INDIAN INSTITUTE OF TECHNOLOGY
(INDIAN SCHOOL OF MINES), DHANBAD

Notice Inviting Tender (NIT) in Two-Bid System
For
Supply and Installation of High Performance Computing (HPC) cluster.

Tender No.: **App Chem-INS-008-19-20**
Date: 03-06-2019

Bid Submission deadline: 08.07.2019, 1:00 P.M.

Assistant Registrar (P&S)
Indian Institute of Technology (Indian School of Mines), Dhanbad
P.O. – Indian School of Mines (I.S.M.)
DHANBAD –826004 (INDIA)
www.iitism.ac.in
GSTIN : 20AAAAI0686D1ZA

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CHAPTER 1
Instructions to Bidders

IIT (ISM), Dhanbad was formerly known as Indian School of Mines (ISM) and was a Deemed University before it got converted into an Institute of National Importance under the Institutes of Technology (Amendment)Act, 2016 passed by the Parliament of India and got the assent of President of India. The Indian School of Mines, now IIT (ISM), Dhanbad, was formally opened on 9th December 1926, by Lord Irwin, the then Viceroy of India to address the need for trained manpower related to mining activities in the country with disciplines of Mining and Applied Geology. In 1967, it was granted the status of a deemed to be university under Section 3 of UGC Act, 1956 and it was upgraded as Indian Institute of Technology (Indian School of Mines) in 2016. It started as an institution to impart mining education, and today, has grown into a technical institution with various academic departments.IIT(ISM) is located in the mineral-rich region of India, in the city of Dhanbad in the state of Jharkhand. It is the third oldest institute [after IIT Roorkee and IIT (BHU) Varanasi] which got converted into an IIT.

IIT (ISM), Dhanbad intends to procure the equipment "High Performance Computing (HPC) clustrer" to enrich its teaching and research facility at Dhanbad.

Reputed manufactures or authorized distributors are invited to submit their bid as per this tender document in a Two-Bid System: - (a)Techno-Commercial (also termed as technical bid) bid (Part-1) consisting of all technical details of the item along with commercial terms and conditions, Tender Fee and EMD and (b) Price bid (Part-2) indicating price for their items mentioned in the technical bid. All instructions and terms and conditions must be followed, failing which bid(s) will liable to be rejected.

INSTRUCTIONS

1. Offer should be submitted in TWO-BID system with two separate sealed covers i.e. "Techno-commercial bid" and "Price bid".

2. Tender Number and tender submission deadline must be clearly mentioned on the top of the envelope.

3. Bidder(s) must submit PAN given by Income Tax authorities, TIN/ GSTIN and copy of PAN / TIN with the bid.

4. The offer must be submitted in **Two-Bid**. Tender should be dropped in the tender box kept in the office of **Assistant Registrar (Purchase & Stores), IIT (ISM), Dhanbad– 826004 (Jharkhand, India)** only. Bids may be submitted by Speed Post / Courier in sealed cover only, but IIT(ISM), Dhanbad will not accept such bid if delivered/submitted to the office of the Deputy Registrar (Purchase & Stores section), IIT (ISM), Dhanbad after the submission deadline and such bids will be treated as Late bids / non-responsive bids. It will be the sole responsibility of the bidders that their bid should be submitted/ delivered as per bid submission deadline. IIT (ISM), Dhanbad will not be responsible for any delay or transit loss or late delivery of bids to the office of the Assistant Registrar.

No Tender is to be handed over to any staff of IIT (ISM), Dhanbad personally. All bids / correspondences should be sent to the following address only: "Assistant Registrar (P&S), IIT (ISM), Dhanbad, P.O. – Indian Institute of Technology (Indian School of Mines), DHANBAD – 826004 (Jharkhand, India)". Bids sent through Email/Fax or submitted in unsealed cover(s) will not be accepted and such bids will be treated as non-responsive bids.

5. Bid(s) must be sent sufficiently in advance so that it reaches the institute on or before the submission deadline. Bid(s) received after the submission deadline will not be considered.

6. Bid document(s) and all enclosures must contain the signature and seal of the authorised representative of the bidder.

7. The bidder quoting for item(s) as per this tender should be the registered to provide the item/services with the appropriate government authority. Copy of registration certificate should be enclosed with the tenders (part-1). Offers submitted without proper registration certificate shall be rejected summarily.

8. The bidder quoting for item(s) as per this tender should be the registered to provide the item/services with the appropriate government authority. Copy of registration certificate should be enclosed with the tenders (part-1). Offers submitted without proper registration certificate shall be rejected summarily.

9. The Bank/RTGS detail on the letter-head of the bidder(s) must be submitted along with the tenders (part-1). A copy of the cancelled cheque should also be attached.

10. Name and PAN/Voter Card No. /Aadhar No. of the authorized signatoryof the bidder(s) must be mentioned in the Form.

11. A copy of PAN/Voter Card/Aadhar Card of the authorized signatory of the bidder(s) must be attached with the Form

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CHAPTER 2
Terms and Conditions

The offer must comprise of the following, failing which it will be treated as non-responsive bid hence will be rejected:

1. The bids under Two-Bid System will consist of two parts as per following details:**- a)**Techno-Commercial bid (Part 1) consisting of all technical details along with Commercial terms and conditions and EMD (Earnest Money Deposit), in the form of two separate Demand Drafts issued from any Nationalized / Scheduled commercial bank in favour of "Registrar, IIT (ISM), Dhanbad" and payable at "Dhanbad (Jharkhand, India)", and **b)** Price bid (Part 2) indicating price for the items / services mentioned in technical bid (part-1). In stage-one, only the Techno-Commercial (Part 1) shall be opened and evaluated. In stage-two, the Price bids (Part 2) of only the technically qualified and acceptable offers will be opened, for further evaluation.

