimum 560 kg. 3. The panel shall be coated with epoxy coating on the exposed surface. Have an infill of light weight cementitious material. Insulated against heat and noise transfer. Panels shall be finished with High Performance Anti-Static Laminate. The bottom of the panel shall be of 0.05 mm Aluminium foil to create a fire and humidity barrier and this should provide floor's electrical continuity. Panels will remain flat through and stable unaffected by humidity or fluctuation in temperature throughout its normal working life. 4. The Panels will be UL listed/ FM/DM approved. Panels will provide for impact resistance top surfaces minimal deflection, corrosion resistance properties and shall not be combustible or aid surface spread of flame. Panels will be insulated against heat and noise transfer. Panels will be 600 x 600mm x 30 mm height fully interchangeable with each other within the range of a specified layout. Panels shall rest on the grid formed by the stringers which are bolted on to the pedestals. 5. Panels shall be finished with anti-static 0.9 mm Laminate and 0.45 mm thick plastic edge material that is self-extinguishing and will be PVC free. Panel should withstand a Concentrated Load of minimum 560 kg applied on area 25mm x 25mm in the centre of the panel which is placed on four steel blocks without deflecting more than 2.5mm and without setting permanently more than 0.20mm. 6. Pedestal installed to support the panel will be suitable to achieve a finished floor height of 600mm. Pedestal design will confirm speedy assembly and removal for relocation and maintenance. Pedestal base to be permanently secured to position on the sub-floor.	

	Pedestal assembly will provide for easy adjustment of levelling and accurately align panels to ensure lateral restrain. Pedestal head will be designed to avoid any rattle or squeaks. 7. Pedestal should have GI Base plate of suitable dimensions, GI Pipe, check nut for level adjustment, threaded stud with GI pedestal head, all screws etc. Pedestal design shall confirm speedy assembly and removal for relocation and maintenance. 8. Pedestal base is required to be permanently secured to position on the sub floor. Pedestal assembly shall provide for easy adjustment of levelling and accurately align panels to ensure lateral restrain. Designed to stabilize lateral stability and to support the panels on all sides for alignment. 9. Under structure (US) system consists of stringers of size 525 x 30x 25 x 0.8 mm thick to form a grid of 600 x 600mm. These stringers are locked into the pedestal head and run both ways. The US system will provide adequate solid, rigid and quiet support for access floor panels. The US system will provide a minimum clear, uninterrupted height of 600 mm between the bottom of the floor and bottom of the access floor for electrical conducting and wiring. 10. The stringer shall be hot dipped galvanized steel cold roll construction specially designed to stabilize lateral stability and to support the panels on all sides for alignment. The channels shall have counter sunk holes at both ends to accommodate bolting of the same to the pedestal head assembly. 11. Earthing point connections are to be part of standard design. Stringer system is composed of a special frame, made of pressed galvanized steel plate and with a section 25mm wide, 30 mm high and 0.8 mm thick. The longitudinal ribs and flaps in the lower part should be designed to increase flexion resistance. The grid formed by the pedestal and stringer assembly will receive the floor panel. Vendor to consider providing 2 nos. 2-point panel remover, lead, lift, steps for 600mm raised floor etc.	
3	**Toughen Glass Door (Staff room Entry Door)**	**01 no's**
	Providing and fixing of one hour fire rated 12mm thick glass door along with door closer, lock and other accessories etc. completed	
	Frameless Fire Rated Glass integrity and insulation (EI30-EI120) using specially designed fire rated glass units. in single pane format glazing with low e coatings if required. The thickness of the fire rated glass panel will 60/60 fire rated glass partitions can be 25-41mm thick with a slim silicone joint of 3-10mm thick etc. completed	
4	**Door – Fire rated metal powder coated Doors**	**02 no's**
	Supply & Installations of FIRED RATED DOUBLE DOOR WITH VISION GLASS ON EACH LEAF :1500X2400 MM double leaf 2 hour fire rated	

	Entrance door frame and leaves shall be made from galvanized steel 46mm thick fully flush, door shell in specially designed honeycomb structure for reinforcements & 2 hour fire rated vision glass of size 300 mm X 300 mm. Door will be primed with zinc-phosphate stoving primer and finished with epoxy paint as required, complete with all accessories like door closer, handle, lock etc. All door shall be provisioned with GI frame required.(Fire Door Tested in accordance to IS: 3614 Part 2. Providing of 120 min Fire rated doors system duly tested for 3 criteria - Integrity, Insulation and Stability Criteria as per the IS: 3614 Part 2 and BS: 476 part 22 at National Test House, Govt of India laborator and/or with Central Building Research Institute, Govt of India undertaking with standard heating conditions as specified in IS:3614 Part II 1992 and BS: 476 part 20 & 22 1987 to achieve the required integrity, insulation and stability (i.e. to restrict the heat radiation, temperature rise on the non-fire side to the maximum of 140° C above the ambient temperature on the exposed surface of the shutter. The fire doors are tested with NCBN technology ("Non-Combustible by Nature").)(Vision Panel:2 HR rated E Class clear high stress fire rated glass is pre-fabricated strategically inside the shutter structure with 10 mm inside the shutter on all sides with U- glazing. An additional insulated powder coated 'Z' channel of 16 swg MS sheet to be fixed for reinforcement of the joints). (Refer Drawings)	
5	**Providing and fixing of STEPS at entrance and exit points (Telephone Black Granite Finish) (Refer Drawing)**	**03 no's**
6	Fire rated Partition/ Walls: **Partition walls within the data centre should have 2-hour fire rated. Suitable smoke seals should be used with double leaf doors. Fire line boards should conform to IS:2095 – 1996-Part-I. Providing and fixing minimum 132MM thick FIRE RATED gypsum board partitions with 2 Nos. x 15mm thick fire line board on both sides of 72mm GI floor channel and 70mm Square MS Pipe stud as per specifications, including cost of chasing for electrical conduits, This Item includes all tools, tackles, material, labour, fixture adhesives sealants etc. for the complete work.**	LS
7	**CDAC BRANDING: - Providing and fixing Printed Vinyl sheet wall paper on existing wall with associated items complete in all respect (Frontwall-200 sqft approx. or any as per our requirement)**	LS
8	**Supply & installation of 1200x600 size table** Table of Three layer prelaminated particle board (Wood Product) of IS 12823/Latest 1. Table top Material-Three layer prelaminated particle board (Wood Product) of grade II type II of IS 12823/Latest 2. Leg Material-NO LEGS 3. Thickness of table top ±2 mm25 millimeter	08 no's

	4. Length of table top ±10 mm1200 millimetre 5. Depth of table ±10 mm600 millimetre 6. Height of table ±10 mm750 millimetre 7. Warrantee period in number of years1 8. OEM shall be ISO 9001:2015, ISO 14001:2015, ISO 18001:2007 certified 9. Frame type- Free standing 10. Under structure of table- Gable end and modesty panel	
9	Providing and fixing Motion Mid back-office chair with suitable caster wheels, Contact-Tilt Mechanism, Seat Height Adjustable, Adjustable arm rest, Mesh back fabric, lumbar back support. Finish colour –Black. PU foam cushion seat. Note -The chair should be from the same OEM of workstation	08 no's
10	Supply and installation of Pedestal Unit of 646x390x440 mm. **Construction & Material:** 1. Welded Assembled 2. 0.8 thk CRCA for Body Shell, Drawer Front & tray, Front Side Stiffener, Rear Side Stiffener & Bottom 3. 1.2 thk CRCA Top Stiffener & Bottom stiffener **Drawer Fronts:** 1. Metal Front Straight Edge 2. 18 thk Wooden (PLB) Front Straight Edge / PVC Lipping on all Edges **Drawer Specification:** 1. All Drawers with Double extension precision ball slide 2. 390 wide Pedestals File drawer - suitable for storing Fullscape files in Depth wise manner. A4 files in width wise manner 3. 450 wide Pedestals File drawer - suitable for storing Fullscape files in Width & Depth wise manner. A4 files in depth wise manner 4. In 585 deep units, 1 no of File hanger provided in File Drawer 5. For Drawer pulling, side wise tapered recess provided in shell behind Drawer Fronts.Locking- 10 lever Cam Lock & Central RH locking with actuator & lock channel mechanism for 'Box-Box-File' & '4 Box' Pedestals, Swiveling non-lockable Castors mounted below the body shell.	08 no's
11	Providing & fixing Gain storage unit -2100 H x 500W x 500D with metal door. The gain storage unit should be power coated; colour of powder coating should be as approved by client.	LS
12	**METAL GRID CEILING:** The drop ceiling shall be provided with Armstrong Lay in (Hot dipped galvanized steel) metal ceiling system 600 x 600 x 5 mm with standard 2.5 mm Dia (16% open space) and fleece with NRC of 70 & CAC 36 to be laid on Armstrong grid system. The modular ceiling sheets with necessary fittings should be done up	LS

