UTKAL UNIVERSITY

VaniVihar, Bhubaneswar-751004
Odisha, India

WEB: www.utkaluniversity.ac.in

E-mail: coordinator.cif@utkalunivrsity.ac.in

TWO BID OPEN TENDER DOCUMENT

(Technical and Financial Bids)

For

Procurement of Scientific Equipment / Instruments / for Central Instrumentation Facility, Utkal University

Tender No: DRS/RUSA/(Equipment)/ 08/2026, Dt. 26.02.2026

Last Date for submission of Tender Documents: 19.03.2026(Thursday) by 5.00 PM

Date & time for opening of Tender documents: 20.03.2026(Friday) at 2.00 PM

Tender Paper can be downloaded from

www.utkaluniversity.ac.in

UTKAL UNIVERSITY
VaniVihar, Bhubaneswar-751004

TENDER CALL NOTICE

No. **DRS/RUSA/(Equipment)/ 08 /2026** Date: 26.02.2026

Sealed (Two bid) tenders are invited from reputed manufactures/authorized dealers having valid GST, PAN/TAN number for supply, installation and commissioning of different scientific equipment/ instruments for Central Instrumentation Facility (CIF) of Utkal University. The tender documents will be available at **www.utkaluniversity.ac.in**on26-02-2026at 10.00 AM onwards. The bidding documents/tenders, complete in all respects,will be received up to **5.00 PM on19-03-2026**. The authority reserves the right to accept/negotiate/cancel/reject part or the entire tenders and modifies the items & the conditions/specification at any stage without assigning any reason thereof. The sealed tender paper superscripted as "**TENDER FOR CIF**" will be received by speed post/courier during office hours on working days only. The tender will be opened on 20-03-2026at 2.00 PM at Central Instrumentation Facility (CIF) Building.The authority will not be held responsible for any postal delay.

25/2/26

REGISTRAR

Utkal University

Registrar
Utkal University
Vani Vihar, Bhubaneswa

Memo No.**DRS/RUSA/(/(Equipment)/ 09 /2026** Date: 26.02.2026

Copy to

1. The Chairperson, Post Graduate Council, Utkal University
1. The Comptroller of Finance, Utkal University
2. The Director, R&D, Utkal University
3. The PS to Vice-Chancellor, Utkal University
4. The Coordinator RUSA 2.0, Utkal University
5. The Coordinator, IDP & WB-OHEPEE, Utkal University
6. The Professor-in-charge, Computer centre, Utkal University, for uploading in the university website for information of all concern
7. M/s **DISPLAY LINE** With a request to publish the advertisement in one issue of the Times of India (All edition), the Samaj& the Sambad at the I &PR rate of Government ofOdisha (With the trade discount) and to submit the bill in triplicate for payment.
8. All Notice boards, Utkal University for general information.
9. Notice Board, PG Council, Utkal University.
10. Notice Board, CIF, Utkal University.

For information and necessary action.

25/2/26

REGISTRAR

Utkal University

Registrar
Utkal University
Vani Vihar, Bhubaneswar-

UTKAL UNIVERSITY
Vani Vihar, Bhubaneswar-751004
IMPORTANT INFORMATION FOR THE TENDER

1	Type of Tender	**Two Bid Open Tender System**
2	Tender no.	Tender No: DRS/RUSA/(Equipment)/ 08 /2026**,** Dt. 26.02.2026
3	Availability of tender paper on website: date and time	26.02.2026; 10.00 AM
4	Last date for submission of tender documents	19.03.2026 by 5.00 PM
5	Place of Submission (Only by Speed Post/Courier)	Office, CIF Building, Utkal University, Vani Vihar, Bhubaneswar – 751004
6	Date of opening of Tender Documents	20.03.2026 at 2.00 PM
7	Place of Opening the tender papers	Conference Hall, 1st floor, CIF Building, Utkal University
8	Cost of the tender paper	Rs. 1,500/- as Demand Draft (DD) In favour of **Comptroller of Finance, Utkal University**, payable at Bhubaneswar.
9	Earnest Money Deposit (EMD)	2% of the approx. cost of equipment as given in Annexure-I in form of Demand Draft, payable to **Comptroller of Finance, Utkal University.** Firms eligible for exemption, they have to submit the desired Declaration form in lieu of EMD as per the regulations of Govt. of Odisha (Annexure- V).
10	Performance Security	Performance Security @ 5% is to be submitted by the successful bidder for the selected items or alternatively, a declaration with bank guarantee is required at the time of submission of bill valid upto warranty period / CAMC period(Annexure - VI)
11	Tender Documents Total Pages	1-56

UTKAL UNIVERSITY
Vani Vihar, Bhubaneswar-751004

TENDER PAPER

Tender No: DRS/RUSA/(Equipment)/ 08 /2026Dt. 26.02.2026

Sealed (two bid) tenders are invited from reputed manufacturers/ authorized dealers/ stockiest for supply of Scientific Equipment / Instruments for Central Instrumentation Facility of Utkal University. Detailed information and tender documents of the above items are available in the website of Utkal University (www.utkaluniversity.ac.in). The tender paper, complete in all respect, will be received at the Office of **Central Instrumentation Facility, CIF Building, Utkal University only by speed post/courier.**

The last date for submission of the tender papers is19.03.2026 by 5.00 PM

EMD value: 2% of approx. cost of equipment as given in Annexure-I or Filled-in Declaration in lieu of EMD (Annexure- V) is to be submitted by the bidder.

1. **Language of the tender paper: English**
2. **Eligible Goods & Services:** All goods and related services to be supplied under the contract shall have their origin in India or any other country with which India has not banned trade relations. The term "origin" used in this clause means the place where the goods are mined, grown, produced, or manufactured or from where related services are arranged and supplied/ Services to be supplied.
3. **Corrigendum:** At any time within 7days prior to the deadline for submission of Bids, the purchaser may, for any reason deemed fit by it, modify the Tender Enquiry Document by issuing suitable Corrigendum to it. Corrigendum will be notified through www.utkaluniversity.nic.in only. In order to provide reasonable time to the respective Bidders to take necessary action in preparing their Bids as per the amendment, the purchaser may, at its discretion, extend the deadline appropriately for the submission of Bids and other allied time frames, which are linked with that deadline.
4. **Preparation of Bids:** The **Two Bid system**, i.e., **02 sets of "Technical Bids" and 01 set of "Financial Bid''** in three different sealed envelopes, prepared by the Bidder, in two different sealed

envelopes must be sealed within one envelope superscripted as "**Tender for CIF- 2026(1)**". **The Bidder must sign and put seal on all the pages of both the bids.**

The details for preparation of both the bids are as follows.

A. Technical Bid (Un-priced bid):

i. EMD in form of **DD** or Filled-in **Declaration in lieu of EMD (Annexure- V)** only for Exempted bidders as per Govt of Odisha rules, is to be submitted by the bidder.

ii. Technical specification of quoted equipment/instruments. **Bids have to be given in the desired format (Annexure-II A) in TWO COPIES separately for each item.**

iii. All requirements like appropriate Voltage Stabilizer, Online UPS, dedicated tables, computers, printers and others, if any, necessary for the proper functioning of the equipment/instruments, should be clearly specified and quoted in INR in the bid.

iv. Provision of electricity, water and gas, any alternation of wall electrical sockets and / or dedicated electric line up to the place of installation should clearly be stated in the bid and should be quoted in turnkey method.

v. **Technical brochure/catalogue** of Original Equipment: Manufacturers(OEM) of quoted equipment detailing its technical parameters.

vi. Scanned copy of "**Performance statement**" along with relevant copies of order and End Users satisfaction certificate supplied within last **THREE** Years.

vii. **GST Registration Certificate**.

viii. Bidder should submit the manufacturer's **Authorization Certificate** for the quoted goods manufactured by other manufacturers.

ix. **Declaration Certificate** as per Annexure-III

x. **Compliance and Non-compliance statement** with respect to the specifications given must be enclosed in both hard and soft copy of the bids.

xi. An **Undertaking** need to be submitted as mentioned in Annexure IV.

xii. Valid **DSIR Certificate** will be provided by the purchaser.

B. Financial (Price) Bid:

i. Price schedules/ Financial Bid may be prepared with all the details including Make, Model etc. of goods. **Bids have to be given in the desired format (Annexure-IIB) separately for each item.**

ii. The price should be inclusive of all taxes, Clearance, and **C. I. F.** up to the place of installation at Central Instrumentation Facility, Central Instrumentation Facility building (Adjacent to the Law Department), Utkal University, Bhubaneswar-751004.

5. **Bid Currency:**

The Bidder supplying indigenous goods or already imported goods shall quote **only in Indian rupees (INR)**. For imported goods if supplied directly from abroad, prices need to be quoted in any freely convertible currency. As regards to the prices for allied services, if any required with the goods, the same shall be quoted in Indian rupee only, If such services are to be performed/ undertaken in India. Alternatively, the Bidder may quote in both foreign currency and INR.