2. Sealing and Marking of Bids:

   a) The Techno-Commercial bid (Part 1) must be sealed in a separate envelope (ENVELOPE-ONE) with EMD in the form of two separate Demand Drafts, duly super-scribed as "**Techno-Commercial Bid (Part 1),Tender No.: App Chem-INS-008-19-20, Submission Deadline: 08.07.2019**" as per following details: -

   EMD: ₹ 4, 00,000/-

   b) The Price bid (Part 2) should be sealed in separate envelopes (ENVELOPE-TWO), duly super-scribed as "**Price Bid (Part 2), Tender No.: App Chem-INS-008-19-20, Submission Deadline: 08.07.2019**".

   c) The above TWO separate sealed envelopes are to be put in a bigger envelope (ENVELOPE-THREE), which should also be sealed.

   d) Each of the above THREE envelopes MUST be super-scribed with **"Bid for Supply and Installation of High Performance Computing (HPC) cluster against Tender No.: App Chem-INS-008-19-20, Dated 03-06-2019, and Submission Deadline: 08.07.2019".**

3. The bids must be neatly typed/computer printed. Hand written offer will be rejected. Bids must carry the numbers of GSTIN Registration No. Bids must be in sealed envelope.

4. **Bidder should be either an Original Equipment Manufacturer (OEM) or should be single Authorized System Integrator Partner/his Authorized Dealer having Direct Purchase and Support Agreement with the OEM. In case the bidder is Dealer, a valid LETTER OF AUTHORIZATION from the OEM should be produced along the bid. This excludes STORAGE SOLUTION and SMART-RACK SOLUTION but MAF must be submitted.**

5. **In case the bidder is a System Integration Partner of the OEM, a certificate from the OEM clearly stating the relationship and level of partnership with the Partner and authorization to the Partner to quote for this specific tender enquiry is to be furnished. One OEM can authorize one partner only and one partner can represent only one OEM.**

6. **The bidder should submit the BIS certificate for the quoted hardware.**

7. **CATALOGUE/TECHNICAL LITERATURE All necessary catalogue/drawing literature/data and details of item/s as are considered to be essential for full and correct evaluation of the bid shall invariably accompany the bid.**

8. **Copy of valid PAN number issued by the Income-Tax Authority, Registration Certificate of the firm /agency /Company and proof of 5 years' experience.**

9. **The bidder should have average annual sales turnover of at least 3 Cr for the last three financial years. Attach firm's last 3 years audited profit and loss Account balance sheet duly audited by C.A.**
   The copy of audited financial reports/IT returns of the bidder for the financial years 2016-17, 2017-18 and 2018-19 indicating the annual sales turnover required for eligibility criteria. All relevant technical specifications/details of offered items, drawings, printed technical leaflets, and commercial details which are necessary to ensure that offer is complete in all respects should be attached with the technical bid documents.

10. IIT(ISM) does not bind itself to offer any explanation to those bidders whose Technical Bids have not been found acceptable by the Evaluation Committee of the Institute.

11. Following documents have to be furnished by the bidders with the technical bids (part-1):
    (a) Self-attested copies of credentials in support of capability to undertake the supply/work.
    (b) Technical literature/catalogue with the detail specification of the material
    (c) Satisfactory performance certificate from their customers for same/similar supply/service must be enclosed along with the technical bid.
    (d) A copy of this tender document must be signed and sealed on all pages by the bidder(s) accepting the instructions and terms & conditions of the NIT and must be attached with the bid.

12. Price should be quoted as per attached price schedule. The packing, forwarding, freight and transit insurance charges, if any, must be included in the price and should not be claimed separately. Duties & taxes, if applicable, are to be shown separately clarifying whether those are extra or included in the price. Educational discounts, if any, should be mentioned clearly. Justification of the price quoted must be provided with the Price Bid. For this, Price List of the OEM and purchase order of govt. organizations / IITs/ NITs/ CSIR Labs / ISRO labs etc. should be attached. Price bids of only technically qualified tenderers shall be opened in on a pre-notified date and time. Decision of IIT (ISM), Dhanbad in this regard will final and binding by all the bidders.
    a) The comparison between the indigenous and the foreign offers shall be made on FOR destination basis and CIF/ CIP Kolkata basis respectively. However, the CIF/ CIP price quoted by any foreign bidder shall be loaded further as under:
    b) Towards custom duty, IGST and other statutory levies, custom clearance, inland transportation, currency fluctuation etc. – 15% of the CIF/ CIP Kolkata value.

13. IIT(ISM), Dhanbad is entitled for Excise Duty Exemption under Govt. of India notifications and is registered with DSIR, Govt. of India for this purpose. This may be taken into consideration while quoting minimum possible rate. Exemption Certificates can be issued in favour of manufacturers only, if it is mentioned in the bid. It will not be issued any Indian Agent/dealer or distributor at any circumstances. IIT(ISM) will provide only custom duty exemption certificate for availing concessional custom duty. IIT(ISM) will not pay any extra custom duty other than duty exemption certificate.

14. IIT (ISM), Dhanbad does not issue form 'C' or 'D' for concessional Sales tax/VAT. Hence, full rate of sales tax as applicable to educational institutions against the form of certificate should be indicated.

15. **Bid Security or Earnest Money Deposit (EMD):-** Required Amount for EMD must be submitted in the form of <u>Demand Draft issued from any Nationalized/Scheduled commercial Bank in favour of Registrar, IIT (ISM), Dhanbad payable at Dhanbad</u> with the bid (part-1). Bid received without EMD in part-1 (techno-commercial bid) will be rejected. No interest will be payable by IIT (ISM), Dhanbad on the Earnest Money Deposit. The earnest money of all the unsuccessful bidder(s) will be returned to

the respective bidder(s) through bank / RTGS transfer without any interest within 60 (sixty) days only after placing the purchase order / awarding the contract. The Earnest Money of successful bidder(s) shall be returned on receipt of Performance Security (Performance Bank Guarantee / PBG) as mentioned in this tender document. If the successful bidder(s) fails to furnish the performance security or fails to deliver/provide the item/installation/service as per the order's terms and conditions within stipulated period, the earnest money shall be liable to be forfeited by IIT (ISM), Dhanbad. An undertaking to this is to be submitted.