	aesthetically to integrate with the lighting. **(Server room + UPS Room + Staff room)**	
13	Room Signage and fire evacuation map. Providing & fixing Aluminium Modular Signage using Aluminium Alloy 6063 extrusion with Anodising (The thickness of the anodization is typically 30 microns. The integrity of the anodize coating is tested to meet the international specifications ISO 2143-1981.) With lifetime Warranty in normal working condition.	LS
B	**Electrical Work & Allied**	
B.1	**Electrical Work**	
1	Supply and installation of 6-way, VTPN, Metal type, Double Door (As approved by client / consultant), Raw /UPS OUTGOING SUB -DB, surface / flush mounted on wall, interconnected wiring complete with earthing lugs, including DB wiring dressing with ferruling, termination of circuits with ping type copper lugs, blank plates, etc. housing following switchgears: (Schneider / Hager / Siemens / Legrand make as approved by client / consultant) **1 no., 150 A, FP MCB, "C" curve type as incomer+ 6nos, 63 A, TP, MCB, "C" curve type as outgoings** **Full Set as above**	02 no's
2	Supply and installation of 8-way,SPN, Metal type, Double Door (As approved by client / consultant) UPS /Raw Power Distribution Board, surface / flush mounted on wall, interconnected wiring complete with earthing lugs, including DB wiring dressing with ferruling, termination of circuits with ping type copper lugs, blank plates, etc. housing following switchgears : (Schneider / Hager / Siemens / Legrand make as approved by client / consultant),I/C-32 A DP MCB,6 Numbers 10/16 AMP SP MCB as Outgoings.	02 no's
3	Supply & Installation of UPS Modular point wiring for UPS or stabilized power plug points on workstations / table for computers using 3C X 2.5 Sqm copper conductor PVC sheathed white colour flexible cable pulled through already laid Surface PVC Box raceway and table/workstation partition raceways and taken upto table top using PVC rigid or flexible conduits run within wooden/metal partitions. Each point consisting of 2 nos. of 5/6A, 3 pin Modular sockets & 2 No., 5/6A Modular Controlling Switch, wired together forming one point. The earth wire of 3 core flexible cable to be of yellow-green colour only. (Maximum 4 nos. POINTS served by one circuit from DB).	LS
4	Supply & Installation of RAW Modular point wiring for RAW power plug points on workstations / table for computers using 3C X 2.5 Sqm copper conductor PVC sheathed white colour flexible cable pulled through already laid Surface PVC Box raceway and table/workstation partition raceways and taken upto table top using PVC rigid or flexible conduits	LS

	run within wooden/metal partitions. Each point consisting of 2 no's of 5/6A, 3 pin Modular sockets & 2 No., 5/6A Modular Controlling Switch, wired together forming one point. The earth wire of 3 core flexible cable to be of yellow-green colour only. (Maximum 4 nos. POINTS served by one circuit from DB).	
5	Supply & Installation of 16 A RAW Modular point wiring for RAW power plug points using 3C X 2.5 Sqm copper conductor PVC sheathed white colour flexible cable pulled through already laid Surface PVC Box raceway and table/workstation partition raceways and taken upto table top using PVC rigid or flexible conduits run within wooden/metal partitions. Each point consisting of 1 no. of 16A, 5/6 pin Modular sockets & 1 No., 16A Modular Controlling Switch, wired together forming one point. The earth wire of 3 core flexible cable to be of yellow-green colour only. (Maximum 2no.s POINTS served by one circuit from DB).	LS
B.2	**LIGHTING WORK**	
1	Supply & Installation of concealed / reassessed / surface light point wiring using 600V FRLS grade 3R (P+N+E) x 1.5 Sq.mm copper conductor PVC insulated wires (with proper R,Y,B colour code) pulled through heavy gauge PVC conduits laid concealed over false ceiling or in wall chases or on the ceiling in case of an open ceiling including 3R (P+N+E) x 2.5 Sq.mm circuit wires from the relevant DB and also including 2.5 sqm green colour copper earth wire and approved make modular type switch plate, switches, MS concealed back box, etc. as required & as approved by the consultant. (Each circuit shall not feed more than 8 points OR 800 watts as per following configuration.) (The item shall include Lighting / Raw / UPS Power Circuit wiring from relevant DB to the switch board with 3Rx2.5 Sq.mm FRLS wires & from switch board to next switch board OR to the first light point / primary point / full point) (Maximum 3 Light Points to be looped from one primary point)	LS
2	Supply & Installation of (26-32W) (2' X 2') full lit panel type LED Light fixture., RI >80, The fitting shall be suitable for grid / plain ceiling type & surface mounted / to be hanged from the ceiling at the height approved by architect. (CGL, PHILIPS WIPRO, GE or equivalent category & model as approved by client / architect / consultant.)	LS
B.3	**DATA NETWORKING**	
1	Supply & Installation of Modular Data point including approved make Cat - 6 UTP cable through already laid trenches, and new flexible conduit in table partition, RJ45 information outlet face plate, etc. with Termination, Testing and Documentation of UTP Points complete as required. (D-Link or equivalent)	LS
2	Supply & installation of 48 Port 1 Gbps (Minimum) POE Switch with both uplink and downlink ports, Unmanage switch including crimping	LS

	complete in all respect etc. with both ports for Ethernet and Fibre Uplinking.	
3	Supply & installation of 2 x 24 port jack panel in existing network rack	LS
4	Supply of mounting patch cord (3 feet')	LS
5	Supply of mounting patch cord (7 feet')	LS
6	Supply & Installation of 12 U floor/wall mounted network rack including all necessary hardware, accessories, etc. in classrooms	LS
7	Supply & laying of approved make Cat - 6 UTP cable through PVC conduits, with Termination, Testing and Documentation complete as required for Uplinking (D-Link or equivalent)	LS
B.4	**PA SYSTEM**	
1	SITC of Speaker wire(copper) (through separate PVC conduit) from amplifier upto speaker	LS
2	SITC OF Speaker 6 watt (make-BOSCH / AHUJA) or equivalent make	LS
3	Supply, Installation & Testing of Amplifier ,60-80 watt, for Office Address System suitable to operate on 230V A.C. / 12V D.C. supply with two low impedance microphone input, tone control, protection circuit complete for the speakers' output lines. (Ahuja /Bosch approved equivalent make)	LS
B.5	**VOICE/TELEPHONE NETWORKING**	
1	Supply & Installation of Modular Telephone /Voice point including approved make Cat - 6 UTP cable through already laid trenches / conduits, RJ45 information outlet, in single face plate, in workstation partition wall etc. with Termination, Testing and Documentation of UTP Points complete as required.	LS
2	Supply & Installation of and commissioning of indoor type telephone 20 pair MDF with Krone module including all hardware & accessories, etc. complete as required with suitable S.S. frame for mounting tag module, cable, wires and incorporated in 16 SWG MS box with proper lockable cover. The box should be fixed on wall with suitable fasteners including painting & earthing. This also includes fixing the cable, distribution chart sufficient space for the cables, wires etc.to be provided in the box	LS
3	Supply & laying of 20 pair telephone cable through heavy gauge pvc conduit including all necessary hardware & accessories, etc.	LS
B.6	**AMF PANEL +RAW PANEL + UPS panel. (REFER DRAWINGS)**	**1 JOB**
B.7	**Electrical Cablings (REFER DRAWINGS)**	**1 JOB**
	The cable, tray should be considered as per the actual site requirement.	1 JOB
C	**HVAC & Allied Works (ROOMS)**	
1	Supply, Installation, Commissioning of Cassette AC of 5 TR with Five years Comprehensive warranty along with MS Frame for outdoor units,	2 no's

	Drain Piping, Copper Piping, Gas, Power & control supplies etc. complete in all respect with suitable 4/8 hr Operation Timer Switch Board (UPS room)	
2	Supply, Installation, Commissioning of Cassette AC of 2 TR with Five years Comprehensive warranty along with MS Frame for outdoor units, Drain Piping, Copper Piping, Gas, Power & control supplies etc. complete in all respect with suitable 4/8 hr Operation Timer Switch Board (Staff room)	2 no's
3	Supply, Installation, Commissioning of Split AC of 3 TR with Five years Comprehensive warranty along with MS Frame for outdoor units, Drain Piping, Copper Piping, Gas, Power & control supplies etc. complete in all respect with suitable 4/8 hr Operation Timer Switch Board (Server room)	2 no's
4	Anything else not specifically mentioned above but required to complete the HVAC solution for rooms and make it fully functional is to be considered by the bidder	LS
D	**Fire Alarm System works for rooms**	**LS**
	12 Zone Fire Alarm Control Panel	
	Smoke/Heat detector Sensors -Drawing	
	Hooter With Flasher strobe light	
	Installations & commissioning	
	Connectors & miscellaneous items	
E	**Fire Suppression Systems Works for rooms**	**4 no's**
	10 kg ABC Type fire extinguishers -BIS Certified	
F	**Rodent Repellent system (For Rooms)**	**1 no's**
	Ultrasonic Rat & Rodent Repellent Systems	1 LOT
	Ultrasonic Rat Repellent	1 LOT
	1 Master Console with 06 Sub Unit	1 LOT
	1000 Sq. Feet (Indoor) - Sensors / Detector (for above ceiling , below ceilings & below raised flooring)	1 LOT
G	**CCTV Surveillance System for rooms**	**1 no's**
	16 channel NVR 4K supported	1 LOT
	2MP IP Dome Camera -16 no's (POE enabled)	1 LOT
	Camera Boxes with CAT 6 Cabling-16 Points	1 LOT
	4 TB Surveillance HDD - WD/ Seagate -N+1	1 LOT
	Installations & commissioning	1 LOT
	Connectors & miscellaneous items	1 LOT
H	**Biometric Access Control for rooms**	**1 no's**
	Biometric Access control with door lock (Suitable for Finger, Card, Password etc.) + minimum 50 proximity cards.	1 LOT
	For Main Door entrance	1 LOT
	Installations & commissioning	1 LOT