Commission for Indian Agent, if any and if payable, shall be indicated in the space provided for the price schedule and will be payable in Indian rupees only after satisfactory supply, installation, commissioning, and acceptance of the goods. **The rate of conversion shall be taken as on the date of placement of purchase order**. Bids, where prices are quoted in any other way shall be treated as non-responsive and rejected.

6. **Bid Price:**

The price of the items quoted in INR should be inclusive of all taxes and delivery charges up to the place of installation at Central Instrumentation Facility, CIF Building, Utkal University, Bhubaneswar-751004.

If the supply is from outside India, the custom clearance is to be taken up by C & F agent engaged by the bidder and the said agent shall forward the consignment up to our Laboratory. University will provide required documents only.

The cost of clearing the goods, custom charges will be borne by the University and to be quoted separately/along with the original quote.

The transport charges and forwarding of the consignment up to the place of installation at the Central Instrumentation Facility, including demurrage charge, if any, shall be borne by the Bidder. University will not be responsible for unnecessary demurrage charges by delay in handling the document for clearance by the agent.

7. **Information and Instruction on Taxes & Duties:**

GST (Goods and Services Tax) – Quoted rate should be inclusive of GST and other applicable taxes and duties.

Custom Duty – The purchaser will pay the Custom Duty wherever applicable. The Price quoted should be inclusive of Packing, Insurance and transport up to the place of installation.

The goods imported from abroad, shall be governed by the rules and regulations prescribed in the current edition of INCOTERMS-2020, published by the International Chamber of Commerce.

8. **Indian Agent:**

If a foreign Bidder has engaged an agent in India in connection with its Bid, they should indicate the complete name, address, details of the services to be rendered and the commission of the Indian agent.

9. **Alternative Models:**

The Bidder can also quote alternate models meeting the specifications of the tender document of same manufacturer with single Bid Security.

10. **Earnest Money Deposit (EMD):**

2% of approx. cost of equipment as given in Annexure-I or Filled-in Declaration in lieu of EMD (Annexure- V) is to be submitted by the bidder.

11. **Bid validity:**

The Bid shall remain valid for acceptance for a period of 365 days from the last date of the tender submission. Any Bid valid for a shorter period shall be treated as unresponsive and rejected.

In exceptional cases, the Bidder may be requested by the purchaser to extend the validity of their Bids.

12. **Submission of Bids:**

Both the Bids have to be given strictly in the desired format (Annexure-IIA & IIB) separately for each item.

The Bidders are required to submit hard copies along with the soft copy (in a CD/DVD/Pendrive format) of their Bids by India post (speed post)/ by courier to ***The Registrar, At-Office of CIF, 1st Floor, Central Instrumentation Facility Building, Utkal University, VaniVihar, Bhubaneswar-751004,Odisha, India*** which should reach on or before the Bid submission last date and time as mentioned in Important Information (page no.3).

13. **Bid Opening:**

Bids will open as per the date and time mentioned in the "Important Information" (page **no. 3**)

14. **Security & Evaluation of the Bids:**

The purchaser will examine the Bids to determine whether they are complete. All pages of both the Bids should bear seal and signature of the Bidder and devoid of any over-writing. The Bids must be neatly typed and printed in **CAPITAL** without any computational error and hand-written information.

The Bidder must mention the quoted item numbers as mentioned in **Annexure I**, on the envelope containing the bids.

The Bids which do not meet the basic requirements are liable to be treated as non- responsive and will be rejected.

Bidders who stand de-registered/banned/blacklisted by any Central/Odisha Government/Institutions or with poor/ unsatisfactory past performance will be rejected. In this regard the bidder has to submit an undertaking as mentioned in Annexure IV.

During the evaluation, any minor informality and/or irregularity and/or non- conformity in a Bid, which has not price implication, will be conveyed to the Bidder by email asking for clarification by a specific date. Unresponsiveness or any evasive reply by the Bidder will make the bids invalid.

15. **Award of Contract:**

The purchaser reserves the right to accept in part or in full any bid or reject any or more bid(s) without assigning any reason or to cancel the Tender process and reject all bids at any time prior to award of contract, without incurring any liability, whatsoever to the affected bidder(s).

16. **Corrupt or Fraudulent Practices:**

Any corrupt or fraudulent practice for influencing the tender / procurement process are discouraged and shall declare a firm ineligible, either indefinitely or for a stated period of time.

17. **Patent Rights:**

The supplier shall, at all times, indemnify and keep indemnified the purchaser, free of cost, against all claims which may arise in respect of goods and services to be provided by the supplier under the contract for infringement of any intellectual property rights or any other right protected by patent, registration of designs or trademarks. In the event of any such claim in respect of alleged breach of patent, registered designs, trademarks etc. being made against the purchaser, the purchaser shall notify the supplier of the same and the supplier shall, at his own expenses take care of the same for settlement without any liability to the purchaser.

18. **Country of Origin:**

All goods and services to be supplied and provided for the contract shall have the origin in India or in the countries with which the Government of India has trade relations.

The word "origin" means the place from where the goods are mined, cultivated, grown, manufactured, produced or processed or from where the services are arranged. The country of origin must be specified in the Bids.

19. **Inspection, Testing & Quality Control:**

The purchaser and/or its nominated representative(s) will, without any extra cost to the purchaser, inspect and/or test the ordered goods and the related services to confirm their conformity to the contract specifications and other quality control details incorporated in the contract. The purchaser shall inform the supplier in advance, in writing, the purchaser's program for such inspection and, also the identity of the officials to be deputed for this purpose. "The cost towards the transportation, boarding and lodging will be borne by the purchaser and/or its nominated representative(s) for the first visit. In case the goods are rejected in the first instance and the supplier requests for re-inspection, and if same is accepted by Purchaser/Consignee, all subsequent inspections shall be at the cost of the supplier. The expense such as to and fro Economy Airfare, Local Conveyance, Boarding and Lodging of the inspection team for the inspection period will be borne by the supplier.

The Technical Specification incorporated in the contract shall specify what inspections and tests are to be carried out and, also, where and how they are to be conducted. If such inspections and tests are conducted in the premises of the supplier or its subcontractor(s), all reasonable facilities and assistance, including access to relevant drawings, design details and production data, shall be furnished by the supplier to the purchaser's inspector at no charge to the purchaser.

If during such inspections and tests the contracted goods fail to conform to the required specifications and standards, the purchaser's inspector may reject them and the supplier shall either replace the rejected goods or make all alterations necessary to meet the specifications and standards, as required, free of cost to the purchaser and re-submit the same to the purchaser's inspector for conducting the inspections and tests again.

In case the contract stipulates pre-dispatch inspection of the ordered goods at supplier's premises, the supplier shall put up the goods for such inspection to the purchaser's inspector well ahead of the contractual delivery period, so that the purchaser's inspector is able to complete the inspection within the contractual delivery period.

If the supplier tenders the goods to the purchaser's inspector for inspection at the last moment without providing reasonable time to the inspector for completing the inspection within the contractual delivery period, the inspector may carry out the inspection and complete the formality beyond the contractual delivery period at the risk and expense of the supplier. The fact that the goods have been inspected after the contractual delivery period will not have the effect of keeping the contract alive and this will be without any prejudice to the legal rights and remedies available to the purchaser under the terms and conditions of the contract.

The purchaser's contractual right to inspect, test and if necessary, reject the goods after the goods arrival at the final destination shall have no bearing of the fact that the goods have previously been inspected and cleared by purchaser or during pre-dispatch inspection mentioned above.

Goods accepted by the purchaser/consignee and/or its inspector at initial inspection and in final inspection in terms of the contract shall in no way dilute purchaser's/consignee's right to reject the same later, if found deficient in terms of the warranty clause of the contract, as incorporated under GCC Clause15.

Principal/ Foreign supplier shall also have the equipment inspected by recognized/ reputed agency nominated by the Purchaser prior to dispatch at the supplier's cost and furnish necessary certificate from the said agency in support of their claim

On rejection, the supplier shall remove such stores within 14 days of the date of intimation of such rejection from the consignee's premises. If such goods are not removed by the supplier within the period mentioned above, the purchaser/consignee may remove the rejected stores and either return the same to the supplier at his risk and cost by such mode of transport as purchaser/consignee may decide or dispose of such goods at the suppliers risk to recover any expense incurred in connection with such disposals and also the cost of the rejected stores if already paid for.

20. **Terms of Delivery:**

Goods shall be delivered by the supplier in accordance with the terms of delivery and as per the delivery period specified in the schedule of requirement. Please note that the time shall be the essence of the contract.

21. **Transportation of Goods:**

Instructions for transportation of imported goods offered from abroad: The supplier shall not arrange part-shipments without the express/prior written consent of the purchaser. The supplier is required under the contract to deliver the goods under CIP (Named port of destination) terms.