16. EMD must be in the separate Demand Drafts.

17. **FORFEITURE OF EMD:**
    After receiving the Purchase Order, if the OEM/Bidder is unable to execute the order satisfactorily, the Earnest Money Deposit will be forfeited and the Institute will be constrained to take necessary action against the OEM/Bidder.

18. **Performance Security or Performance Bank Guarantee (PBG):-** The successful bidder(s), on whom order will be placed, has to submit a performance security of 10% of the total order value at the earliest as per PO terms before release of any payment. Performance security has to be submitted in the form of Bank Guarantee/Demand Draft/FDR from any Nationalized/Scheduled commercial Bank in favour of the Registrar, IIT (ISM), Dhanbad. Performance security should remain valid for a period of two months beyond the date of completion of all contractual obligations of the successful bidder(s).No interest will be payable by IIT (ISM) Dhanbad on the Performance Security deposited. In case the contractor fails to provide satisfactory service, the Performance Security submitted by the bidder(s) is liable to be forfeited. An undertaking to this is to be submitted.
    Format of PBG is available on IIT(ISM) website i.e. www.iitism.ac.in
    (http://www.iitism.ac.in/assets/tender/bankguaranteeformats.pdf)

19. **Validity Period: -** The validity period of the tender should be clearly specified. It must be at least for **240(Two Hundred Forty) days** from opening of price bids.

20. **Delivery Period and Liquidated Damage:** As time of the essence for this procurement, hence the ordered materials/work complete in all respects are required to be delivered and installed within the period stipulated in the purchase order failing which liquidated damages of 1% per week for the delayed period subject to maximum of 5% of the total value of the order shall be deducted from the invoice of the supplier. Earliest/ expected delivery period should be clearly indicated. Packing should be suitable for 'Air freight'.

21. Inspection: Inspection shall be carried out at IIT (ISM), Dhanbad after arrival of the materials and decision of the Institute in this regard shall be final.

22. Rejection and Replacement: Rejection, if any, shall be notified to the supplier within 30 days of receipt and inspection of the material/workmanship. Rejected materials/work is to be removed by the supplier at his own risk and cost from IIT (ISM). Campus within 14 days of intimation of rejection. Defective Supplies are required to be replaced within 15 days of the removal of the rejected materials/work.

23. Risk Purchase: IIT (ISM) shall be at liberty to realize from the supplier the differential amount, if any, which it shall have to incur on purchase of the material/work at higher price(s) from elsewhere in the

market, if the supplier, due to their fault, fails to supply the ordered quality and quantity of the material/work within the stipulated time.

24. Conditional offer will not be accepted.

25. Payment: Any payment may be released through RTGS / online payment mode against complete execution of the purchase order (PO) and submission of all the required documents as per the order within 45-60 days after satisfactory supply, inspection, installation/commissioning & acceptance and on submission of pre-receipted tax invoice, delivery challan, warranty certificate and installation report in triplicate and Performance Bank Guarantee, followed by its verification.

26. Advance payment or part payment will not be released. Any bid having condition of advance payment or part payment will be treated as non-responsive bid.

27. Country of origin and port of shipment must be stated in the technical bid itself in case of foreign supply. Any change at later stage will not be accepted.

28. Name and address of Indian Agent, percentage of agency commission, if any and role of the Agent with respect to the subject supplies and a statement thereon that "Agency Commission is included in the bid.

29. Payment will be released through bank/ RTGS/Wire transfer. The payment will be released after statutory deductions and compensation of delay / liquidated damage (LD) / late delivery etc., if any.

30. Any payment will be released only after satisfactory completion of the work/installation and after submission the certified bill(s) / invoice(s).

31. All communications are to be addressed to the Registrar, IIT (ISM), Dhanbad quoting the Tender No. and Date.

32. IIT (ISM), Dhanbad reserves the right to accept or reject or cancel any or all tender notice or bid(s) or order(s) at any stage without assigning any reason thereof.

33. For any dispute, the place of jurisdiction shall be Dhanbad (Jharkhand, India) only.

34. It will be the sole responsibility of the bidder(s) that its bid should reach on or before the submission deadline to Registrar, IIT (ISM), Dhanbad.

35. **Governing Law:** The order, placed, will be the contract between the successful bidder(s) and IIT (ISM), Dhanbad and shall be governed by the LAWS of India and under the contract shall be taken by the parties only in Dhanbad (Jharkhand, India) to competent jurisdiction.

36. Bid(s) shall be submitted in official tender form / format only. If submitted in any other form / format, the same shall be rejected. No paper shall be detached from the tender. All pages must be numbered properly and there must be seal and sign of the bidder(s) on all the pages of its bid.

37. The name and address of the bidder(s) shall be clearly written in the space provided and no overwriting, correction, insertion shall be permitted in any part of the tender. The tender should be

filled-in and submitted in strict accordance with the instructions laid down herein; otherwise the bid is liable to be rejected.

38. The bid is liable to be rejected if complete information is not given therein, or if the particulars and data (if any) asked for in the Schedule to the tender are not filled-in properly.

39. The successful bidder(s) will indemnify IIT (ISM), Dhanbad, in case of any damage or liability, which may arise on account of any act or omission directly/indirectly attributable to the bidder(s).

40. Dispute, if any arising out of providing the said service(s) shall be settled mutually or arbitration by sole Arbitrator to be appointed by the Registrar, IIT (ISM), Dhanbad at Dhanbad as per the provisions of the Indian arbitration and Conciliation Act, 1996 and the Rules framed there under. The award passed by the said sole Arbitrator, will be binding upon the parties. The arbitration proceedings shall be held at Dhanbad only.