	Connectors & miscellaneous items	1 LOT
I	**WLD-Water leak detection system for rooms (BELOW RAISED FLOOR) :-With detector cable all round periphery of rooms (UPS+STAFF+SERVER ROOMS)**	**1 LOT**
J	**All In one PC for BMS room:** 1. Processor: -13th Gen Intel® Core™ i7 2. Operating System: -Windows 11 Professional 3. Video Card: -Intel® Iris® Xe Graphics 4. Monitor: - min 27", FHD 1920 x 1080. 5. Memory: -16GB, 2x8GB, DDR4, 3200MHz 6. Hard Drive: - 512GB Solid State Drive (Boot) + 1TB 5400RPM Hard Drive (Storage) 7. Keyboard: - Keyboard and Mouse 8. Software: - Video recording and management software, Ethernet Port: 1Gbps	**1 no's**
K	**LED 55 Inch (Sony, Samsung, LG)** 1. Display Type: LED / UHD / 4K resolution (3840 x 2160 pixels) 2. Panel Type: A+ Grade Panel, Anti-Glare 3. Brightness: Minimum 400 nits 4. Contrast Ratio: Minimum 1200:1 5. Viewing Angle: 178° horizontal and vertical 6. Input Ports: Minimum 2 HDMI, 2 USB, 1 LAN port, 1 AV input	**2 no's**

7. Diesel Generator 250 KVA (200 KW -PRIME RATING)

DG Set for Emergency power back up for Data Centre

Sr. No.	Description	Qty
1	**Diesel Generating Set 250 KVA (200 KW -PRIME RATING)** 250 KVA 3 ph. 415 Volt 50 Hz Alternator on common base frame along with Standard control panel, battery with leads, fuel tank and AVM Pads, assembled & housed in Acoustic Enclosure fully tested by manufacturer's technical team in compliance with the latest norms of CPCB-II and ARAI. Genset should be having remote access and it helps to reset remotely. To manage shipment of fuel to maximize overall Genset performance. Remote start & Stop facility In-built event log **Aspiration** – Turbo Charged **Cooling system** – Water / Coolant	1

	Emission Norms – CPCB-II Compliant **Type** – Alternator, Brushless, H Class Insulation **Frequency** – 50 Hz **Voltage** – 230/415 Volts **Power Rating** – 250/200 kVA/kWe **Rated Speed** – 1500 RPM **Engine Power** – 335 bhp No. **of Cylinders** – 6	
2	SITC of AMF Panel (Drawing)	1
3	PPGL sheet rainwater shelter with GI supports over the DG Set, along with heavy-duty metal caging on all sides including a lockable access gate, to ensure weather protection and security.	Job
4	RCC Concrete Foundation for DG Set (As per OEM Recommendation	Job

8. NOTE: Cooling System Compliance Clause:

In the event that the existing cooling infrastructure is found to be inadequate or fails to maintain the required thermal environment for the installed servers and equipment, the selected bidder shall be responsible for upgrading the cooling system to a higher-capacity version. This upgrade must be carried out within the original quoted cost, without requesting any additional financial compensation or variation in the project cost.

9. Applicable Standards but Not Limited to

Installation and materials shall also confirm to latest amendments of

a. Indian Electricity Rules
b. Indian Factories Act
c. National Electric Code
d. Petroleum rules
e. Quality and Safety Standards

Sr. No.	Code Number	Description
1	IS 2309	Protection of buildings and allied structures against lightning.
2	IS 3043 / IEEE 80	Code of practice for earthing.
3	IS 5216	Safety procedure and practices in Electrical work.
4	IS 3106	Code of practice for selection, installation, and maintenance of fuses (Voltage not exceeding 650V).
5	IS 1646	Code of practice for fire safety of building (general) Electrical installation.
6	IS 9921	Alternating Current Dis connectors above 1000 V.
7	IS 2551	Danger notice plates.
8	IS 1248	Electrical indicating instruments.
9	IS 722	AC Electric meters.

10	IS 3156	Voltage transformers.
11	IS 10118	Installation and maintenance of switchgear.
12	IS 398 / IEC 1089-1991	ACSR conductors.
13	IS 7098	Cross-linked polyethylene insulated PVC sheathed cables up to 33 kV.
14	IS 12943	Brass glands for PVC cables.
15	IEC 994	Gapless Surge Arrestors.
16	IS 900	Code of practice for installation and maintenance of Induction Motors.
17	IS 1255 – 1983	Code of practice for Installation and Maintenance of Power Cables up to and including 33 kV Rating.
18	IS-732: 1989	Code of practice for Electrical Wiring Installation. (System Voltage not exceeding 650 Volt).
19	IS-1913	General and Safety Requirements for Luminaires.
20	IS-1646	Code of Practice for Fire Safety of Building (General) Electrical Installation.
21	IS 8130	Conductors for insulated electrical cables and flexible cords.
22	IS 3975	Specification for mild steel wires, strips, and tapes for armouring of cables.
23	IS-2667	Specification for Fittings for Rigid Steel Conduits for Electrical Wiring.
24	IS-3615	Glossary of terms used in Refrigeration and Air-conditioning.
25	IS 325	Three phase induction motor.
26	IS 1367	Mild steel tubes, tubular and other wrought steel fittings.
27	IS 6389	Steel pipe flanges.
28	IS 277	Galvanized steel sheet.
29	IS 802	Galvanized steel wires and strands.
30	IS-5831	Specification for PVC insulation sheath for electric cables.
31	IS 732	Technical supply conditions for threaded steel fasteners.
32	IS-1406	Thickness of the PVC outer sheath.
33	IS 1516	Voltage Transformer - General Requirements.
34	IS 4064	Air break switches, air break disconnectors, air break switch disconnectors, and fuse combination units for voltage not exceeding 1000V AC.
35	IS 4007	Heavy-duty air break switches and composite units of air-break switches and fuses for voltages not exceeding 1000V.

36	IS 1271	Classification of insulating materials based on their thermal stability.
37	IS-1554	PVC insulated (heavy duty) electric cables - Part 1 for working voltages up to and including 1100V.
38	IS-1753	Aluminium conductors for insulated cables.
39	IS-3961	Recommended current ratings for (Part II) cables: Part II PVC insulated and PVC sheathed heavy-duty cables.
40	IS-3975	Mild steel wires, formed wires, and tapes for armouring of cables.
41	IEEE 519-1992	Harmonics and transient electrical conditions.
42	IS 277	Galvanized Steel Sheet (Plain and corrugated).
43	IS 655	Metal Air Ducts.
44	IS 737	Wrought, Aluminium and Aluminium Alloy sheet and strip for general engineering purposes.
45	UL 181	Factory – Made Air ducts and connectors.
46	UL 555	Fire Dampers.
47	ASHRAE 70	Method of testing for rating the performance of Air Ducts and Inlets.
48	BS 649	Diesel Engines for general purpose.
49	BS 2613	Rotating Electrical Machinery.
50	IS 4722	Electrical performance of rotating electrical machines.
51	IS 4778	Terminal markings for rotating electrical machines.
52	IS 4799	Measurement of vibrations of rotating electrical machines.
53	IEC60034	Rotating Electrical Machines.
54	IEC60034-1	Rotating Electrical Machines Part 1: Rating and Performance.
55	IEC60947	Low Voltage Switchgear and Control Gear.
56	IS 817	Code of practice for welding general construction in mild steel.
57	IS 5	Colours for ready mixed paints.
58	IS 1239	Mild steel tubes, tubular and other wrought steel pipe fittings.
59	IS 2062	Structural steel.
60	IS 14616	AC Insulation Motor Starters.
61	IS 4237	General Requirements for Switchgear and Control Gear for voltages not exceeding 1000V AC or 1200V DC.
62	IS 4483	Preferred panel cut-out dimensions for electrical relays - flush mounting (EMLT) relays.

63	IS-694	PVC insulated, unsheathed flexible cords and cables.
64	IS-5082	Wrought aluminium & aluminium alloy bars, rods, tubes, and sections for electrical purposes.
65	IS-5987	Code of practice for selection of switches (Voltage not exceeding 1000V).
66	IS-8236	Direct-acting electrical measuring instruments.
67	IS-6875	Control switches (switching devices for control and auxiliary circuits including contactor relays) for voltages up to and including 1000V AC and 1200V DC.
68	IEEE 587 (ANSI C62.41)	Category A & B (International Electrical and Electronics Engineers – Recommended practices on surge voltages in low voltage power circuits.
69	ANSI B 31.5	Code for Refrigeration Piping
70	ASHRAE 30	Methods of Testing Liquid Chilling Packages
71	ASHRAE 15	Safety Code for Mechanical Refrigeration
72	ISO 27001	Information Security Management System (ISMS)
73	ISO 20000-1	IT Service Management
74	ISO 22301	Business Continuity
75	ISO 14001	Environmental Management
76	ISO 50001	Energy Management System
77	VAPT Certification	Security Audit
78	TIA-942	Infrastructure Design
79	Uptime Tier Certification	Design / Build / Operations

10. Safety Regulations

(i) The contractor shall at his own expense, arrange for the safety provisions as per the codes of Indian Standard Institution, Indian Electricity Act / Rule and such other Rules, Regulations and Laws as may be applicable in respect of all labour, directly or indirectly employed in the work for performance of the Contractor's part of this agreement. While the Indian Electricity Rules 1956, as amended up to date, are to be followed in entirety, any installation or portion of the installation that does not comply with these Rules, should be rectified immediately.

(ii) The contractor shall be responsible for and indemnify the buyer against all injury to persons – both his own workmen and others and for all damage to structural and / or decorative part of the buyer's property during erection and commissioning of the equipment. The contractor shall repair / reinstate all such damage at his own cost.

(iii) It shall be ensured that the control switches and distribution boards are duly marked, the distribution diagrams of substations are prominently displayed, and the substation premises, main switch rooms and D.B. enclosures are kept clean.