22. **Insurance:**

The supplier shall make arrangement for insuring the goods during transit against loss or damage, up to the place of installation at CIF building, Utkal University.

If the equipment is not commissioned and handed over to the consignee within 3 months, the insurance will have to be extended by the supplier at their cost till the successful installation, testing, commissioning and handing over of the goods to the consignee. In case the delay in the installation and commissioning is due to handing over of the site to the supplier by the consignee/End User, such extensions of the insurance will still be done by the supplier, but the insurance extension charges at actuals will be reimbursed.

23. Make, Model and manufacturing date:

The bidder must clearly specify the **Make (Manufacturer)** and **Model** of the quoted equipment/component in the technical bid. The equipment supplied must be new, unused, and of recent manufacture. The manufacturing date of the equipment shall preferably be after the date of issuance of the Purchase Order. Under no circumstances shall the manufacturing date be earlier than June, 2025. The bidder must explicitly mention the country of manufacturing/origin of the equipment in the technical bid.

24. Spare Parts:

If specified in the list of requirements and in the resultant contract, the supplier shall supply/provide any or all of the following materials/information, etc**. for 10 years from the date of purchase,** pertaining to spare parts manufactured and/or supplied by the supplier:

(a) The spare parts as selected by the Purchaser/End User to be purchased from the supplier, subject to the condition that such purchase of the spare parts shall not relieve the supplier of any contractual obligation including warranty obligations; and

(b) In case the production of the spare parts is discontinued: Sufficient advance notice to the Purchaser/End User before such discontinuation to provide adequate time to the purchaser to purchase the required spare parts, etc., and

Immediately following such discontinuation, providing the Purchaser/End User, free of cost, the designs, drawings, layouts and specifications of the spare parts, as and if requested by the Purchaser/End-user.

Supplier shall carry sufficient inventories to assure ex-stock supply of consumables and spares for the goods so that the same are used during warranty and CAMC period.

25. Incidental Services:

The supplier shall be required to perform the following services:

i) Installation and Commissioning, Supervision, Demonstration, Trial run, etc. of the goods.
ii) Turnkey work (if any).
iii) Training of Consignee's/End Users, Staff, operators, etc. for operating and maintaining the goods.
iv) Supplying required number of operation & maintenance manual for the goods.
v) Organizing trainings/ workshops, at least once in a year, during the CAMC period.

26. Distribution of Dispatch Documents for Clearance/Receipt of Goods:

The supplier shall send all the relevant dispatch documents well in time to enable the purchaser clear or receive (as the case may be) the goods in terms of the contract.

Within 24 hours of dispatch, the supplier shall notify the concerned Officer of CIF, Utkal University and others concerned the complete details of dispatch and also supply following documents by air mail / courier etc. with intimation by e-mail:

a) Commercial Supplier's Invoice giving full details of the goods including quantity, value, etc.
b) Packing list
c) Certificate of country of origin
d) Bill of Lading/Airway Bill
e) Insurance Certificate (if applicable)
f) Manufacturer's guarantee and Inspection certificate (if applicable)
g) Inspection certificate issued by the Purchaser's Inspector (if applicable)
h) Any other document(s), if required, in terms of the contract.

27. **Warranty & CAMC:**

The supplier warrants comprehensively that the goods supplied under the contract is new, unused and incorporate all recent improvements in design and materials unless prescribed otherwise by the purchaser in the contract. The supplier further warrants that the goods supplied under the contract shall

have no defect arising from design, materials (except when the design adopted and / or the material used are as per the Purchaser's/Consignee's specifications) or workmanship or from any act or omission of the supplier, that may develop under normal use of the supplied goods under the conditions prevailing in India.

The warranty shall include all spares, labour and preventive maintenance from the date of completion of the satisfactory installation and acceptance till warranty period.

The bidder should also mention the numbers of workshops to be hosted during the period of warranty.

All software updates for functioning of equipment/instruments should be free of cost during the warranty period.

The Comprehensive Annual Maintenance Contract (CAMC) shall include all spares, labour and preventive maintenance from the date of completion of the satisfactory installation and acceptance till warranty period.

Warranty as well as CAMC will be inclusive of all accessories and turnkey work and it will also cover the following, wherever applicable:

a) All kinds of Motors

b) Plastic and Glass Parts against any manufacturing defects

c) All kinds of sensors

d) All kinds of coils, probes and transducers

e) Printers and imagers including laser and thermal printers with all parts

f) UPS including the replacement of batteries

g) Air-conditioners

The equipment/instrument should be protected from sudden power breakdown, in case of any claim arising out of this warranty and CAMC period the Purchaser/Consignee shall promptly notify the same in writing to the supplier.

Upon receipt of such notice, the supplier shall, within **24** hours on a 24(hrs) X 7 (days) X 365 (days) basis respond to take action to repair or replace the defective goods or parts thereof, free of cost, at the ultimate destination. The supplier shall take over the replaced parts/goods after providing the replacements and no claim, whatsoever shall lie on the purchaser for such replaced parts/goods thereafter. The penalty clause for non-rectification will be applicable as per conditions laid down in the Tender Enquiry Document.

In the event of any rectification of a defect or replacement of any defective goods during the warranty period, the warranty for the rectified/replaced goods shall be up to the completion of the original warranty period of the main equipment.

If the supplier, having been notified, fails to respond to take action to repair or replace the defect(s) within 24 hours on a 24(hrs) X 7 (days) X 365 (days) basis, the purchaser may proceed to take such remedial action(s) as deemed fit, at the risk and expense of the supplier and without prejudice to other contractual rights and remedies, which the purchaser may have against the supplier.

During Warranty and CAMC period, the supplier is required to visit at each consignee's site at least once in 6 months commencing from the date of the installation for preventive maintenance of the goods

The supplier along with its Manufacturer, Indian Agent and the CAMC provider shall ensure continued supply of the spare parts for the machines and equipment supplied by them to the purchaser for **10 years** from the date of installation and handing over.

The Supplier along with its Manufacturer, Indian Agent and the CAMC Provider shall always accord most favoured client status to the Purchaser vis-à-vis its other Clients/Purchasers of its equipment/machines/goods, etc. and shall always give the most competitive price for its machines/equipment supplied to the Purchaser/Consignee.

28. **Taxes & Duties:**

In case of any modification or alterations in the taxes/duties, the tax prevailing at the time of supply of the goods, will be considered as the tax schedule. However, the supplier has to inform the intenders if there is any hike in taxes/duties.

29. **Terms & Mode of Payment:**

Payment shall be made through electronic transfer in NEFT/RTGS subject to recoveries, if any, by way of liquidated damages or any other charges as per terms and conditions of contract in the following manner:

A. Payment for Indigenous Goods (M&E) Or Foreign Origin Located within India

Payment would be made against "Installation and Acceptance Certificate" of goods to be issued by the End User subject to recoveries, if any, either on account of non-rectification of defects/deficiencies not attended by the Supplier or otherwise. "Installation and Acceptance Certificate" need to be issued by the concerned End User after installation, commissioning, testing and successful trial run (if applicable).

B. Payment for Imported Goods (M&E): Payment for foreign currency portion shall be made in the currency as specified in the contract in the following manner:

a) The net FCA/CIP price (i.e. FCA/CIP price less Indian Agency commission) of the goods dispatched by Sea/Air shall be paid through irrevocable, non-transferable Letter of Credit (LC) opened in favour of the supplier in a bank in his country or through wire transfer and upon submission of documents specified hereunder:

(i) Commercial Supplier's Invoice giving full details of the goods including quantity, value, etc.

(ii) Packing list

(iii) Certificate of country of origin

(iv) Negotiable clean Bill of Lading/Airway Bill

(v) Insurance Certificate; (if applicable)

(vi) Manufacturer's guarantee and Inspection certificate (if applicable)

(vii) Inspection certificate issued by the Purchaser's Inspector (if applicable)

(viii) Any other document(s) as and if required in terms of the contract.

b) All Incidental Costs, if applicable will be borne by the supplier.

Terms of payment for imported goods

a) The supplier shall not claim any interest on payments under the contract.

b) Where there is a statutory requirement for tax deduction at source, such deduction towards income tax and other tax as applicable will be made from the bills payable to the Supplier at rates as notified from time to time.

c) Irrevocable & non – transferable LC shall be opened by the Purchaser. However, if the supplier requests specifically to open confirmed LC, the extra charges would be borne by the supplier. If LC is required to be extended and/or amended for reasons not attributable to the purchaser, the charges thereof shall be borne by the supplier.

d) The payment shall be made in the currency / currencies authorized in the contract.

e) The supplier shall send its claim for payment in writing, when contractually due, along with relevant documents, etc., duly signed with date.

f) While claiming payment, the supplier is also to certify in the bill that the payment being claimed is strictly in terms of the contract and all the obligations on the part of the supplier for claiming that, payment has been fulfilled as required under the contract.

g) While claiming reimbursement of duties, taxes, etc. (like GST, Custom Duty, etc.) from the Purchaser, as and if permitted under the contract, the supplier shall also certify that, in case it gets any

refund out of such taxes and duties from the concerned authorities at a later date, the supplier shall refund to the Purchaser forthwith.