41. The successful bidder(s) shall ensure that its authorized representative should be present at the time of any discussion at IIT (ISM), Dhanbad regarding the bid, for which no any kind of TA/DA/boarding/lodging will be facilitated by IIT (ISM) Dhanbad.

42. The schedules of items/services are required as per Chapter-4 of this tender. Bidder(s) must clearly indicate in its tenders, the different taxes and duties which they propose to charge mentioning clearly the present rate(s) thereof with appropriate reference. Vague offer like "duties as applicable" shall not be considered.

43. Price should be quoted at Price Bid (Part-2) (Chapter – 5 of this tender) only for the item(s)/services as mentioned at Chapter – 4 of this tender. The required item(s)/services to be delivered / provided on or before the dead line as per purchase order.

44. The bidder(s) should be registered with VAT, CST, SST, Income Tax, service tax authorities, GST etc. and to enclose the copies of the relevant certificate along with the technical bids. The agency must be authorized by appropriate government authority to deliver the items/services at the IIT (ISM) Dhanbad.

45. The successful bidder(s) will ensure that its employees/staff/personnel would strictly follow all the security instructions and rules and regulations of IIT (ISM), Dhanbad during their visit in the campus.

46. If the successful bidder(s) commits breach of any of the above or Order's terms and conditions or is not able to deliver the item / provide the services / complete the work on time, the contract will be cancelled and security deposit shall be forfeited and a damage liability at the discretion of IIT (ISM), Dhanbad will be imposed on the bidder(s).

47. **Bills / Invoices raised by the bidder(s) will be subject to applicable statutory deductions including T.D.S.**

48. Necessary corrigendum(s), if required, will be issued at any stage, which must be acceptable to the bidder(s). Any corrigendum will be published on our website www.iitism.ac.in only. Bidder(s) must be in touch with our website www.iitism.ac.in for corrigendum(s). It will be sole responsibility of the bidder(s) that they will go through the corrigendum(s) published, if any, on our website www.iitism.ac.inand submit its tender accordingly.

49. Shortlisted bidder(s) may be called for presentation / demonstration / meeting at IIT (ISM), Dhanbad office with a short notice. Request from the bidder(s) to change the date and time of presentation / demonstration / meeting will not be accepted. If the bidder(s) will not attend for the same, then their bid(s) will be treated as non-responsive and hence the bid(s) will not be considered for further process.

50. Price bids will be opened for those bidder(s) who are shortlisted and declared as technically qualified bidder(s) by the Committee of the IIT (ISM), Dhanbad. In this regard, decision of IIT (ISM), Dhanbad will be final and binding to all the bidder(s).

51. Please note that no part shipment/transshipment/third party shipment is acceptable to us.

52. Submission deadline / last date& time for submission of the bids and date & time for opening of the same are given in this bid. The bids will be opened as per IIT(ISM) rules. Authorized representative of bidders having authorization letter, a govt. issued ID card and an employment ID card issued by the bidder may present during bid opening at their own discretion. In case of submission deadline / last date or bid opening date is a holiday/declared as a holiday, then next working date will be the submission deadline / last date for submission/ opening of tender. Submission deadline or bid opening date& time will not be changed upon any request from the bidder side. However, it may be changed as per IIT(ISM) rules. In this regard, decision of the IIT (ISM), Dhanbad will be final and binding to all the bidders.

53. For the items / services, the bidders must ensure the required quality, quantity, materials, dimensions & other parameters and quote accordingly. In case items / services provided are not same as quoted/ordered, the claim for payment shall not be accepted. No payment, claims for such items / services shall be released. In this regard, decision of IIT (ISM), Dhanbad will final and binding to the bidders.

54. IIT (ISM), Dhanbad at its discretion may change the quantity/quality/parameters/upgrade the criteria/drop any item(s) or part thereof at any stage. In case of any dispute, the decision of IIT(ISM) shall be final and binding on the bidders/ tenderers.

55. IIT (ISM), Dhanbad reserves the right to accept or reject any or all the bids in part or in full without assigning any reason and does not bind itself to accept the lowest bid. The decision of the competent authority of IIT (ISM), Dhanbad will be final and binding to the bidder(s).

56. All the bidders, those are interested to participate in this bid, must have to submit the technical specification of their bid in MS-Word Format in a CD with the technical bid. The CD must be marked with the NIT No. and submission deadline.

57. Professional(s) to be deployed by the successful bidder(s) for the supply of the item / installation / execution of the work in order to provide the item(s) /service(s) as per order must be well qualified.

58. Supply, Installation, Service and 3 years Onsite Support Charges as per NIT of all the aforementioned items.

59. Entire work will be on Turnkey Basis.

60. The lowest bidder will be decided depending on the grand total, quoted for 5 years including additional Charges for Warranty, Services and Maintenance for 4th and 5th years.

61. Minimum Technical Specifications/Requirements as **per Annexure-1.**

62. Necessary hardware or passive components required for full proof deployment are to be provided by the bidder.

63. The bidder must be OEM or must have authorization from OEM. OEM and Bidder should be in the same business for at least 5 years and should be present in India for minimum 5 years.

64. The bidder must provide the certificate for successful installation of the similar items in India.

65. Bidder must install the server and all active and passive devices and integrate with existing LAN/Network.

66. Bidder must specify the power requirement for successful deployment of the aforementioned items.

67. Bidder must provide the complete installation report in both hard and soft copies.

68. The bidder shall be responsible for providing all materials, equipment's and services specified herein or otherwise which are required to fulfill the intent of ensuring operability, maintainability, and reliability of the complete equipment's covered under this tender within bidder's quoted price. The bidder may quote and include in their bill of quantities any components, which they deem are necessary for successful implementation of the project.