Particular care should be taken to prevent the substation being used as store for inflammable materials, broken furniture, waste materials etc.

(iv) No inflammable materials shall be stored in places other than the rooms specially constructed for this purpose in accordance with the provisions of the Indian Explosives Act. If such storage is unavoidable, it should be allowed only for short period and in addition, special precautions such as cutting off supply such places at normal times, storing materials away from wiring and switch boards, giving electric supply for a temporary period with due permission of engineer- in charge shall be taken.

(v) Protective and safety equipment such as rubber gloves, earthing rods, line men's belt, portable respiration apparatus, necessary number of caution boards such as "Man on Line", "Don't switch on" etc. should be provided in easily identifiable locations. Where electric welding or such other nature of work is undertaken, goggles shall be provided.

(vi) Rubber or insulating mats should be available in front of the main switchboards or any other control equipment of medium voltage or above.

(vii) Standard first Aid boxes containing materials as prescribed by Indian red cross should be provided in easily identifiable locations and should be easily available.

(viii) Periodical examination of the first aid facilities and protective and safety equipment provided should be undertaken and proper records shall be maintained for their adequacy and effectiveness.

(ix) Charts (one in English and one in regional language) displaying methods of giving artificial respiration to a recipient of electrical shock shall be prominently displayed at appropriate places.

(x) A chart containing the names, addresses and telephone numbers of nearest authorized medical practitioners, hospitals, fire brigade and also officers in charge shall be displayed prominently along with the first Aid box.

(xi) Steps to train supervisory staff and authorized persons of the engineering staff in the first Aid practices, including various methods of artificial respiration with the help of local authorities such as fire brigade, St. John's Ambulance Brigade, Indian Red Cross or other recognized institutions equipped to impart such training shall be taken, as prompt rendering of artificial respiration can save life at the time of electric shock.

(xii) Electrical wiring and control switches should be periodically inspected and any defective wiring switches which will expose live parts should be replaced immediately to make installation safe.

(xiii) No work on live L.T. bus bars or pedestal switch boards should handle by a person below the rank of a wire man and such a work should preferably be done in the presence of the Engineer in charge of the work.

(xiv) When working on or near live installation, suitable insulated tools should be used, and special care should be taken to see that these tools accidentally do not drop on live terminals causing shock or dead short.

(xv) The electrical switchgear and distribution boards should be clearly marked to indicate the area being controlled by them.

(xvi) Before starting any work the existing installation, it should be ensured that the electric supply to that portion in which the work is undertaken is preferably cut off. Precautions like displaying “Men at Work” caution boards on the controlling switches, removing fuse carrier from these switches and these fuse carriers being kept with the person working on the installation, etc., should be taken against accidental energization. “Permit to Work” should be obtained from the Engineer-in-charge. No work on H.T. main should be undertaken unless it is made dead and discharged to earth with an earthing lead of appropriate size. The discharge operation shall be repeated several times and the installation connected to earth positively before any work is taken up. Before energizing any installation after the work is completed, it should be ensured that all the tools have been removed and accounted and no person is present inside any enclosure of the switchboard. Any earthing connection made for carrying out the work should be removed. "Permit to work” should be received back duly signed by the person to whom it was issued in token of having completed the work and the installation being ready for energisation and “Men at Work” caution Boards removed.

(xvii) In case of electrical accidents and shock, the electrical installation on which the accident occurred should be switched off immediately and the affected person should be immediately removed from live installation by pulling him with the help of coat, shirt, and wooden material or with any other dry cloth. He should be removed from the place of accident to a nearby safe place and artificial respiration continuously given as contained in BIS code and standard prescribed by St John Ambulance Brigade or Fire Brigade.

(xviii) While artificial respiration on the affected person is started immediately, help of Fire Brigade and Medical Practitioner should be called for an artificial respiration should be continued uninterrupted until such help arrived.

(xix) These instructions should be explained in Hindi / local language to those staff who does not understand English.

(xx) The contractor shall ensure that all portable power tools used by the workman are rated 230 volts, double insulated and have to take through 100 mA Earth Leakage Circuit Breaker (ELCB). Also, all temporary lighting shall be supplied through 30 mA ELCB. Inserting wire into the sockets without the plug tops is not allowed. The length of the extension cord for portable tools should not be more than 5 feet. Temporary cables and flexible wires of short length should be bunched up and supported at inaccessible height. Temporary lamps should be mounted at inaccessible height. If lamps are incandescent, they should be protected by wire-mesh.

(xxi) All power supply / Distribution Boards shall have canopy for protection against weather if located outdoors.

(xxii) While carrying out work in Vessels / AC ducts or any other confined place, hand lamps with metallic guard suitable for 24 Volts AC supply shall be used All non-

current carrying metallic parts of electrical system and equipment shall be earthed with two separate earthing wires of adequate capacity.

11. GENERAL RESPONSIBILITY

(i) The contractor shall obtain a "Work Permit" from the Site Engineer / Client before starting any work at site. The work permits are issued to prevent any one working in unauthorized areas and they are valid for specific period.

(ii) The contractor shall produce test certificates from Government approved certifying authorities for all the lifting gear & hoists (slings, chains, hooks, chain pulley blocks, winches, cranes etc.) before starting the work. The contractor's supervisor for subsequent spot checks shall retain the certificates.

(iii) The gas cylinders should be used in safe manner. They should not be dropped from heights. Acetylene cylinder should be kept upright position. Oxygen cylinders should not be kept near inflammable materials like oil etc.

(iv) The contractor is to remove all waste materials from and around the work site and leave the work spot spick and span.

12. Works like Gas cutting, welding etc.

(i) Before carrying out any work like gas cutting, welding etc. the contractor shall contact the site-in -charge to ascertain about the safety of the area for welding work.

(ii) The contractor shall produce certificates for his welding sets checked by the site in charge before starting the work. The certificates shall have to be renewed every two months. A copy of the current certificate shall be displayed on the welding sets.

(iii) Only cables in good condition and insulated holders are to be used. The length of the supply cable shall not exceed 25 feet and the welding set body shall be properly earthed. Under no circumstance building structure pipeline should be used as a return path of the current.

(iv) **A charged fire extinguisher of CO2 type is to be carried with each welding set.**

(v) **The welder is to wear good quality insulated welding gloves, shoes & goggles while at work.**

(vi) **Tarpaulins are not be used in the vicinity of welding / gas cutting jobs.**

13. EXCAVATION

In the event of an excavation being made, it is the responsibility of the contractor to see that any opening, sump or pit caused by them is securely fenced as required by the Factory Act.

14. WORKING AT HEIGHT

(i) For carrying out work at heights exceeding 6 feet or over and near the opening in floors, roofs, etc the following precaution to be taken.

(ii) The written permission of the Departmental Manager is to be taken before carrying out any work. Adequate safety precautions like use of safety belts, crawling ladders etc are to be taken.

(iii) All personnel engaged on overhead work shall be men experienced in such work.

(iv) Whenever possible timber staging or platform shall be erected with planks of minimum thickness 2 inches and minimum width 12 inches when the nature of work demands staging of a greater width than plank provided then additional planks shall be added and lashed securely.

(v) Staging shall be provided with simple safety rails or ropes throughout its length, at waist height and on each open side.

(vi) Staging supports shall be of standard steel scaffolding safely secured and supported on firm level footings or slung from overhead beams. The supports shall be situated at a maximum distance of 8 feet apart and staging shall be secured to each support.

(vii) In case the site or nature of work is unsuitable for erection of proper staging all workers shall wear safety belts around their waists and secure their lifelines to strong scaffolding or structural members.

(viii) Wherever it is not possible to put up staging and / or use safety belts, safety nets or sheets shall be slung beneath the place of work.

(ix) When working in open process vessels or tanks, safety belts or safety nets shall always be used whether or not staging and scaffolding is provided.

(x) Safe access to all points of work should be provided in the form of suitable ladders, stairways etc.

(xi) Contractor's employee of at least status of a foreman shall examine all arrangements before starting such work is commenced and shall satisfy himself that all reasonable safety precautions have been taken.

15. FIRE INSTRUCTIONS

(i) Before carrying out any gas cutting, welding etc, the contractor shall contact the site-in - charge to ascertain about the safety of the area for welding work.

(ii) Smoking is strictly prohibited in premises. Severe action will be taken if any of the contractor's workmen is found smoking at the work site area.

(iii) In case fire is discovered, dispatch additional force & site Engineer. Wherever possible switch off any electrical and gas apparatus near the fire.

(iv) Check the nature of fire, pick up appropriate fire extinguisher and try to put out fire. For Electrical fire use carbon dioxide fire extinguisher.

16. PERSONAL PROTECTIVE EQUIPMENT

The personal protective equipment should be worn wherever necessary.

17. REVIEW MEETINGS

(i) Periodic safety review meeting shall be conducted to review safety and for better coordination with other agencies.

(ii) Periodically safety review will be held with Site Engineer and issues will be discussed and action points shall be monitored and recorded in a separate safety Register / File.

18. WORK AFTER NORMAL WORKING HOURS

Extra care needs to be taken for jobs being carried out after normal working hours with due revalidated work permit.

19. ACCIDENTS

(i) CDAC shall not be held responsible or liable for any injury, accident, or health related incident that may occur during the execution of the project.

(ii) The bidder/contractor shall take full responsibility for the safety and well-being of their personnel and ensure compliance with all relevant safety regulations and provisions.