30. **Delivery of the Goods:**

The time and date of delivery of the goods stipulated in the schedule shall be deemed to be of the essence of the contract and the delivery must be completed not later than the date (s) as specified in the contract. Any unexcused delay by the supplier shall render sanctions like, imposition of liquidated damages, forfeiture of its Performance Security and/or Termination of the Contract for default.

The supplier shall not dispatch the goods after expiry of the delivery period. The supplier is required to apply to the Purchaser for extension of delivery period and obtain the same before dispatch. In case the supplier dispatches the goods without obtaining an extension, it would be doing so at its own risk and no claim for payment for such supply and/or any other expense related to such supply shall lie against the purchaser.

The installation of the delivered equipment/instruments must be completed within 20 days of the delivery of the goods at the designated site.

For all sophisticated equipment/Instruments, the supplier has to give three consecutive demonstrations for the benefit of the Institution. All chemicals and reagents required for complete demonstration of the equipment should be along with the instrument or should be along with the technical person at the time of installation.

31. **Negotiation Clause:**

The negotiations will be held at the date and address decided by the Purchaser with the bidder / bidder's representative(s) who must have written power of attorney to negotiate and sign a Contract on behalf of the Seller. The purchaser shall prepare minutes of negotiations that are signed by the purchaser and the bidder / bidder's authorized representative(s).

32. All legal disputes arising out of the process of purchase and its payment will be limited to the jurisdiction of the court of the Bhubaneswar, Odisha.

Annexure I

List of Scientific Equipment

Item code	Name of the Item
1.	Field Emission Scanning Electron Microscope (FE-SEM)
2.	FTIR Spectrometer (FT-IR) with ATR
3.	Inductively Coupled Plasma - Optical Emission Spectrometry, (ICP-OES)
4.	Differential Global Positioning System
5.	A.Water Analyser B. Portable Turbidity Meter
6.	Gaussian Software with operating system
7.	Protein purification system
8.	Cryostat
9.	Flow cytometer
10.	Rotary evaporator
11.	Rotary vacuum pump
12.	Fume hood
13.	Cryogenic liquid nitrogen containers (Model A and B)
14.	Schlenk lines
15.	Electrochemical workstation

Annexure II (A)

Format for submitting Technical Bid (In Company's Letter head)

Item code _____ (as per Annexure I)

Name of the Item: _____

Tender No: ……. **Date: ……**

To
The Registrar
Utkal University, Bhubaneswar-751004

Sub: Quotation for .....

MAKE: ……

MODEL: ……

Sl. no.	Make & Model	Technical Specification
Alternative Model (if any)		

Seal & Signature

Date: …….

Annexure II (B)

Format for submitting Price Bid (In Company's Letter head)

Item code - _____ (as per Annexure I)

Name of the Item: _____

Tender No: ……. **Date: ……**

To,
The Registrar
Utkal University, Bhubaneswar-751004

Sub: Quotation for .....

MAKE: ……

MODEL: …….

Sl. no.	Make & Model	Technical Specification	Unit Price + Tax FOR Destination
Alternative Model (if any)			

Seal & Signature

Date: …….

Annexure III

(In Company's Letter head)

Declaration

Dated: _____

On behalf of our firm/company, we hereby declared that we will quote same discount (i.e., as per price quoted for the CIF, Utkal University), if other Departments within the Utkal University, VaniVihar invite sealed tender for procurement of consumable items /equipment and other accessories etc. during the financial year 2022-2023. Otherwise, our participation in this tender process will be cancelled for the same financial year.

We further declare that, if our quoted item found suitable to be ordered for CIF, the same can also be procured by other Departments/CoEs of Utkal University at the same quoted price.

Seal & Signature

Date: …….

Annexure IV

(In Company's Letter head)

Undertaking regarding Blacklisting & Non-Debarment

Dated:_____

We M/s

_____

_____ hereby confirm and declare that we are not blacklisted/ De-registered/ debarred by any Government department/Public Sector Undertaking/ Private Sector/ or any other agency for which we have Executed/ Undertaken the works/ Services during the last 5 years.

Seal & Signature

Date: …….

Annexure V

(In Company's Letter head)

Declaration in lieu of EMD

I/We ……. (Insert Name and Address of Bidder) am/are submitting this declaration in lieu of Earnest Money Deposit for the Tender for ……. (Insert Title of the Tender) (Tender No…….), thereby fully accepting that I/We will be suspended and shall not be eligible to participate in the Tenders invited by Utkal University, for a period of Two years from the date of such Suspension Orders, under the following circumstances: -

a) If after the opening of Tender, I/We withdraw or modify my/our Tender during the period of validity specified in the Bid Documents (including extended validity, if any) or do not accept the correction of the Tender Price pursuant to any arithmetical errors.

b) If after the award of work, I/We fail to furnish the required Performance Security or sign the Contract, within the time limits specified in the Tender Document.

Only applicable for suppliers those who are exempted by the Government of Odisha

Seal & Signature

Date: ……

Annexure VI

Bank Guarantee for Performance Security

To,

The Registrar, Utkal University

WHEREAS ..... (name and address of the supplier) (hereinafter called "the supplier") has undertaken, in pursuance of contract no ..... dated .....to supply ..... (Description of goods and services) (hereinafter called "the contract").

AND WHEREAS it has been stipulated by you in the said contract that the supplier shall furnish you with a bank guarantee by a scheduled commercial bank recognized by you for the sum specified therein as security for compliance with its obligations in accordance with the contract;

AND WHEREAS we have agreed to give the supplier such a bank guarantee;

NOW THEREFORE we hereby affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total of ..... (amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the supplier before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the contract to be performed thereunder or of any of the contract documents which may be made between you and the supplier shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until the .....day of ..... 20.....

Our ..... branch at .....* (Name & Address of the .....* branch) is liable to pay the guaranteed amount depending on the filing of claim and any part thereof under this Bank Guarantee only and only if you serve upon us at our .....* branch a written claim or demand and received by us at our.....* branch on or before Dt..... otherwise bank shall be discharged of all liabilities under this guarantee thereafter.

.....

(Signature of the authorized officer of the Bank)

.....

Name and designation of the officer

.....

Seal, name & address of the Bank and address of the Branch**Preferably at the headquarters of the authority competent to sanction the expenditure for purchase of goods or at the concerned district headquarters or the State headquarters.*

1. SPECIFICATIONS FOR FIELD EMISSION SCANNING ELECTRON MICROSCOPE WITH EDS, SPUTTER COATER & COOL STAGE.

S. No.	Particulars	Required specifications
1	Resolution	0.7 nm or better at 15 kV 1.0 nm or better at 1 kV The above mentioned resolution must be demonstrated at the given acceleration voltages at the time of installation. It should also be mentioned in the brochure.
2	Magnification	≤25X to 2,000,000X or more. Minimum magnification should be specified.
3.	Accelerating voltage	0.01 to 30 kV continuously adjustable
4.	Vacuum System	Fully automated microprocessor controlled vacuum system comprising of Ion-Pump (for Field-emission SEM), Turbo-Molecular Pump (TMP) (along with water chiller if water-cooled/Air cooled) backed by rotary pump, pneumatic valves (clarify if any in-built proper safety measures against failure of power supply, vacuum, water-flow, etc. are provided). This system should be compatible for gun and filament in order to protect both Gun/filament against air-exposure of specimen chamber during specimen loading/unloading.
5.	Probe current & Stability	10 nA or less to 100nA or more. Stability better than 0.2%per hour.
6.	Electron gun	Thermal Schottky field emitter (with warranty of a minimum of FIVE years; if the resolution goes down due to the emitter within five years, it has to be replaced free of cost maximum within one month).
7.	Electron	● FESEM should consist of a dual/single condenser lens.