69. Bidder has to deploy the policies as per the IIT(ISM) authority instructions.

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CHAPTER 3
Schedule of Requirements

Description	Details
NIT No.	**App Chem-INS-008-19-20**
Date of Tender	**03-06-2019**
Earnest Money Deposit (EMD)	**₹ 4,00,000.00**
Bid submission deadline	**08.07.2019, 1:00 P.M.**
Date of opening of the bids (technical part-1)	**08.07.2019, 4:00 P.M.**

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CHAPTER 4
Specification and allied technical details

Introduction: IIT(ISM) Dhanbad desires to install a state-of-art High Performance Computing Resource. This HPC facility is expected to boost the computing power to the modelling and simulation research efforts of the Institute. Some of the proposed activities include computational fluid dynamics, bio-molecular simulations, computational chemistry and biology, transportation engineering, nanoelectronics and several other areas of science and technology (Quantum Espresso, LAMMPS, Siesta, CPMD, CP2K, ABNIT, NAMD, GROMACS, AMBER, COSMOL, MATLAB, Gaussian 09, Gaussian 16, ANSYS, etc.,).

Annexure-I

Detailed Specifications of HPC:

HPC Cluster Specifications	**ITEM 1: Master Node: 1 No.**
	Processor: 2 x Intel® Xeon® processor SKL-SP 4116 12C/24T 2.1G 16.5M 9.6GT UPI
	Chipset: Intel® C621
	Memory: 128 GB DDR4-2666 ECC RDIMM (16x DIMM slots)
	HDD OS: 4 x 4 TB Ent. SATA HDD 7.2K RPM
	Raid: 12Gb/s per port- Gen-3 - RAID 0,1,10,5,6,50,60
	NIC: Dual Gigabit Ethernet onboard with suitable cable(s),
	InfiniBand: ConnectX®-4 VPI adapter card, EDR IB (100Gb/s) and 100GbE, single-port QSFP28, PCIe3.0 x16
	Chassis: 2U Rack Mountable chassis with sliding rail kits.
	Graphics: Integrated
	Management: IPMI 2.0 compliant with dedicated port. Supports KVM over LAN and Virtual Media redirection
	Exp Slots: 4 PCI-E 3.0 x16, 2 PCI-E 3.0 x8 slots (Slot free for future upgradability)
	P. Supply: Redundant Power Supplies Titanium Level (96% efficiency)
	OS: CentOS Enterprise Linux
	Warranty: **5-year Parts, 5-year labour, and 5-year onsite support**
	Note:
	1. Node must has hot pluggable, redundant power supply and redundant fan units.
	2. Operating System should be installed in RAID using two Hard Disks.
	3. Job Scheduler & Resource Manager logs should be in another set of two Hard Disks with RAID.
	4. Master nodes should be in High Availability mode. Job scheduler, cluster management and monitoring tools should be available in failover mode.
	5. Master Node to be provided connectivity to campus LAN.
	ITEM 2: Compute Node: 10 Nos.

Processor: 2 x Intel® Xeon® processor Scalable SKL-SP 6130 16C/32T 2.1G 22M 10.4GT UPI

Memory: 128 GB DDR4-2666 ECC RDIMM (16x DIMM slots)

Chassis: Dense form factor, with 0.5U per compute node.

Storage: 1 x 1000 GB Enterprise SATA, SATA Support, 3x Hot-swap SATA Drive Bays.

Gigabit Ethernet: Dual Port Gigabit Ethernet with suitable cable(s),

InfiniBand: ConnectX®-4 VPI adapter card, EDR IB (100Gb/s) and 100GbE, single-port QSFP28, PCIe3.0 x16

Graphics: Integrated

Management: IPMI 2.0 compliant with dedicated port. Supports KVM over LAN and Virtual Media redirection

Exp Slots: 2 PCI-E 3.0 x16 slots

P. Supply: Redundant Power Supplies Titanium Level (96% efficiency)

OS: CentOS Enterprise Linux

Warranty: 5-year Parts, 5-year labour, and 5-year onsite support

1. All nodes must have hot pluggable, redundant power supply and fan units.

2. Redundant power supply solution should be considered at chassis level.

3. All services and file system of compute nodes have to come up automatically, upon booting them and after reinstalling from the master node.

4. Power cycling (Power on/off) compute nodes should be from master nodes.

ITEM 3: GPU Node: 5 Nos.

Processor: 2 x Intel® Xeon® processor Scalable SKL-SP 6130 16C/32T 2.1G 22M 10.4GT UPI

GPU: 4 x GeForce 2080 Ti 11GB GDDR6 Graphic Card (Supports Min 4 Cards)

Memory: 128 GB DDR4-2666 ECC RDIMM (16x DIMM slots)

Storage: 1 x 1000 GB Enterprise SATA, SATA Support, 3x Hot-swap SATA Drive Bays.

Gigabit Ethernet: 2x 10GBase-T LAN ports via Intel X550

InfiniBand: ConnectX®-4 VPI adapter card, EDR IB (100Gb/s) and 100GbE, single-port QSFP28, PCIe3.0 x16

Chassis: 4U Rack Mountable chassis with sliding rail kits.

Graphics: Integrated

Management: IPMI 2.0 compliant with dedicated port. Supports KVM over LAN and Virtual Media redirection

Exp Slots: 4 PCI-E 3.0 x16 (double-width) slots, 2 PCI-E 3.0 x16 (single-width) slots, 1 PCI-E 3.0 x4 (in x8) slot

P. Supply: Redundant Power Supplies Titanium Level (96% efficiency)

OS: CentOS Enterprise Linux

Warranty: 5-year Parts, 5-year labour, 5-year on site Supports

ITEM 4: Storage: Lustre based PFS with following specifications: 1 Set

Usable Space: >200TB

Thruput: >3GB/s (using 1MB block size)

Consisting of following components:

<u>I/O Server: 2 Nos</u>

Processor(s): 2 x Intel® Xeon SKL-SP 4116 12C/24T 2.1G 16.5M 9.6GT UPI

RAM: 128 GB DDR4-1866 ECC RDIMM (Max 1TB, 16 DIMM slots)

HDD(s): 2 x 1000GB, 7200RPM, Enterprise SATA hot-plug HDDs (as RAID1)