20. Bill of Quantity for each site - Datacentre Infrastructure

The tables given below are the details of the exact load parameters. These values are given to the bidders to come out with appropriate configuration and sizing. The bidder should provide the optimum design and requirements that are not specifically mentioned in the specifications and design details but are required for the successful commissioning of the project. **The local cloud environment should be based on open-source cloud technologies such as OpenStack etc., with optional enterprise support subscriptions. Public cloud environments like Azure/AWS/GCP can be referenced for architecture but should not be mandated as perpetual licenses.**

Note: - The quantity and specifications of the components may vary based on project requirements, operational needs and budgetary constraints. The final deployment will be subject to assessment and approval as per the evolving needs of the data centre.

21. List Of Recommended Make or any better

Sr. No	Description List of Makes -Electrical	Recommended Makes
1	LT CABLES	RPG/KEI /FINOLEX/POLYCAB/Ravin/MK
2	MS/GI CONDUITS	BEC/BHARAT/AKG/UNIVERCELL
3	PVC CONDUITS	AVON PLAST/Precision/Diamond
4	MODULAR SWITCH SOCKET WITH SWITCH BOXES	Anchor/Legrand/Schneider
5	BRASS DOUBLE COPRESSION GLANDS	DOWELLS/COMMET/Siemens/Phoenix
6	MCCB/MCB/ACB	Schneider/ABB/Siemens/Eaton
7	FSU WITH HRC FUSE	L&T/SIEMENS/ Schneider/Eaton
8	ELCB/MCB	Siemens/ Schneider/Legrand/Eaton

9	MCB DBS	Siemens/Schneider/Legrand/L&T /Eaton
10	METAL CLAD SOCKET OUTLETS	Legrand/SALZER/HAVELLS/L&T /HAGER/Schneider
11	CABLE TRAYS	PROFAB/OVI ENGINEERS/Aslesha/Indiana/OBO Bettermann or equivalent
12	LUMINAIRIES	PHILLIPS/WIPRO/BAJAJ/HAVELLS/CG
13	Bus Bar	Schneider, Siemens, L&T
14	Furniture	Godrej /Neelkamal/ Featherlite /Methodex or equivalent as approved by client

Sr. No.	**Details of Material- Civil and Interior**	
1	Cement	ACC, L&T, Ambuja, Birla Super cement or equivalent make approved by engineer in charge.
2	WALL PUTTY	GOLDSIZE PUTTY BY SHALIMAR PAINTS LTD., J K WALL PUTTY, Birla White
3	STRUCTURAL STEEL	TISCO, SAIL, RINL, JINDAL, ESSAR, Tata Steel
4	ANCHOR FASTNER	HILTI, FISHER
5	DISTEMPER & LUSTER PAINTS	ICI-Dulux, ASIAN PAINTS, BERGER PAINTS, NEROLAC, British Paint
6	Fire Door	Shakti Mat, Radiant, ProMat, Godrej
7	Energy-Efficient Protective Sheets.	Lexan, V-lite etc.

Sr. No.	**Smart Rack Solution with below features**	**Schneider/ Vertiv/ APC/ Delta**
A.	**Intelligent Fire detection System**	
1	Analogue Addressable Thermal /smoke Detector	Tyco (Simplex), Honeywell (Notifier), Siemens (Fire Finder Series), Schneider, Ravel
2	Analogue Addressable Manual Call Point	Tyco (Simplex), Honeywell (Notifier), Siemens (Fire Finder Series), Schneider, Ravel
3	Analogue Addressable Abort cum Gas Release Station	Tyco (Simplex), Honeywell (Notifier), Siemens (Fire Finder Series), Schneider, Ravel
4	Analogue Addressable Control / Relay / Isolator Modules	Tyco (Simplex), Honeywell (Notifier), Siemens (Fire Finder Series), Schneider, Ravel
5	Aspiration Smoke Detection System	Xtralis, ICAN, Tyco, Ravel
6	Response Indicators	Daksh, Polixel, Agni, Ravel
7	Gas Release Modules	Tyco (Simplex), Honeywell (Notifier), Siemens (Fire Finder Series), Ravel

8	Fire Detection Cables	Polycab, Excel, LAPP Kabel, LeGrand
B.	**IP CCTV Surveillance System**	
1	IP Dome Cameras with Varifocallense	BOSCH, Honeywell, Siemens, Axis
2	Network Switch	Comnet, RuggedCom, Moxa, Cisco, Extreme, D-link, Juniper
3	CAT 6 Cable	AMP, Molex, Schneider, D-link
4	OFC Cables	Finolex, Sterlite, HFCL
5	Power Cables	Polycab, Excel, LAPP Kabel
C.	**Access Control System**	
1	Intelligent Access Controller	Siemens, Honeywell, Daccess, ESSL, Matrix
2	Time and Access Management Software	Nexwatch, Software House, Siemens, Honeywell, Daccess, ESSL, Matrix
3	Biometric Readers	Nexwatch, HID, DDS, Siemens, Honeywell, Daccess, ESSL, Matrix
4	Cards	Siemens, Honeywell, Daccess, ESSL, Matrix
5	Proximity Readers	Nexwatch, DDS, HID, Siemens, Honeywell, Daccess, ESSL, Matrix
6	Electromagnetic Locks	Dafikas, BELL, Trimec, Insyn, ESSL, Matrix
7	Network Switch	Comnet, RuggedCom, Moxa, Cisco, Extreme, D-link, Juniper
8	Emergency Glass Break Station	KAC
D.	**UL Listed NOVEC 1230 Clean Agent Fire Suppression System**	
1	UL Listed & PESO Approved Seamless Cylinders	Ansul, UTC, Siemens, Tyco or OEM Approved
2	NOVEC 1230	Ansul, UTC, Siemens, Tyco or OEM Approved
3	Nozzles	Ansul, UTC, Siemens or OEM Approved
4	Electronic/ Pneumatic Actuators	Ansul, UTC, Siemens or OEM Approved
5	Discharge Valves	Ansul, UTC, Siemens or OEM Approved
6	M.S Seamless Pipes	Jindal, Tata, SAIL or OEM Approved
7	Discharge Hose	Ansul, UTC, Siemens or OEM Approved
8	Manifold Check Valve	Ansul, UTC, Siemens or OEM Approved
9	Warning Sign Boards	Ansul, UTC, Siemens or OEM Approved
10	Manual Abort & Release Station.	Daksh, Agni, Honeywell or OEM Approved
E.	**Water Leak Detection System**	
1	Sensing Cables	Tracetek, Liebert, Sontay or OEM Approved
2	WLDS Controller	Tracetek, Liebert, Sontay or OEM Approved

3	Jumper Cables	Tracetek, Liebert, Sontay or OEM Approved
F.	**Rodent Repellent System**	
1	Controller	MASER (Torrant Range), C Systems, Verma Craft
2	Satellites	MASER (Torrant Range), C Systems, Verma Craft
3	GUI Software	MASER (Torrant Range), C Systems, Verma Craft
G.	**Smart Rack Solution**	**Vertiv, Schneider, Rittal**
H.	**SPLIT/CASETTE AC**	**DAIKIN, LG, SAMSUNG, BLUESTAR**
I.	**DG SET**	**CUMMIN, PERKIN, KOEL, STERLING**
J.	**UPS**	**Vertiv, Schneider, Fuji, Eaton**
K.	**LI-ON BATTERY**	**SAMSUNG/LG (5 YEARS WARARNTY+10 YEAR LIFE)**
L.	**SMF BATTERY**	**HBL, AMRON, EXIDE**

SECTION – V: BOQ / BOM Details

(to be submitted with Technical Bid)

(1) Bill of Quantities along with Bill of Material to be submitted as per the following table for the offered product by the bidder.

(2) Any change request (i.e. for brand/model) at later stage shall not be entertained.

Sr. No.	Hardware Resources with Specification	QTY	Offered Product Make	Offered Product Model
PART A:				
1	CPU-Server-Type-01	10		
2	CPU-GPU-Server-Type-02	08		
3	CPU-GPU-Server-Type-03	02		
4	Mgmt-CPU-Server-Type-04	02		
5	EDR Server S/W + 30 client S/W	01		
6	NAS Storage - 1PB	01		
7	48-Port 100Gbps Ethernet Switch	01		
8	48-Port 10Gbps Ethernet Switch	02		
9	48-Port Management Switch (1G)	01		
10	Perimeter firewall (HA Pair) along with Analyzer, Manager & SANDBOX	01		
11	Any other additional item(s), consumables, accessories, S/W Licenses etc. required for completion of the solution. Details to be provided in the financial breakup document.	01		
PART B:				
1	All-in-one PC for BMS Room	01		
2	LED 55 Inch (Sony, Samsung, LG)	02		
3	Smart rack Solution	01		
4	IT Modular UPS with Lithium-Ion Battery System (15 Mins back up at 120 kw load)	01		
5	Non-IT Industrial UPS with SMF Battery System (15 Mins back up at 80 kw load)	01		
6	250 KVA/200KW (Prime Rating) DG Set	01		
7	Interior & Civil Works (Refer PART-B-(6-A) Requirements and reference drawings)			

8	Electrical & Allied Works (Refer PART-B-6-B) Requirements and reference drawings)	01		
9	HVAC & Allied Works for rooms (Refer PART-B-6-C) Requirements and reference drawings)	01		
10	Fire Alarm System for rooms (Refer PART-B-6-D)	01		
11	Fire Suppression Systems for rooms (Refer PART-B-6-E)	01		
12	Rodent Repellent system For Rooms (Refer PART-B-6-F)	01		
13	CCTV Surveillance System for rooms (Refer PART-B-6-G)	01		
14	Biometric Access Control System for rooms (Refer PART-B-6-H)	01		
15	WLD-Water leak detection system for rooms (Refer PART-B-6-I)	01		
16	48 Port POE Switch	01		
17	Any other additional item(s), consumables, accessories, etc. required for completion of the solution. Details to be provided in the financial breakup document	01		