	Optics (A) (B)	• FESEM should have stable imaging can be done under various observation conditions and ease of operation of automatic functions • Electrically controlled Aperture should be present which maintains small probe even during high beam current conditions • The condenser lens should be coupled with additional lens to minimize system spherical aberration and optimize the convergence angle to ensure minimum focus change at all beam currents. This lens should be computer controlled and fully automatic to provide the smallest probe diameter at low beam currents and the optimum probe geometry for high resolution analytical performance at high beam currents. • Beam Deceleration/Gentle Beam/ Tandem deceleration technology or equivalent for high resolution imaging at low kV • Large depth of focus required • Signal depth feature • It must demonstrate the capability of imaging both conducting and non-conducting samples with the aforementioned resolution.
		• System should possess a state of art hybrid lens/semi in lens or equivalent technology.
8.	Detectors	• In-lens/in column SE Detector • Secondary Electron detector. • Retractable Backscattered Electron Detector. • For in-chamber viewing CCD camera with IR illumination.
9.	Chamber	Large chamber with at least 10or more accessory ports for future upgradation Chamber design should allow changing of the specimens quickly. Chamber should be equipped with an IR-CCD camera or any suitable device to view the sample & stage inside the analysis chamber.
11.	Specimen	PC controlled fully 5 axis motorized eucentric stage movements

	Stage	equivalent to X ≥100 mm or more Y ≥100 mm Z ≥50 mm Tilt = ≥ -5° to ≥ 70° or higher R = 360° endless (Continuous rotation) Stage movement should be controllable through both computer and manually with joystick / trackball. Store & recall of sample position functions to select features. Centre & Zoom selected features, Multidirectional stage drive.
12.	Multi-specimen Holder	For introducing many specimens (≥ 5).
13.	Load-lock/Air Lock Chamber	Air lock / Load lock chamber must be quoted as a standard item for fast sample exchange and to minimize the contamination during the analysis and maintained a high vacuum inside column and chamber. Venting and pumping time should be less than 10 min.
14	Water chiller	Imported/OEM chiller compatible with FESEM.
15.	Display and output	27″ or higher TFT monitor(s) for FESEM image processing ● Linear and nonlinear grayscale processing. ● Colour selection and contrast enhancement routines. ● Histogram equalization. ● Image processing filters. ● Text annotations on images. ● Image output in bmp, tiff, giff, png and jpg formats. ● Image gallery with thumbnail format display. Live conditions of operating parameters, holder graphics
16	CPU	Latest compatible branded computer (i7 processor or higher) with pre-loaded licensed software for FE-SEM operating parameters.

		16GB RAM, 2 TB SSD Two monitors (27" or higher) should be there.
17	Operation panel and table	Operation panel is required to set focus, magnification and other parameters using joystick or trackball, Anti-vibration table for FESEM should come from factory.
18	Accessories	a) Specimen preparation kit - Necessary specimen kit for sample preparation b) Sufficient number of stubs (≥50 Nos), etc. should be provided. c) Sample holder for cross-sectional view. d) Multipurpose sample holder (2 nos.) e) Cooling stage for biological samples. f) At least 10 Nos. of carbon tapes should be provided. g) Carbon paste : 02, and Silver paste: 02 h) High Quality Chiller and Compressor i) Twitzers (Flat, Teflon, Stub holding): Each 02 nos. j) Sharp twitzer: (Dumont or equivalent make); 05 nos. k) Rubber blower: 05 l) 10 KV Online branded UPS with 30 min Battery (branded) Backup. m) Spare filaments (without any additional cost as and when required). It is the responsibility of the supplier to store the filament and provide it within a short period of time when required within warranty period n) Dehumidifier with 30 Litre per day or of higher capacity. o) OEM make/High quality chiller and compressor to be provided if required p) 02 (two) nitrogen gas cylinder (gas purity 99.999) with regulator to be provided for operation q) One argon gas gas cylinder (gas purity 99.999) with regulator to be provided for operation if required
19	Calibration standards	Standard samples to check system calibration i.e., resolution, magnification etc. should be supplied along with the system. Preferably NIST for EDS.
20	Energy Dispersive	LN2 free EDS 30 mm^2 or higher, EDS resolution 129eV at MnKα or better and carbon resolution 50 eV or better (compliance with

	Spectroscopy (EDS)	ISO specification), point, line, area analysis, Real time net count map, probe tracking, Qbase, pixel resolution 4096 X 3072, deconvolution map, playback analysis, real time filter, visual peak id, phi rho z quantitative correction method, standardless quantitative. Peak identification, automatic qualitative analysis. Element detection range should be "B" to "U".
21	Sputter Coater	Au sputter coater with compatible rotary pump to be provided, preferably from same OEM make. 02 (two) Nos. of extra Au and one platinum targets should be provided
22	Pre-installation requirements	Pre-installation requirements such as room size, tolerable limits field and vibration (mechanical), required power rating, utility requirements are to be stated clearly, and to be verified/surveyed by the supplier at the installation site.
23	Warranty Training and Service Support	**Three years** comprehensive on-site warranty and **Two years** CAMC should be offered for entire offered configuration (after successful commissioning of the equipment). **Five years** warranty for the FE Emitter. Training for the users shall be arranged for four working days for 5/6 persons/year during warranty period. The delay made by the supplier for rectification/repair of the equipment during warranty/ CAMC period shall not be counted/ included in the warranty and CAMC period.
24	Terms and conditions	(a) The firm has to guarantee support for both system and spares for a minimum period of 10 years. (b) Provision for on-line remote diagnosis of faults. (c) The firm has to provide list of SEM insatallation in last 05 (five) years in different institues in India along with purchase orders. (d) Compliance of all listed specifications/terms and conditions

		sheet should be indicated by the vendors in tabular form. (e) Complete set of user manual should be provided for the FESEM & EDS.
25	Software packaging	a. The latest version of the software for the quoted model should be included for data analysis. b. Any further version of the software and updated must be provided free of cost. c. The supplier should arrange for seamless interfacing EDS software installation and commissioning for EDS system.
26.	Man power	Suitable Man power for three years for operation and maintenance of the equipment.
	Other accessories (to be quoted separately)	
	27	Copper tapes : 02 Nos
	28	Critical point dryer for sample preparation: 01 No
	29	One carbon coater to be quoted. : 01 No.

2. FT-IR SPECTROMETER (FT-IR) WITH ATR

Specification:

• Spectral range: 8000 – 400 cm^{-1} or better
• Spectral resolution: 0.5 cm^{-1} or better for the whole wavelength range
• Detector: DTGS/DLATGS
• Wave number reproducibility/precision: 0.01 cm^{-1} or better
• S/N: 50000:1 for peak-peak or better for 1-minute scan
• Interferometer: Michelson interferometer or equivalent interferometer for fast scanning
• Enclosure: Sealed and desiccated
• Operating Temperature range: ambient temperature
• Software: Licenced Windows 11 based PC software (latest version) which can run smoothly for 10 years or more, free instrument software up gradation option, full control over the instrument, capable of FT-IR data analysis (qualitative and quantitative analysis with PLS, PCR options), and include a latest library of FT-IR data (chemistry, geology and biology) for reference with option to free up gradation of library.
• Power: 220 – 240 V AC, 60/50 Hz

Essential Accessories:

• Pure diamond ATR accessories compatible with the main instrument for analysis of solid, liquid, paste, powder and gel samples.
• Liquid Demountable cell : 01
• Sample preparation accessories such as 13-15 Ton Hydraulic Press, Agate Mortar Pestle, KBr Die set, IR grade KBr powder (200 g), Liquid and solid sampling accessories with variable spacers
• KBr rectangular window: 02 Nos
• NaCl cell: 2 pairs
• Zn-Se sealed cell: 1 pair fixed path length (0.1 mm)
• KBr cell: 2 pairs
• Pellet Holder for solid sample: 01 nos.

- Suitable 3 kVA or more online UPS (reputed brand with 3 years warranty, batteries (reputed brand) with 3 years warranty) with 30 minutes back-up to run the instrument and computer.
- A suitable dehumidifier with 30 lit per day or higher capacity.
- Branded Desktop Computer with licenced windows 11 and MS-Office softwares (Intel core i7 or better processor, 27" Monitor, 16 GB RAM, 1TB HDD, DVD Writer) and HP duplex b/w Laser printer with 3 years warranty.
- Vibrational free table with granite top suitable for housing of FT-IR, PC, printer, hydraulic press, sample preparation etc.

Training:

• Free training program after installation at CIF, Utkal University.

Warranty:

• Comprehensive 3 years on-site warranty on the whole instrument, and all accessories + 2 years CAMC on the offered instrument

• 10 years warranty on Laser, IR-Source, and Interferometer.