ODD: DVDROM drive

NIC: 2 x Gigabit(10/100/1000Mbps) Ethernet on-board

InfiniBand: 2 * 4X EDR (100Gbps) InfiniBand using Mellanox HCA

Graphics: Integrated

Management: On-board IPMI 2.0 with dedicated LAN and KVM over LAN support

Ports: 4 USB, 2 Network, 2 InfiniBand, 1 Management, 1 VGA

Chassis: 2U rack-mountable with rail-kit

P. Supply: redundant, hot-plug power supplies (80PLUS Platinum)

Storage Target (MDT + OST): 1 Set

HDDs (MDT): 9 x 900GB, 10K RPM, SAS 12Gbps HDDs configured as RAID10 + hot-spare

HDDs (OST): 78 x 4000GB, 7.2K RPM, SAS 12Gbps HDDs configured as 7 x 11-disk

Others: RAID6 volumes (9D + 2P), with 1 hot-spare HDD

Connected to both I/O servers over SAS 12Gbps links, with redundant power supplies, 4U rack-mountable

Warranty: **5-year Parts, 5-year labour, and 5-year onsite support**

ITEM 5: RACK: 2 Nos

1. All the nodes shall be mounted in 42U racks and Server Racks should be certified by Server OEM.

2. Both the front and rear door should have a handle with locking options. Cable entry should be entered via the roof plate and via the gland plate without affecting the climatic conditions inside the rack. A proven frame

design, heavy-gauge mounting rails, and heavy-duty casters provide for more than 1200 kg static and 1000 kg dynamic load ratings. All the hardware must be mounted in these racks and must be working as a cluster.

3. Considerable amount of C13 and C19 Sockets with at least 3 meters length power cord with industrial socket and correct rating MCB with Indicator switch need to be provided.

4. Appropriate number of racks with rail kit and all required accessories allowing sufficient air passage for cooling are needed.

One 42U rack for CPU nodes and storage. One 42U rack for GPU nodes.

ITEM 6: Console
KVM & 19" LED Monitor with Keyboard and mouse

ITEM 7: System Software

Job Scheduler: can be open source-preferred PBS or SLURM
Resource Manager: can be open source with integrated workload managers
Operating System Linux: CentOS

1. Modules support for maintain multiple versions of softwares All softwares should be configured with module environment.
2. All specified solutions and required software products must be clearly listed with mode of licensing used and number of licenses required including period of validity and any maintenance or upgrade applicable.
3. Restricted on software usage if, should be indicated.
4. PERPETUAL LICENSE is required for all these softwares.

ITEM 8: Network/Interconnect

InfiniBand Switch: 1 x Mellanox MSB7800-ES2F - Switch-IB(TM) 2 based EDR InfiniBand 1U Switch, 36 QSFP28 ports, 2 Power Supplies (AC), x86 dual core, standard depth, P2C airflow, Rail Kit
Gigabyte Switch: 1 x 48 Port Layer 2/3 Gigabyte Switch

1. All nodes to be connected by Gigabit network for administrative works.
2. Master node should have atleast 4x1 Gbps NIC for LAN connectivity.
3. All network/interconnect cablings must be structured and adhere to ANSI/TIA-568 standard.

ITEM 9: Software Applications that will run:

1. FFTW, LAMMPS, QUANTUM ESPRESSO, NAMD, etc.

2. Python, Numpy, Scipy, IPython, pythonmatplotlib, etc.

3. GRACE, VMD, Perl, Vim, GNU plot, etc.

Vendor should keep the system ready for commercial software like, MATLAB, COSMOL, Gaussian, etc.

Compilers and Libraries

1. mpif90, mpicc, gfortran, gcc, f95, f77, OpenMP, MPI, Open ACC version

2. Libraries: MKL libraries including LAPACK and BLAS, FFTW 2 & 3, NETCDF-4 (parallel versions of all), GSL libraries. **Intel Parallel studio XE (Cluster Edition) to be quoted as an additional item for two-set of Floating Licenses.**

3. CUDA toolkit version 9.0, 9.1, 9.2 and above.

Cluster Manager Software features

1. Discovery of hardware on the network.

2. Update of firmware and BIOS/UEFI settings.

3. Remote management of the hardware: power on/off, console, boot order control, inventory, vpd data, environmentals.

4. Management of node services: DNS, HTTP, DHCP, TFTP, NFS, NTP

5. Central management of configuration files.

6. Parallel commands to all nodes: ping, copy, sync, run commands, node comparison.

7. Installation and configuration of monitoring tools.

8. Role-based administration. Different users can be assigned various administrative roles for different resources.

9. If it is commercial software**, it should be quoted with appropriate licenses for all master and all compute nodes.**

Cluster management

1. User account management from master node.

2. Monitoring tool, integrated with Environment values, Load, Resource status, syslog status, system environment status, Hard Disk usage status and hardware configuration.

3. PDSH, Generating Host Keys for users and PDCP should be configured.

4. Users' home directory should be in file system with quota enabled.

5. Integration of all software components so as to make the complete HPC cluster system fully functional and usable (e.g., integration of the scheduler with MPI, any license managers, etc.).

Job management:

1. Jobs can be submitted from master/slave/login nodes.

2. Jobs have to be scheduled based on Fair share calculation (i.e., Historical usage of CPU)

3. Scheduling with checkpoint and restart.

4. Job scheduler configuration including new/delete/disable queues.

5. Dynamic Resource Management and Resource balancing.

6. Policy based resource allocation.

7. Configure job scheduler so that it is integrated with all installed MPI/Compiler/Application combinations.

8. Configure job scheduler for script less (short command line) submission of jobs.

9. Modules support for maintaining multiple version of software's.

10. Job status monitoring, Job history

11. Usage accounting & reporting with total utilization of resource.

12. Check runaway process before entering new jobs.

13. Restricting user login to compute nodes.

Firmware

1. All hardware should be installed with recent stable version of firmware.

ITEM 10: Documentation
1. User Creation/Deletion/Modification.
2. Bringing up and shutting down the cluster.
3. Disk status monitoring of Master/IO nodes and storage enclosure.
4. Basic troubleshooting for storage and job scheduler.
5. Step by step installation guide for node configuration from scratch.
6.When handing over the cluster the vendor should provide full design of the cluster installation including the electrical connections, network connections, user manual clearly explaining how to use the cluster.
7. Original CD/DVD's pertaining to the cluster including Operating System, Firmware, Libraries etc. need to be handed-over after installation.