(END OF SECTION V)

SECTION – VI: FINANCIAL BID DOCUMENT

(To be submitted along with financial quote on the GeM portal
duly signed and stamped on bidder's letterhead)

Sr. No.	Hardware Resources with Specification	QTY	Unit Price (incl. taxes) for 5 yrs. (INR)	Grand Total (Incl. taxes) for 5 yrs. (INR)
PART A:				
1	CPU-Server-Type-01	10		
2	CPU-GPU-Server-Type-02	08		
3	CPU-GPU-Server-Type-03	02		
4	Mgmt-CPU-Server-Type-04	02		
5	EDR Server S/W + 30 client S/W	01		
6	NAS Storage - 1PB	01		
7	48-Port 100Gbps Ethernet Switch	01		
8	48-Port 10Gbps Ethernet Switch	02		
9	48-Port Management Switch (1G)	01		
10	Perimeter firewall (HA Pair) along with Analyzer, Manager & SANDBOX	01		
11	Any other additional item(s), consumables, accessories, S/W Licenses etc. required for completion of the solution. Details to be provided in the financial breakup document.	01		
PART B:				
1	All-in-one PC for BMS Room	01		
2	LED 55 Inch (Sony, Samsung, LG)	02		
3	Smart rack Solution	01		
4	IT Modular UPS with Lithium-Ion Battery System (15 Mins back up at 120 kw load)	01		
5	Non-IT Industrial UPS with SMF Battery System (15 Mins back up at 80 kw load)	01		
6	250 KVA/200KW (Prime Rating) DG Set	01		
7	Interior & Civil Works (Refer PART-B-(6-A) Requirements and reference drawings)	01		

8	Electrical & Allied Works (Refer PART-B-6-B) Requirements and reference drawings)	01		
9	HVAC & Allied Works for rooms (Refer PART-B-6-C) Requirements and reference drawings)	01		
10	Fire Alarm System for rooms (Refer PART-B-6-D)	01		
11	Fire Suppression Systems for rooms (Refer PART-B-6-E)	01		
12	Rodent Repellent system For Rooms (Refer PART-B-6-F)	01		
13	CCTV Surveillance System for rooms (Refer PART-B-6-G)	01		
14	Biometric Access Control System for rooms (Refer PART-B-6-H)	01		
15	WLD-Water leak detection system for rooms (Refer PART-B-6-I)	01		
16	48 Port POE Switch	01		
17	Any other additional item(s), consumables, accessories, etc. required for completion of the solution. Details to be provided in the financial breakup document	01		

(END OF SECTION VI)

ANNEXURE – A: COVERING LETTER

Date:

To:
The Executive Director,
Centre for Development of Advanced Computing (C-DAC)
Innovation Park, Panchavati, Pashan Road,
Pune - 411008 Maharashtra, INDIA
Subject: Submission of bid for Supply, Installation, Commissioning, of IDC solution and other related components.

Dear Sir,

We, the undersigned, offer to supply **IDC solution with all related ecosystem etc,** in response to your Tender No ------- We hereby submitting our proposal for same, which includes Technical bid and the Financial Bid through GEM portal

We hereby declare that all the information and statements made in this bid are true and we accept that any misinterpretation contained in it, may lead to our disqualification.

We undertake that the products offered are not nearing end-of-life / end-of-support Five years down the line from the date of bidding, from OEM.

We undertake, if our proposal is accepted, to submit a Performance Security / PBG of 5% of the contract / order value, as per terms stipulated in the tender.

We hereby declare that the entire IDC mention in this ordered will be supplied, installed within 60 days positively.

We hereby certify that my/ our firm has not been disqualified and / or blacklisted by any Office/ Department/ Undertaking of the State Government / Central Govt. of India, PSU/ Autonomous Body of Government of India, at the time of submission of this bid.

We agree to abide by all the terms and conditions of the tender document, including corrigenda. We would hold the terms of our bid valid for 120 days as stipulated in the tender document & the prices offered till the end of the execution of the Order.

We understand you are not bound to accept any proposal you receive.

The undersigned is authorized to sign this bid document. The authority letter to this effect is enclosed.

Yours sincerely,

Authorized Signatory:
Name and Title of Signatory:
e-mail:
Mobile No:

ANNEXURE – B: AUTHORITY LETTER

Date:

To:

The Executive Director,
Centre for Development of Advanced Computing (C-DAC)
Innovation Park, Panchavati, Pashan Road,
Pune - 411008 Maharashtra, INDIA

Subject: Authority Letter

Reference: Tender No**. ----------**

Dear Sir,

We, M/s _____ (Name of the Bidder) having registered office at _____ (address of the Bidder) herewith submit our bid against the said tender document.

Mr./Ms. _____ (Name and designation of the signatory), whose signature is appended below, is authorized to sign and submit the bid documents on our behalf against said RFP
Specimen Signature:

The undersigned is authorised to issue such authorisation on behalf of us.
For M/s _____ (Name of the Bidder)

Signature and company seal
Name
Designation
Email
Mobile No.

ANNEXURE C – UNDERTAKING BY PRINCIPAL MANUFACTURER

(To be submitted in Original on Letterhead-For Inrow, UPS, BATTERIES)

Date:

The Executive Director,
Centre for Development of Advanced Computing (C-DAC)
Innovation Park, Panchavati, Pashan Road,
Pune - 411008 Maharashtra, INDIA

Subject: Undertaking by Principal Manufacturer against tender no. _____ for Supply, Installation of **IDC solution with all related ecosystem (Inrow, UPS, Batteries, Split AC, VSDA, Novac 1230)**

Dear Sir, `

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 certify that M/s _____ *(Name of the Bidder)* having their office at _____ *(Address of Bidder)* are our Authorised System Integrator and to submit offer, supply, install and provide after sales support for our range of products offered by them to meet the above mentioned tender requirements, at same cost, terms and conditions.

Within the scope of requirement as per the tender mentioned above, we undertake to provide technical & other support towards fulfilling the requirements of installation, Commissioning, acceptance criteria and product warranty services of the UPS, Batteries etc. to be supplied and installed at C-DAC site by M/s. (Name of Bidder) against said tender.

We also certify that the products offered are not nearing end-of-life / end-of-support three years down the line from the date of bidding.

The undersigned is authorised to issue this certificate 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 D - PROFORMA OF BANK GUARANTEE

(on non-judicial paper of appropriate value)

To,

The Executive Director,
Centre for Development of Advanced Computing (C-DAC)
Innovation Park, Panchavati, Pashan Road,
Pune - 411008 Maharashtra, INDIA

BANKS GUARANTEE NO:

DATE:

Dear Sir(S)

This has reference to the Purchase Order No. _____ Dated _____ been placed by Centre for Development of Advanced Computing(C-DAC), Pune on M/s_____ (Name & Address of vendor) for supply, installation, Commissioning and warranty of _____ (description of items) at C-DAC/client's site.

The conditions of this order provide that the vendor 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 for the comprehensive warranty service support towards the items supplied by vendor at sites anywhere in India, as per the warranty clause in said purchase order.

M/s (Name of Vendor) 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. _____ M/s. _____ (name of vendor) 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.

C-DAC 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 C-DAC under any security (ies) now, or hereafter held by C-DAC 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 C-DAC hereunder or of prejudicing right of C-DAC against the bank.

This undertaking guarantee shall be a continuing undertaking guarantee and shall remain valid and irrevocable for all claims of C-DAC and liabilities of the Supplier arising up to and until _____ (date)

This undertaking guarantee shall be in addition to any other undertaking or guarantee or security whatsoever the that C-DAC 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 C-DAC 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 C-DAC 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 _____ (Name of Bank) hereby agree and irrevocably undertake and promise that if in your (C-DAC's) opinion any default is made by M/s _____ (Name of Vendor) 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 _____ (Name of Vendor), then on notice to us by you, we shall on demand and without demur and without reference to M/s _____ (Name of Vendor), 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 _____ (Name of Vendor) 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 _____ (Name of Vendor)

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 C-DAC hereunder.
The amount stated in any notice of demand addressed by C-DAC to the Bank as claimed by C-DAC from the Supplier or as suffered or incurred by C-DAC on the account of any losses or damages or costs, charges and/or expenses shall as between the Bank and C-DAC be conclusive of the amount so claimed or liable to be paid to C-DAC or suffered or incurred by C-DAC, as the case may be and payable by the Bank to C-DAC in terms hereof.
You (C-DAC's) shall 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 contact with the said M/s _____ (Name of Vendor) and to enforce or to forbear from endorsing any power or rights or by reason of time being given to the said M/s _____ (name of Vendor) 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 _____ (Name of Vendor) and to enforce or to forbear from endorsing any power or rights or by reason of time being given to the said M/s _____ (Name of Vendor) 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 _____ (Name of Vendor) 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 constitution or insolvency of the said M/s _____ (Name of Vendor) but shall in all respects and for all purposes be binding and operative until payment of all dues to C-DAC 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 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 there under.
We have power to issue this guarantee in your favour under 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 there after 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 (Min 62 months from the date of successful installations and acceptance of the items in the order) _____

Granted by the Bank

(SEAL)
For (Name of Bank)
Yours faithfully,

SEAL OF THE BANK
Authorised Signatory

Date:
Seal:

Date:

To:
The Executive Director,
Centre for Development of Advanced Computing (C-DAC)
Innovation Park, Panchavati, Pashan Road,
Pune - 411008 Maharashtra, INDIA

Subject: Undertaking as per GFR – 2017, Rule 170(iii)

Dear Sir,

We, the undersigned, offer to Supply the **IDC solution with all related ecosystem** as per tender at C-DAC, Pune, in response to your Tender No ……..We are hereby submitting our proposal for same, which includes Technical bid and the Financial Bid through www.eprocure.gov.in. As a part of eligibility requirement stipulated in said tender document, we hereby submit a declaration in lieu of Earnest Money Deposit (EMD), as given below:

1. Our bid shall remain valid for 120 days from the date of submission and that we will not withdraw or modify our bid during the validity period,
2. In case, we are declared as successful Bidder and an order is placed on us, we will submit the acceptance in writing within 7 days of placement of order on us.
3. In case, we are declared as successful Bidder and an order is placed on us, we undertake, to submit a Performance Security / PBG of 5% of the order value, as per terms stipulated in the tender.
4. In case of failure on our part to comply with any of the above said requirements, we are aware that we shall be declared as un-eligible for said tender and /or debarred from any **future bidding process of C-DAC for a period of minimum one year.**
5. The undersigned is authorized to sign this undertaking.