3.Inductively Coupled Plasma - Optical Emission Spectrometry, (ICP-OES)

Sl.No.	Instrument Component	An ICP-OES with bench top design to cater diverse kind of samples like water, waste water, foods, biological, chemicals, minerals etc. for trace level elemental analysis based on latest available technology
1	**Technology**	System must be high throughput fully simultaneous/synchronous polychromator based Echelle optics dual view ICP-OES Spectrometer. Vertical Torch based Dual view (Axial & radial) System.
2	**Peristaltic Pump**	Software controlled 4 or more channels and 10 or more roller peristaltic pump with advanced features for reducing rinse delay and sample update time.
3	**RF Generator**	• Should have software-controlled RF generator with frequency of 25 MHz or more. • The RF must be adjustable. • Power output 750 to 1500 watts or more in dual view . • Efficiency 75-85% or more • Stability: Kept below 10W to avoid plasma destabilization • Built in safety features to shut down plasma like over temperature, cooling failure or excessive reflected power.
4	**Gas Flow Controllers**	• Three Nos. or more true variable & software-controlled gas flow controllers (MFC/EFC) for precise control of Plasma, Nebulizer, Auxiliary & makeup and Additional oxygen gas for organic solvent bearing samples. • All gas pressure monitoring through MFC/EFC by software. • Plasma ignition and shut down must be computer controlled and totally automated. Company should mention complete argon consumption in L/min including plasma, auxillary, nebulizer purging flows. Further various gas consumption data to be mentioned during standby mode and routine analysis mode. Any other gas required should be clearly mentioned. The system should be stabilized within 30 minutes from cold start and 5-10 minutes from standby to ready for analysis mode with proper

		supporting evidence & reproducible data.
5	**Plasma View System**	Automatic software controlled simultaneous/synchronous dual view system
6	**Cold plasma tail removal**	Using nitrogen gas/argon gas/equivalent or better
7	**Optics**	Must be Polychromator with echelle grating Resolution: 7pm or better at 200 nm
8	**Detector**	CCD/CID/SCD detector to cover entire analytical wavelength range in one analytical step. Minimum Integration/read out time 1sec or equivalent and higher saturation level with proper cooling system. Wavelength range: of 167–780 nm or better to cover all elements.
9	**Sample introduction system**	Standard sample introduction system including, nebulizer, spray chamber, ICP torch and injector should tolerate strong acid like HF,, strong alkali and high TDS solution in aqueous medium. Quote with HF kit. The ICP torch must be aligned and mountable by user.
10	**Detection limit**	Capable of multi element analysis with at least 10 ppb or better sensitivity for each element
11	**Matrix tolerance**	Upto to 20% TDS or more Upto 5-10% HCl, HNO3, or HF.
12	**Software**	Genuine Windows 11 based latest licenced software for system operation and data analysis and management of ICP-OES smoothly for 10 years or more. License free instrument software up gradation as and when required. The software should have full control over ICP-OES hardware, sutomated tuning, method development, viewing position & safety interlock.
13	**Accessories**	a) OEM/reputed chiller for instrument b) OEM Compatible Branded PC (HP, i7 or better, 16 GB RAM , 1TB HDD, 27' monitor, CD-DVD drive support) and b/w duplex laser Printer for system operation. c) 23 elements standard (Ag, Al, B, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, In, K, Li, Mg, Mn, Na, Ni, Pb, Sr, Tl, Zn), 100 ml, 1000 μg/ml, matrix = 5% HNO_3.

		d) 21 elements standard (Sb, As, Be, Cd, Cr, Co, Cu, Fe, Pb, Li, Mg, Mn, Mo, Ni, Se, Sr, Tl, Ti, V, Zn, 100 ml, 1000 µg/ml, matrix = 5% HNO_3) e) Rare earth elements (17 elements) mixed standard, 100 ml, 100-1000 µg/ml. f) Tuning & performance solution, detector & calibration solution. All standard solutions should be of 1000 ppm , 100 ml. g) Graduated micropipettes of volume range 1000–5000 µl (01 no.) and 100–1000 µl (01 no.), including appropriate tips (5000 numbers) along with box. h) Internal standard kit and internal standard mix solutions. i) HF kit for HF digested sample j) Aqueous kit for aqueous sample k) On line hydride/vapor generation system to analyze As, Hg like elements in trace levels. Facility to measure hydride forming elements and other elements at the same time. l) Single element standard for As, Hg, 1000 ppm , 100 ml m) Wavelength calibration solution 500ml ,5ppm (13-14 element mix) n) Spare ICP-Torch – 2 nos o) Spare Nebulizer – 1 no. p) Peristaltic pump tubing, Sample and drain – 2 sets q) Organic kit for biology/organic samples
11	**Local Items for Installation**	a) Suitable Fume hood for system, made of stainless steel with exhaust fan, ducting facility, other required necessary fitting etc. b) 15 KVA online UPS from reputed firm with 30 min backup or better with batteries from reputed brand (Exide/amaron), 3 years warranty on UPS, 3 years on battery c) 08 (eight) nos. filled Argon gas cylinders (gas purity 99.999%) with gas manifold having automatic change over facility, necessary tubing connectors and explosive certificates for 5 years. d) Four (04) nitrogen gas cylinders (gas purity 99.999%) with gas manifold having automatic change over facility, necessary tubing , connectors and explosive certificates for 5 years. (Nitrogen gas to be quoted if required). e) Argon-oxygen mix gas cylinder: 01 (one)

		f) Required gas regulator, (SS two stage regulator) with ISI and BIS mark for all gases: 03 regulators for argon gas, 01 regulator for nitrogen gas and 01 regulator for oxygen gas g) Dedicated Gas purification panel connecting to ICP-OES. h) Gas piping &Ferules, nut etc to cover about 20 metres. i) Oil free Air compressor and nitrogen gas if required j) Proper maintenance tool kit for day to day service k) Vibrational free table with granite top for ICP-OES installation, operation, sample preparation etc l) Branded dehumidifier (20 lit or more/day) to maintain the required humidity inside the ICP-OES Room. m) Drainage bottle for storage of waste / drainage water or solution.
12	**Training**	• 2 week training program after installation at site for 3-5 persons on instrument operation, sample preparation, data analysis and maintenance procedures • Training program cost will be bear by the supplier company.
13	**Installation and acceptance testing**	• The performance of the instrument along with accuracy and precision must be demonstrated with real samples and international CRMs.
14	**Other points**	1. Vendor should have ISO & CE Certification. 2. Internationally published Literature should be attached along with bid.
15	**Optional Accessories** **Microwave Digestion System for Sample preparation**	Capable of digesting Food, vegetables etc. The system should have 10 or more vessel rotor with vessels, microwave power ≥1800 W, vessel volume: ≥70 ml, maximum operating temperature: ≥ 240 °C; maximum operating pressure: ≥40 bar, IR/contactless temperaturesensor for temperature monitoring of each vessel, integrated keypad/touch screen control, pressure-activated venting, chemical- (especially, acid) and corrosion-resistant cavity chamber and vessels, TFM/PTFE vessels, flexibility in terms of customized method creation, compliance with international safety standards, and method compliance with US EPA, ASTM, FDA etc. Appropriate fumehood for microwave digester.

16	**Warranty**	Three Years on-site warranty + two years CAMC on the whole system and peripheral accessories including UPS.
17	**Other Terms and conditions**	The company should provide the latest model of ICP-OES whose spare parts are available for minimum 10 years from the date of installation of instrument. • The instrument should be offered with IQ/OQ. • Commissioning of the instrument should be completed using supplied gas filled cylinders and furniture. • After the PO release, the engineer has to visit the service site and give complete layout design for civil as well as electrical part of lab without any cost. • List of Govt. R&D installations where quoted system is supplied in last 5 years to be provided by supplier along with purchase orders. • Service response time, turn-around time and up-time of equipment should be clearly specified. • Mention the country of origin, with supported documents from OEM. • Mention the country of despatch, with supported documents from OEM. • Technical specification of the instrument should be supported by original company literature, which should be available on the company website.

4. Differential Global Positioning System (DGPS

Technical Specification for DGPS/GNSS Systems

- Compact in size & light weight (less than 800 gm with battery)
- Internal battery backup of 8-10 hours, with quick C-type charging facility
- Option for using power-bank for extended usage
- Must have Tilt Compensation facility up to 30 degree of tilt.
- GNSS Tilt system must be calibration free and immune to magnetic disturbances
- Instrument must be able to work in Network RTK mode with corrections from Survey Of India CORS

Signal tracking & communication

- GPS (L1, L2C); GLONASS (L1, L2C); GALILEO (E1, E5b); BeiDou (B1I, B2I); or better.
- Number of channels: Min. 180 or more
- USB, Bluetooth®, WLAN, WIFI for internet through hotspot

Measurement Performance & Accuracy

- Real Time Kinematic (RTK) Single Base line: Max. Hz 10mm+1ppm or less and Max. V 20mm+1ppm or less
- Real Time Kinematic (RTK) Network RTK: Max. Hz 10mm+0.5ppm or less and Max. V 20mm+ 0.5ppm or less
- RTK Data communication protocols: OEM specific, CMR, CMR+, RTCM 2.2, 2.3,3.0,3.1,3.2
- Built in UHF modem: 415-470 MHz receive & transmit UHF radio
- User interface: Buttons and LEDs (On/Off button, Min. 3 status LEDs)

Data storage

- Internal Memory: Min. 4GB or more
- Data type: Option for GNSS raw data recording
- Data recording rate: OEM/RINEX format data - 10 Hz or more

Environmental Conditions

- Operating Temperature: -30° to +55°C or better
- Storage Temperature: -40° to +80°C or better
- Pole Drop: Withstands topple over from a 2 m survey pole onto hard surfaces.
- Proof against water, sand and dust: IP68
- Humidity: 95% or better

Technical Specification for Controller and Field Software

- Windows: Windows EC7 or similar
- Processor: Dual core 1 GHZ processor or better.
- Memory: Min. 1GB RAM, 2GB Internal memory plus slots for SD card & Pen drive of minimum 16 GB or higher