ITEM 11: Services

1. Training for general system administration with documentation including tasks such as user/node management, installation/upgrade, queuing system management and file system management.

2. Technical support for administration/maintenance (both software and

hardware levels) of HPC. Vendor will be responsible to protect data during any upgrades of firmware/OS.

3. Faulty parts should be replaced within 48 hours of logging a call.

ITEM 12: Installation, Criteria of acceptance, Warranty and Training:
(5-year Parts, 5-year labour, 5-year on site Supports)

1. Installation and integration of all supplied hardware and software shall be done by the vendor. The vendor shall install and configure all required hardware and software suites, including but not limited to racking and stacking, cluster networking, configuring all nodes, execution and submission of jobs, installation of compilers and applications, configuration of environment variables and license utility configuration.

2. As a part of acceptance of the system, the bidder must install, configure and optimize user application/software on the cluster and demonstrate successful serial and parallel execution of all the user application/software's upto satisfaction of the users and declaration of the same.

3. As a part of acceptance of the system, the vendor must reproduce the LINPACK benchmark after installation of HPC.

4. As a part of acceptance of the system, the bidders must demonstrate that 1 TB of data is written with a minimum speed of 5 GBps as performance of the storage through IOR Benchmark.

5. As a part of acceptance of the system, the bidders must demonstrate the desired internal humidity level and temperature at full loading of all compute nodes with jobs.

6. Multiple copies of a detailed user manual and a day long admin and user training on the cluster usage and administration must be provided.

7. **The supplied hardware for HPC should have 5-year comprehensive on-site warranty including replacement of faulty hardware, upkeep, update and upgrades of software components at levels including BIOS, firmware, patches etc.**

8. The implementation team must visit the site and provide a comprehensive solution including power back-up and cooling.

General terms and conditions:

1. Vendor must have experience of installing and maintaining HPC Linux cluster for scientific computing in reputed academic Institutions/Research Labs. Relevant testimonials must be provided along with the quotation.

2. Any item not specifically mentioned in the specification but is required for successful implementation of the HPC solution (in the option of the vendor) must be brought to our notice and quoted accordingly.

3. At the time of installation, if it is found that some additional hardware or software items are required to meet the operational requirement of the configuration, but not included in the vendor's original list of deliverables, the vendor shall supply such items to ensure the completeness of the configuration at no extra cost.

4. The delivery of the product must be within 8 weeks and installation to be done within 12 weeks, after PO release.

5. The vendor immediately after the award of the work shall prepare a detailed plan of installation as proposed to be followed by placement of the equipment, etc.

6. The installation should be done by certified and trained engineers for HPCC stack followed by comprehensive user training.

7. Installation and integration of all supplied hardware and software shall be done by the vendor. The vendor shall install and configure all required hardware and software suites, including but not limited to racking and stacking, Cluster networking, Configuring all nodes, Execution and submission of jobs, Installation of compilers (with flags for optimization) and applications, Configuration of environment variables and license utility configuration.

8. All the required CAT6 Patch cables should be branded (ISO/IEC 11801) and it should be molded cables. It should withstand the heat produced at the back of servers.

9. Give all model numbers of master nodes, compute nodes, storage nodes (MDS and OSS), InfiniBand chassis switch model, maximum number of ports in IB switch and how many ports populated.

10. Provide case logging procedure for both hardware and software failure.

CHAPTER 5
PRICE SCHEDULE
1. PRICE SCHEDULE FOR GOODS BEING OFFERED FROM ABROAD

Name of the Bidder_____

NIT Reference No. _____

File Reference No. _____

Sl. No.	Description/Part No./Make Model	Quantity	Unit Price (in foreign currency)	Total Amount (in foreign currency)
1.				
2.				
3.				
Total Ex-Works Price-				
Packing & Forwarding and inland freight				
*FCA (at port)				
Terminal charges, loading on vassal				
**FOB (name of port)				
Air freight & insurance up to destination port				
*CIF				
Carrier charges & insurance up to final destination				
**CIP				
Concessional Custom Duty (Against DSIR Certificate)				
IGST rate (Against IIT (ISM) Certificate				
Other Duties taxes/clearance charge, if any				
Transportation charges up to IIT ISM Dhanbad				
Chargeable weight/Gross weight of consignment				
Indian agency Commission (%)				
Installation & Commissioning charge				
Training charges, if any				
Additional Warranty Charges, if any				
Annual Maintenance Charge, if any				
Educational discounts, if any				

*&** Mandatory requirement

Total Bid Price_____in words_____

Note :

Total Bid price in foreign currency _____ in words

(a) Indian agent name & address_____

(b) Installation, commissioning & training charges, if any_____

(C) Please note that Indian agents' commission shall be paid in Indian Rupees only.

(d) Banker's details such as- Name of account holder, Account Number, Name of Bank, Branch code, RTGS code, NEFT code, SWIFT code etc.

(f) Price schedule of optional items shall be indicated in a separate sheet in the same performa.

(g) Quoting Price for FOB/FCA and for CIF/CIP basis, otherwise bid will be rejected.

(h)Wherever the price quoted on FOB/FCA and CIF/CIP basis are the same, the contract would be made on CIF/CIP basis only.

(i) Country of Origin Dimension and Gross Weight must be provided.