Yours sincerely,

Authorized Signatory:
Name and Title of Signatory:
e-mail:
Mobile No:

ANNEXURE F - CERTIFICATE/UNDERTAKING FROM BIDDER

(ON COMPANY'S LETTERHEAD)

To: Executive Director, C-DAC, Pune – 411008

Ref: Tender / Inquiry No. ……. dt. ……

We have read the clause mentioned in Order No.F.7/10/2021-PPD (1) (Public Procurement No. 4) dated 23.02.2023 issued by Procurement Policy Division, Department of Expenditure, Ministry of Finance, GOI regarding restrictions on procurement from a bidder of a country which shares a land border with India.

In view of this, we certify that,

a. We are not from a country sharing land border with India and any registration as mentioned in said OM is not applicable to us.

OR

b. We are registered with the competent authority as mentioned in said OM. The copy of registration No……..dt…..... is enclosed.

(Delete whatever is not applicable) For (Name of Bidder)

Authorised Signatory (Name & Signature) (Company's Seal)

ANNEXURE G – MAKE IN INDIA DECLARATION

**(PLEASE SUBMIT THE CERTIFICATE AS PER FORMAT GIVEN BELOW –
TO BE SUBMITTED BY COST ACCOUNTANT OR STATUTORY AUDITOR)**

To:
Executive Director,
Centre for Development of Advance Computing, Pune – 411008

Sub: Tender for …….
Ref: Tender / Inquiry No. ……

We hereby certify that the goods / software / solution being offered by us vide our proposal, comply with the provisions of the Make In India Order No. P-45021/2/2017-PP(BE-II)-Part(4)Vol.II dated 19.07.2024 issued by Public Procurement Section, Department of Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry, GoI along with achieving Minimum Local Content as declared by the relevant Ministries/ Departments.

We also certify that, we are not from a country sharing land border with India as defined in Order No.F.7/10/2021-PPD (1) (Public Procurement No. 4) dated 23.02.2023 issued by Procurement Policy Division, Department of Expenditure, Ministry of Finance, GOI and the goods/software offered by us comply with the provisions of said order (details provided below).

We hereby certify the details pertaining to goods / software / solution offered by us, against the tender requirement is given below:

Sr No	Item Description, Make, Model	Country of origin of OEM	Country of Manufacture of item	Percentage of local contents	Details of the location(s) at which the local value addition is made
1					
2					
….	Add multiple line items for various goods, services and works				

The consolidated total for the Complete IDC solution is ……% which comprise of all the above-mentioned goods, services and works.

Note 1: The Country of origin / manufacturing, should be declared for goods/ software/ solution being offered.

Note 2: CDAC reserves the right to Accept / Reject / Cancel the bid / bidder, at its sole discretion, based on the responses received against the MII and Land border sharing declarations submitted by the bidders / vendors.

For (Name of bidder)
Authorized Signatory Name & Designation:
Mobile No:

Annexure-H - INTEGRITY PACT

(To be executed on stamp paper of appropriate denomination duly notarised and applicable for all tenders of value above Rs.1 Crore)

This Integrity Pact ("the Pact") is made and executed on this ____ Day of _____ Two Thousand Twenty _____ at _____.

By and Between

Centre for Development of Advanced Computing (C-DAC), an autonomous scientific Society under the Ministry of Electronics and Information Technology, Government of India, registered under the Societies Registration Act 1860 and the Bombay Public Trusts Act 1950, having its registered Office at Savitribai Phule Pune University Campus, Pune 411 007, hereinafter referred to as "C-DAC/Principal", which expression shall unless repugnant to the context or meaning thereof be deemed to mean and include its administrators, successors or assignees, as the case may be.
and

…….…… hereinafter referred to as "The Bidder(s)/Contractor(s)", which expression shall unless repugnant to the context or meaning thereof be deemed to mean and include its administrators, successors or assignees, as the case may be.

(The Principal and the Bidder (s)/Contractor(s) are collectively referred to as "the Parties".

Preamble

The Principal intends to award, under laid down organizational procedures, contract/s for ---------- ("the Contract"). The Principal values full compliance with all relevant laws and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder/s and Contractor/s. The Principal intends to avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into. The Principal also intends that Bidder/s and Contractor/s should abstain from bribing or indulging in any corrupt practices in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the Bidder/s and Contractor/s shall commit to prevent corruption, in any form, by its officials by following transparent procedures.

In order to achieve these goals, the Principal, by way of this Integrity Pact ("the Pact") will appoint Independent External Monitor ("IEM") who will monitor the tender process and the execution of the Contract for compliance with the principles mentioned above.

The parties hereto hereby agree to enter into this Pact and agree as mentioned below.

Section 1
Commitments of the Principal

1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following:-

   a) No employee of the Principal, personally or through relatives or any other person, will in connection with the tender, or for the execution of the Contract, demand, promise or accept for himself/herself or any third person, any material or immaterial benefit or any other advantage from the bidder/s or contractor/s which he/she is not legally entitled to.

   b) The Principal will, during the tender process treat all Bidder/s and Contractor/s with equity and reason. The Principal will in particular, before and during the tender process, provide to all bidder/s and contractor/s the same information and will not provide to any bidder/s or contractor/s additional/confidential information through which the bidder/s and contractor/s could obtain an advantage in relation to the tender process or the contract execution.

   c) The Principal will exclude from the process all known prejudiced persons.

2) If the Principal obtains information on the conduct of any of its employees, which is a criminal offence under the relevant Anti-Corruption Laws of India, or if there be a substantive suspicion and the same is prima facie found to be correct in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions In such a case while such enquiry is being conducted by the Principal, the proceedings under the contract shall not be stalled.

Section 2
Commitments of the Bidder/ contractor

1) The Bidder / Contractor commits to take all measures necessary to prevent corrupt practices, unfair means and illegal activities. He commits himself to observe the following during his participation in the tender process and during the contract execution:

a) The Bidder / Contractor undertakes that he/she has not given, offered or promised to give directly or indirectly any bribe, gift, consideration, reward, favour any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the Principal, for which benefit etc. he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

b) The Bidder / Contractor will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the Principal, for which benefit etc. he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract

c) The Bidder / Contractor will not enter into any agreement or understanding with other Bidders in connection with the bid, including but not limited to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.

d) The Bidder / Contractor will not commit any offence under the relevant provisions of Anti-Corruption Laws of India/Indian Penal Code, 1860, Information and Technology Act, 2000, Competition law or any other relevant laws, enactments, rules and regulations. Further the Bidder / Contractor will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically. The Bidder / Contractor also undertakes to exercise due and adequate care of any such information so divulged.

e) The Bidder / Contractor further confirms and declares to the Principal that the Bidder / Contractor is the original manufacturer / integrator / authorised government sponsored export entity and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the Principal or any of its functionaries, whether officially or unofficially to the award of the contract to the Bidder / Contractor, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.

f) The Bidder / Contractor will, when presenting his bid, disclose any and all payments he has made, is committed to make or intends to make to agents, brokers or any other

intermediaries in connection with the award of the contract and the details of the services agreed upon for such payments.

g) The bidder(s)/ contractor (s) of foreign origin shall disclose the name and address of agents and representatives in India related to this tender. Similarly, the bidder(s)/ contractor(s) of Indian nationality shall furnish the name and address of their foreign principals or associates, if any, related to this tender.

h) The Bidder / Contractor shall not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

i) If the Bidder / Contractor or any employee of the Bidder / Contractor or any person acting on behalf of the Bidder / Contractor, either directly or indirectly, is a relative of any of the officers of the Principal, or alternatively, if any relative of an officer of the Principal has financial interest / stake in the Bidder's / Contractor's firm, proprietorship, company, etc. the same shall be disclosed by the Bidder / Contractor at the time of filing of tender/EoI. The term 'relative' for this purpose would be as defined in Section 6 of the Companies Act, 2013.

j) The Bidder / Contractor shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the Principal.

k) The bidder / contractor shall disclose the circumstances, arrangements, undertakings or relationships that constitute, or may reasonably be considered to constitute, an actual or potential conflict of interest with its obligations specified in the tender process or under any Agreement which may be negotiated or executed with Principal. Bidder / Contractor and its employees, agents, advisors and any other person associated with the bidder / contractor must not place themselves in a position which may, or does, give rise to conflict of interest (or a potential conflict of interest between the interests of Principal or any other interests during this tender process or through operation of the Agreement.

l) The bidder(s)/ contractor (s) who have signed the Pact shall not approach the Courts while the matters/disputes/issues, related to tender process or the Contract are presented before the IEM and awaiting the final decision.