- Camera and other peripherals: Integrated Camera with flash Min. 5MP or better.
- Display: WVGA, Bright Color TFT with touch screen with 5-inch display or more.
- Graphical display: True graphic display with resolution of 800X480p capable of 3D orientation, zoom in/out.
- Keyboard: Hard keys - Separate alpha (QWERTY type) and numeric keys function keys, user definable hot function keys, as well as on-display virtual keys.
- Communication & feature: Integrated Bluetooth, Lemo Serial RS232, USB host, USB client, Power jack or more.
- Operating temp: -30°C to +60°C
- Dust & water protection: As per IP68
- 3 years comprehensive on-site warranty on the equipment

Field Software

- The software must be able to configure GNSS in different modes of operation, RTK methods including CORS correction, and show GNSS RTK & Instrument status
- True 3D display of Points, Lines, polygons,
- Should have datum and projection support, should support Grid coordinates as par user defined Ellipsoid, projection, Geoid & transformation parameters
- Should support Feature Coding with attributes for GIS type data collection. Control Coding should be possible for automatic plot creation.
- Should support Graphical stakeout and it must consider the tilt correction calculated by sensor.
- Should be able to accept background maps in DXF/DWG.
- Export to industry standard formats like CSV, DXF, or in different survey styles required for specific uses.
- Should support COGO functionality.
- Network RTK support: VRS, FKP, iMAX, MAC

5 (A)Water Analyser

pH/mV/Temp/Ion /DO/Conductivity Meter

- pH/mV/Temp/Ion /DO/Conductivity **benchtop meters** offer advanced features with simple operation
- High resolution color touchscreen display shows data clearly from wide viewing angles and distances
- Optimized touch-screen with glass/glass sensitivity makes use easy
- Should measure and display four channels simultaneously: pH, mV, or Ion, Conductivity, TDS, Resistivity, or Salinity, Dissolved Oxygen/BOD/OUR/SOUR
- Up to 6 preset or 5 custom pH calibration with 0.002 pH resolution, range -2.000 to 20.000 pH, accuracy ± 0.005, mV range ±2000 mV
- Auto ranging Conductivity, TDS (total dissolved solids) modes, conductivity range should be up to 500.0 mS and TDS up to 500 ppt with ±1 % full scale accuracy
- Conductivity calibration Automatic (4 points); maximum 1 per range Manual (5 points); maximum 1 per range
- Salinity and resistivity modes also must be available Salinity range min 70 ppt , resistivity 15 MΩ required
- Ion range 0.001 to 19000 with 0.001 resolution and accuracy of 0.5 % full scale (monovalent ion)
- Do range up to 0 to 45mg/L, resolution 0.01, 0.1 mg/L, accuracy ±0.1 mg/L
- Temp range should be 0 to 100.0 ºC with a resolution of 0.1 ºC and accuracy of ±0.5 ºC
- Select an Alarm Limit to enable a visual and audible alarm to alert you whenever a High or Low value is exceeded
- Cal Due Alarm when calibration is due
- Up to 10 password protected user ID accounts, each retains unique calibration and instrument settings
- Memory min 1500 data sets required per user ID with date/time stamp
- RJ45 Ethernet/Internet port – connect to Local Area Network (LAN) or Internet, print data to a network printer or surf the web
- Bidirectional communication for LIMS connectivity
- Connectivity for peripherals such as keyboard, mouse or other USB device
- Must have real-time graph facility to provide details of any parameter
- Stirring probe provides easy mixing no stirrers required
- Meter must be supplied with TRIS compatible pH electrode 2 cell Conductivity/Temp. probe,self-stirring DO probe, electrode arm, RS-232 and USB cables
- Option to wall-mount meter to create additional bench space

- Power Requirements: 100 to 240VAC or more, 50/60Hz
- Operating Ambient Temperature 5 to 45 °C, Operating Relative Humidity 5 to 85 %, non-condensing
- Regulatory and Safety TUV 3-1, FCC Class A
- CE certified. Conforms to the directives and standards EN61326-1:2006 Electromagnetic Compatibility (EMC Directive) Electrical equipment for measurement, control and laboratory use – EMC requirements EN61010-1:2001 Safety Standards UL61010-1:2004 CAN/CSA C22.2 No. 61010-1-04 Safety requirements for electrical equipment for measurement, control and laboratory use – general requirements
- Warranty: 3 years on-site warranty on whole instrument

Accessories to be supplied with the analyzer:

1. Fluoride range must be 0.02 to saturated, Maximum temperature range 80 °C, Type should be solid state combination plastic body with BNC connector, Minimum length x diameter (mm) should be 110 x 13
2. Nitrate range must be 0.5 to 14.000, Maximum temperature range 40 °C, Type should be polymer membrane Combination plastic body with BNC connector, Minimum length x diameter (mm) should be 102 x 13
3. Chloride range must be 1.8 to 35,500, Maximum temperature range 80 °C, Type should be solid-state Combination plastic body with BNC connector, Minimum length x diameter (mm) should be 110 x 13
4. Silver/sulfide range must be 0.01 to 107,900 (Ag+) 0.003 to 32,100 (S--), Maximum temperature range 80 °C, Type should be solid-state Combination with BNC connector, Minimum length x diameter (mm) should be 108 x 13
5. Calcium range must be 0.2 to 40,000, Maximum temperature range 40 °C, Type should be ISE polymer membrane Combination Refillable with BNC connector, Minimum length x diameter (mm) should be 102 x 13
6. Potassium range must be 0.04 to 39,000, Maximum temperature range 40 °C, Type should be ISE polymer membrane Combination Refillable with BNC connector, Minimum length x diameter (mm) should be 102 x 13
7. A Sodium range must be 0.023 to 23,000, Maximum temperature range 60 °C, Type should be ISE - glass membrane Combination Refillable Plastic, Minimum length x diameter (mm) should be 106 x 12

Warranty of the Accessories: 1 (One) year

5 (B). Portable Turbidity Meter

- Microprocessor based waterproof IP 67 portable turbidity meter with an Infrared LED light source with an accuracy up to 0.01 NTU across an extended range up to 20 NTU
- Large easy-to-read display for optimum viewing of measurements with user-friendly message codes for easy troubleshooting
- Automatic push-button calibration
- **Principle of measurement** Nephelometric non-ratio / ISO 7027 and DIN 27027 compliant

Specifications

Range	0 to 2000 NTU
Automatic Range Selection	0.01 to 19.99 NTU; 20.0 to 99.9 NTU; 100 to 2000 NTU
Resolution	0.01 NTU (0 to 19.99 NTU); 0.1 NTU (20.0 to 99.9 NTU); 1 NTU100 to 2000 NTU, 1 NTU (100 to 2000 NTU)
Accuracy	< 0.1 NTU for 0.02 NTU standard; ±2 % of reading, ±1 digit for 0 to 500 NTU; ±3 % of reading, ±1 digit for 501 to 2000 NTU
Repeatability	< or = ±1 % of reading
Calibration	Up to 4 points
Calibration Standards	0.02 NTU, 20.0 NTU, 100 NTU, 800 NTU
Response Time	< 6 secs for full step change
Sample Volume	10 mL or more
Light Source	Infrared-emitting diode (850 nm wavelength)
Operating / Sample Temperature Range	0 to 50 ºC
Power Supply	4 x 1.5 V 'AAA' alkaline batteries
Warranty	One (01) year

- Certifications/ Compliance FCC part 15 class A, TUV 3 in 1, CE, RoHS
- Supplied in a rugged carrying case with calibration case with turbidity standards and vials
- Enclosure Type & Rating ABS Plastic / IP67 rated

6. Gaussian Software

1. Gaussian software version 16 for Windows 64 bit machine for academic use.
2. Single machine type licence for the Gaussian software version 16 software (20 years)
3. Gauss view version 6 software (Single machine type licence for 20 years) compatible with Windows 64 bit machine and Gaussian software version 16.
4. Free installation support for both the softwares.
5. Free training support for student and faculty members for 1 year.
6. HP Z2 G9 (700w) workstation with 14^{th} Gen Intel core i9-14900K 36 MB 24 cores processor, 64GB (2 x32 GB) DDR5 4800 RAM, 2TB NVMe SSD hard drive, Intel HD Graphics, VGA, licenced Windows-11 pro 64 High end operating system, HP 27" FHD monitor, keyboard, mouse with mouse pad, DVDRW, , 1KVA or more online UPS with 30 min back up. 3 years onsite warranty on the system and UPS.