Signature of Bidder

Name _____

Business Address_____

2. PRICE SCHEDULE FOR GOODS BEING OFFERED WITHIN INDIA

Name of the Bidder_____
NIT Reference No. _____
File Reference No. _____

Sl. No.	Full Description of items with (HSN Code/SAC Code)	Quantity	Unit Price (in INR)	Total Amount (in INR)
1.				
2.				
3.				
Ex-Works Price-				
Packing & Forwarding				
Transportation				
FOR (IIT ISM) Dhanbad				
GST/IGST (their rate(s) as the case may be, clearly specified) Please note that IIT ISM is eligible for Concessional GST as per Notification No. 45/2017- Central Tax (Rate) for CGST, 45/2017-State Tax (Rate) for SGST and 47/2017-Central Tax (Rate) for IGST,				
Insurance up to Destination/handover (in case of fabrication)				
Installation & Commissioning charge				
Training charges, if any				
Additional Warranty Charges, if any				
Annual Maintenance Charge, if any				

*(On the basis of the technical specifications submitted)

Total Bid Price_____   in words_____

Note :

(a) The Price schedule of optional items shall be indicated in a separate sheet in the same Performa.

(b) Cost spare parts may be indicated separately

Signature of Bidder
Name _____

Business

Address_____

UNDERTAKING BY THE BIDDER(S)

I have carefully gone through the various terms and conditions mentioned in the tender document of **High-performance computing (HPC) cluster.**I agree to all the conditions and offer to supply the item at IIT (ISM), Dhanbad. I am making this offer after carefully reading the conditions and understanding the same. I have acquainted with all the tasks required to be carried out, before making this offer. I will abide by the corrigendum(s), if any, to be issued by IIT (ISM) Dhanbad on its website www.iitism.ac.in. I hereby sign this undertaking as token of our acceptance of various conditions mentioned in tender document. Justification of the price is also attached herewith.

Place: _____

Dated: _____   Name & Signature of the bidder(s):

                                           Address: _____

******

CHAPTER 6
Contract Form

With reference to the tender reference no. **App Chem-INS-008-19-20**, Dated: **3 June 2019** of IIT(ISM), Dhanbad for Supply and Installation, **High-performance Computing (HPC) Cluster.** We (bidder(s)'s name) _____accept all the instructions and terms and conditions of the tender and accordingly hereby submit our quotation no. _____dated_____.

ALL TERMS AND CONDITIONS OF THE N.I.T. ARE ACCEPTED

1	Name and address of the bidder	
2	Telecom nos. of the bidder i.e. phone fax, & email id.	
3	Signature, name & designation of the person signing on behalf of the bidder& his/her office seal	
4.	Name & designation of the contact person & his phone/mobile no./e-mail ID	

We hereby declare that all statements/details made in this tender are true, complete and correct to the best of my knowledge and belief. I understand that in the event of any information being found false or incorrect at any stage or we do not satisfy any of the stated criteria, our offer is liable to be cancelled automatically and IIT (ISM), Dhanbad may take an action against this firm for such false information including legal action.

Signature:

Name:

Designation:

Bidder(s)'s Name:

Seal:

******

Chapter: 7
Form No.: 7.1

To,

The Registrar,

Indian Institute of Technology (Indian School of Mines), Dhanbad,

P.O. – I.S.M.

DHANBAD– 826004.

Ref.: Your Notice Inviting Tender No. App Chem-INS-008-19-20, Dated: 03-06-2019.

Sub: Technical bid relating to **Supply and Installation, High-performance computing (HPC) cluster.**

Sir/ Madam,

1. I/We have gone through all Chapters of the tender document such as Instructions and Terms and conditions, minimum eligibility criteria, schedule of requirements, Specifications and allied technical details etc. as enlisted by you in your Notice Inviting Tender for the subject under reference.

2. I/We, hereby confirm that we have understood all the above and confirm my/our commitment to abide by them.

3. I/We also confirm my/our commitment to provide the services as enlisted in your Notice Inviting Tender under reference.

Seal and Signature of authorized signatory of the bidder(s) with date→

Documents	Yes/No	Document No. (If submitted a copy of the same)
PAN Card/Voter ID/Aadhaar Card		
Official ID Card		
Other Documents (specify below)		

(A copy of PAN/Voter Card/Aadhar Card and official ID card of the authorized signatory of the bidder(s) must be attached with this letter.).

******

Form No.: 7.2
(to be submitted with technical bid part-1)

1.   **Earnest Money Deposit: DD NO._____Date:_____ Amount : ₹ 4, 00,000/- ,Issued by**

   bank and branch _____

2.   **Validity of Quotation: days from the date submission deadline (minimum 240 days from the**

   date of opening of price bid)…………………………………………

3.   **Performance Security or PBG: Will Be Submitted with the proforma invoice or invoice, if**

   Purchase Order placed by I.I.T. (I.S.M.), Dhanbad

4.   **Payment Terms: Payment after supply, satisfactory installation and submission of all required**

   documents as per Purchase Order after statuary deductions and penalty (liquidity damage), if

   any as decided by I.I.T. (I.S.M.), Dhanbad.

ALL THE ABOVE MENTIONED TERMS & CONDITIONS ARE ACCEPTED BY US AND PROFORMA IS SUBMITTED FOR CONSIDERATION.

_____
Signature & Seal of the Bidder(s)

******

Form No.: 7.3
TECHNO-COMMERCIAL BID (Part-1)

TECHNICAL BID

1. Name of the Bidder(s)...

2. Name of the authorized person (who signs on the tender document on behalf of bidder(s)) with PAN/Voter

Card No./Aadhar No. ………………………………………………………………………………………….

3. Address of the Bidder(s)... , Website …………………

4. Phone No. .... (Mobile)...........................Fax................................ E-mail ………………….

Details of the item and its specification:

Sl. No	Particulars	Description

Name of the authorized signatory:

Name of the Bidder(s):

Contact No.:

_____
Signature & Seal of the Bidder(s)

******