2) The Bidder / Contractor will not instigate third persons to commit above mentioned acts / omissions / offences outlined above or be an accessory to such offences.

Section 3
Disqualification from tender process and exclusion from future contracts

1) If the Bidder, before the Contract is awarded, has committed a transgression through a violation of Section 2 or in any other form such as to put his reliability or credibility as Bidder into question:

   a) the Principal is entitled to disqualify the Bidder from the tender process or to terminate the Contract, if already signed, for such reason.

   b) the Principal is entitled to exclude the Bidder / Contractor from participating in future contracts/tenders. The imposition and duration of the exclusion will be determined by the Principal based on the severity of the transgression. The severity will be determined by the circumstances of the case, in particular the number of transgressions, the position of the transgressors within the company hierarchy of the Bidder / Contractor and the amount of the damage. The exclusion will be imposed for a minimum of six (6) months and maximum of three (3) years.
2) An act/omission would be treated as a transgression after due consideration of the available evidence by the Principal.

3) The Bidder / Contractor accepts and undertakes to respect and uphold the Principal's absolute right to resort to and impose such disqualification/exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision of disqualification/exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.

4) If the Bidder / Contractor can prove that he has restored the damage caused by him and has installed a suitable corruption prevention system, the Principal may revoke the aforesaid disqualification/exclusion prematurely.

Section 4
Compensation for Damages

1) Without prejudice to any rights that may be available to the Principal under any law or the contract or its laid down policies and procedures, the Principal shall have the following rights in case of breach of this Pact by the Bidder/Contractor:

   a) To forfeit the Earnest Money/Bid Security if the Bidder is disqualified from the tender process prior to the award in terms of Section 3;

b) To forfeit/invoke the Security Deposit/ Performance Bank Guarantee if the Principal has either terminated or is entitled to terminate the Contract of the Bidder in terms of Section 3.

c) To immediately call of the pre contract negotiations without assigning any reason or giving any compensation to the Bidder / Contractor.

d) To immediately cancel the contract, if already signed, without giving any compensation to the bidder / contractor. The Bidder / Contractor shall be liable to pay the compensation for any loss or damage to the Principal resulting from such cancellation / rescission and the Principal shall be entitled to deduct the amount so payable from the amount due to the Bidder / Contractor.

e) To recover all sums already paid by the Principal, with interest at __% @ p.a. if any outstanding payment is due to the Bidder / Contractor from the Principal in connection with any other contract, such outstanding payment could also be set off to recover the aforesaid sum and interest.

f) To recover all sums paid in violation of this Pact by the Bidder / Contractor to any middleman or agent or broker with a view to securing the contract.

Section 5
Previous transgression

1) The Bidder declares that he has not committed any transgressions in the last three (3) years against any Company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could invite/justify his exclusion from this tender process.

2) Any concealment of information or misrepresentation of facts, in regard to the aforesaid, can lead to his disqualification from the tender process or termination of the Contract, if already awarded, or invite any other appropriate action(s) as deemed fit.

Section 6
Equal treatment of all Bidders / Contractors / Subcontractors

1) The Principal will enter into Pacts on identical terms with all bidders and contractors.

2) The Bidder(s) / Contractor(s) assures to procure from all their subcontractors an undertaking for the adoption of this Pact. The Bidder (s) / Contractor(s) shall alone be

responsible for any violation (s) of the provisions laid down in the Pact by any/all of their sub-contractor (s) or sub-vendor (s).

3) The Principal will be entitled to disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

Section 7
Independent External Monitor / Monitors

1) The Principal appoints competent and credible Independent External Monitor as nominated and approved by the Central Vigilance Commission. The task of the IEM is to review independently and objectively, whether and to what extent the Parties comply with the obligations under this Pact. The IEM would be required to sign 'Non- Disclosure Agreements' alongwith a declaration of 'Absence of Conflict of Interest'. In case of any conflict of interest arises at a later date, the IEM shall inform Chairperson of the Board of the Principal and recuse himself/herself from that case.

2) The IEM is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the Chairperson of the Board of the Principal. The IEM would be provided access to all documents/records pertaining to the contract for which a complaint or issue is raised before them, as and when warranted. However, the documents/records/ information having National Security implications and those documents which have been classified as Secret/Top Secret are not to be disclosed.

3) The Bidder / Contractor accepts that the IEM has the right to access, without restriction, all Project documentation available with the Principal including the documents/ records/ information provided by the Bidder/Contractor. The Bidder/Contractor will also grant the IEM, upon their request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The IEM is under contractual obligation to treat the documents/ records/ information of the Bidder/Contractor/ Subcontractor with confidentiality.

4) The Principal will provide to the IEM sufficient information about all meetings among the parties related to the Project provided that such meetings could have an impact on the contractual relations between the Principal and the Bidder/Contractor. The Parties will offer to the IEM the option to participate in such meetings.

5) As soon as the IEM notices, or suspects, a violation of this Pact, he will inform the Management of the Principal and request the Management to discontinue or rectify the violation, or take any other relevant action. The IEM can in this regard submit nonbinding recommendations. Beyond this, the IEM has no right to demand from the Parties that they act in a specific manner, refrain from action or tolerate action. However, the IEM shall

give an opportunity to the Bidder / Contractor to present his case before making its recommendations to the Principal.

6) The IEM is expected to tender their recommendation on all the complaints within 30 days of their receipt, to the Chairperson of the Board of the Principal. Further, should the occasion arise, the IEM may submit proposals for correcting problematic situations.

7) If the IEM has reported to the Chairperson of the Board of the Principal a substantiated suspicion of an offence under relevant Anti-Corruption Laws of India/Indian Penal Code, 1860, or any other relevant laws and the Chairperson has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the IEM may transmit this information directly to the Central Vigilance Commissioner, Government of India.

8) The word 'IEM' would include both singular and plural.

Section 8
Pact Duration

1) This Pact comes into force when both parties have signed it. It expires for the Bidder / Contractor 12 months after the last payment under the respective contract, and for all other Bidders / Contractors 6 months after the contract has been awarded.

2) If any claim is made / lodged during the aforesaid duration, the same shall continue to be valid despite the lapse of this pact as specified above, till it is discharged / determined by Chairperson of the Board of the Principal.

Section 09
Other provisions

1) This Pact is subject to Indian Laws. Place of performance and jurisdiction is the Registered Office of the Principal, i.e. Pune. The Arbitration clause provided in the main tender document / contract shall be applicable to any issue / dispute arising under this Pact.

2) If the Contractor is a partnership or a consortium, this Pact must be signed by all partners or consortium members.

3) In case of any allegation of violation of any provisions of this Pact or payment of commission etc. the Principal or its agencies shall be entitled to examine all the documents including the Books of Accounts of the Bidder / Contractor and Bidder / Contractor shall

provide necessary information and documents and shall extend all possible help for the purpose of such examination.

4) If one or several provisions of this Pact are held to be invalid/unenforceable, the remainder of this Pact shall remain valid as though the invalid or unenforceable parts had not been included herein. In this case, the parties will strive to come to an agreement to their original intentions.

5) Issues like warranty/ guarantee etc. shall be outside the purview of IEM.

----------	----------
For the Principal	For the Bidder / Contractor
Place ----------	Witness 1 : ----------
Date ----------	Witness 2: ----------

ANNEXURE I – DOCUMENTS LIST / INDEX

Sr	Description	Page No (s)
1	**Annexure-I** duly filled and neatly arranged in the following sequence only. The Bidder must submit all the documents as per Document Checklist – Annexure I, with appropriate page no's for the same. The flow of the submitted documents must be in the same order/sequence.	
2	Covering letter, as per **Annexure – A.**	
3	Authority letter, as per **Annexure – B.**	
4	Demand draft/BG towards Earnest Money Deposit or **Annexure-E**	
5	A copy of Certificate of Incorporation, Partnership Deed / Memorandum and Articles of Association / any other equivalent document showing date and place of incorporation, as applicable, in support of eligibility criteria.	
6	Copies of PAN and GST registration certificates, as applicable.	
7	The detailed technical solution offered as per format given in **Section – IV / VI.**	
8	Unpriced FINANCIAL BID as per **Section – VI (without rate/prices)**	
9	Compliance statement indicating the compliance of the items, equipment's, solution offered with the tender specifications.	
10	The copies of audited Profit and Loss Accounts **OR** the certificate from a Chartered Accountant certifying the annual sales turnover of the Bidder for the last 3 financial years.	
11	The undertakings from the Principal Manufacturers (OEMs) of equipment's/ items offered as per **Annexure – C.**	
12	Other documents necessary in support of eligibility criteria, product catalogues, brochures etc.	
13	The Bidder must have supplied, installed, and commissioned at least one DC solution with InROW/ In rack cooling with IT load of min 20 kW in India in last Five years.	
14	Smart Rack / DC solution (with front and back containment) provider OEM should have installed min 10 similar solutions (with min 20kw IT load) in India in last Five years	

15	The Bidder must submit all the documents as per Document Checklist – **Annexure I**, with appropriate page no's for the same. The flow of the submitted documents must be in the same order.	
16	The Bidder must not be blacklisted by any Govt. Organizations as on date of submission of the bids. A certificate or undertaking to this effect must be submitted **(Annexure – A).**	
17	Undertaking towards compliance to Land Border Sharing OM / Order as per Annexure F	
18	Undertaking/ Declaration towards compliance to Make In India OM / Order as per Annexure G	
19	Integrity Pact as per Annexure H	
20	Any other document needs to be added with proper description in this list, serially and page numbered properly.	

* * * END OF DOCUMENT * * *