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7. Protein Purification system

1. Biocompatible automated system for all purification and development work from microgram to gram scale, with the ability to support all the following chromatography techniques: Affinity Chromatography, Ion-Exchange chromatography, Size-exclusion Chromatography & Hydrophobic Interaction Chromatography.
2. The system should have at least two pump modules capable of delivering a flow rate of 0.001 to 15 ml/min or more without the need for changing pump heads for the entire flow range and a pressure limit of 0 to 20 MPa or higher. The possibility to upgrade the system to use higher flow rates of >40 ml/min if required in the future is desirable – should be possible without addition of any module.
3. The system should have two pumps with 4 pump heads made up of a material which can tolerate harsh chromatographic buffers such as 8 M urea buffer and 6 M guanidinium hydrochloride.
4. The system should run with an automatic pressure control option, enabling modulation of the flow rate upon reaching the set pressure and continuing the run without pausing the system.
5. There should not be any siphoning effect due to gravity before the gradient formation.
6. The system must have an in-line mixer equipped with a magnetic stirrer to ensure accurate mixing of buffers. A mixer volume should be less than 1.5 mL to avoid sample dilution.
7. The system should come UV-monitor with High intensity LED Lamp for single wavelength detection at 280 nm with the following UV-Vis parameters
    a. Noise of less than 0.1 mAU with a resolution of 0.001 mAU and minimum UV linearity of ±2.0% across the UV range.
    b. Lamp should be a flash lamp with no requirement of warm-up time.
    c. Lamp life should be of minimum 10000 hr.
    d. Lamp should not cause any heat-up of the system detector to avoid sample degradation.
8. The system should have optical fiber-based light for a high signal-to-noise ratio, and automatically switching off the lamp in stand-by mode ensures a long lamp lifetime.
9. UV detector should have an absorbance range minimum of -3 to +3 AU with an optical path length of 2 mm and has a feature to normalize the data to 1 mm flow cell to compare the data with other FPLC systems.
10. The system must have Conductivity Monitor of range 0.01 mS/cm to 999.99 mS/cm with an accuracy of ± 0.01 mS/cm with an in-built temperature sensor to correct variation due to temperature.
11. Conductivity monitor should be integrated with an automated temperature and flow compensation system.
12. The system should have the capability of an outlet valve having at least 3 outlet ports, one going to the Fraction collector, one to waste, and one to collect in separate vials/vessels.
13. System should be supplied with a column valve so the system could run in bypass mode without removing the column.
14. The system should be supplied with a dropSync fraction collector. Minimize spillage using sensor and allows the use of 3, 8, 15 and 50 ml tubes. Fraction collector can be used in time, volume, or peak recognition mode. Automatic peak recognition minimizes cross-contamination and unwanted eluent can be diverted to the waste.
15. System should include all types of connectors, filters, ferrules, Teflon and peek tubing, sample loops

all other accessories - Screw lids and cap membranes, Tubing cutter, Syringe, 10ml – 1, Column clamp for 10-21 mm o.d. columns, Multi-purpose holder, Purge kit – 1, Tubing connector 1/16” – 5, Unionluer F - 1/16", Fingertight connector 1/16”, Fingertight connector 1/16” red (for connection of columns), Ferrule for inlet tubing, Stop plug, 1/16" , Inlet filter holder kit, Inlet filter set – 1, Wrench 1/4" (6,3 mm), Union, 1/16”F - 1/16”F , Online filter kit -1 and 500ul sample loop

16. **System control software**
    a. The software should have intuitive user interface with an interactive process picture and simplified evaluation modules.
    b. Sharing of methods and results along with remote access capabilities to systems to save valuable time and resources.
    c. Software should perform real time control, data evaluation, watch commands, Scouting parameters, method queue, method wizard for easy programming, column library, with report generation option.
    d. Automatic data recovery after run is over should be possible.
    e. Include WATCH functions (in addition to the alarms) in the control software to ensure that various parameters like pH, conductivity, pressure, etc. are in the acceptable range upon execution of an action by the operator.
    f. The system should be capable of being installed with Design of Experiment (DOE) software integrated with the System control software as a tool for experimental design for generating precise data in fewer experiments for time and cost-efficient method development.
    g. Software should be freely upgradeable within version along with the upgradation of system firmware to allow system operations through upgraded software.
    h. Software should be GMP and 21 CFR part 11 compliant.
    i. The software should have option of remote operating and visualizing the runs

17. The system should have the option to be integrated with third party detectors like fluorescence detectors, RI and auto samplers simultaneously for increased application flexibility at the time of purchase or post-purchase.

18. Training: basic and advanced training should be provided to complete the installation process

19. Company should have dedicated application specialists with a proven track record to provide onsite training as and when required and should also have application-training Centre in India. Company must have to provide comprehensive training to our technical staffs/students/Scientists.

20. Performance: The vendor should have at least 25 installations of similar models in reputed Research Institutes under DBT/ CSIR/ ICMR/ Central Univ. Bidder should also provide a user list and at least 5 user satisfactory certificates from recognized Govt. research Institute/University in India where instrument quoted model has been extensively used for similar applications.

21. Cold Cabinet - Mobile cold cabinet with displayed adjustable temperature range of +2°C to +8°C with adequate lighting, properly sealed glass doors and retractable shelves of appropriate quality. The cold cabinet should be of a size that can comfortably hold the FPLC system with the injection port of the FPLC system facing the doors, maintain uniform temperature at all shelf levels, have adequate number of internal plug points and possess necessary safety features.

22. Compatible PC and 1.6 KVA UPS to be supplied along with system
23. 1 X 1 mL–Pre-packed affinity chromatography column packed with chelating medium for capture and purification of His-tagged recombinant proteins. The column shall be supplied pre-charged with nickel ions and be compatible with syringe, pump, and chromatography systems. The medium shall provide high binding capacity, low metal ion leakage, and high chemical stability. Column volume: 1 mL.
24. One Number Pre-packed size exclusion chromatography column packed with Sephacryl S-300 resin for preparative purification of proteins and biomolecules. The column shall be suitable for use with standard chromatography systems and for sample volumes up to <13 mL. The media shall enable separation of biomolecules in the molecular weight range of approximately 10,000 to 1,500,000 Da.
25. Warranty- 3 Years.

8 . Cryostat

1. Freestanding cryostat with encapsulated, splash-proof microtome. Spacious, stainless-steel cryochamber with antiglare illumination. Easy to clean and disinfect.
2. Heated, removable sliding window. Stable, self-contained cryocabinet on casters.
3. Outer surfaces and controls of instrument coated with nano silver coating to reduce risk of infection. Handwheel may be locked in two positions.
4. 8° XYZ specimen orientation with zeropoint reference. Specimen retraction, (20 µm), can be switched off.
5. Certified UVC disinfection: 30- and 180-minute cycles can be selected. Disinfection can be aborted at any time, if work needs to be resumed immediately. Automatic safety cut-off of disinfection cycle when sliding window is opened.
6. Cryochamber temperature selection from 0 °C to -35 °C, adjustable in 1K increments at ambient temperature of 20 °C.
7. Easy-to-clean, actively cooled specimen preparation zone with quick-freezing shelf for up to 8 specimens (maximum temperature -42 °C).
8. 2 Peltier element freezing stations (17 K temperature difference to the quick- freezing shelf when the chamber temperature is 35 °C).
9. Cryochamber may be defrosted manually or via automatic hot-gas defrosting once every 24 hours. The cycle may be programmed in 15-minute increments. Defrost cycle: 12 minutes.
10. Cryochamber and quick-freezing shelf with integrated Peltier elements can be defrosted manually and are equipped with an acoustic warning signal to prevent unintentional defrosting. Manual defrost cycle for Chamber and quick- freezing shelf: 12 minutes.
11. Section thickness selection from outside the cryochamber.
12. Total vertical specimen stroke: 59 mm Total horizontal specimen feed: 25 mm, Motorized coarse feed in 2 speeds: slow is max. 600 µm/s and fast is min. 900 µm/s. Step function: 20 µm each time the key is pressed at slow coarse feed speed. Control panel with membrane-protected buttons and locking function.
13. The instrument should be EC, US –FDA registration & CSA Certificate.
14. 2KVA online UPS support with minimum 2 hours power backup should be provided.
15. LED display for cryochamber temperature, actual time, defrost time and section thickness

selection. Visual indication of specimen stop positions (Front/Home). blade holders for high and low profile disposable blades should be quoted. 4 Specimen discs 25 mm, 4 Specimen discs 30 mm, 1 Section waste tray, 1 Storage shelf right side, 1 Storage shelf left side, 1 Brush shelf, 1 Cover for freeze shelf, 1 Tool set, 1 Bottle of cryostat oil, 50 ml, 1 Tissue freezing medium for Cryosectioning 125 ml. 1 Pair of cut-resistant safety gloves.

16. Dedicated manufacturer company's own service support only for East India (not distributor's) with a team of company's own service engineers (at least 3 persons), to support user timely. All-India Helpline Number available to escalate service issues.
17. At least 25 nos. of installations of Cryostat in India out of which 15 nos. should be installed in Govt. Institution (Central and State) rest 10 nos. Should be installed in Govt. or Private institution
18. Warranty 3 years.

9. FLOW CYTOMETER

1. System should be a bench-top flow-cytometer with three lasers (blue, red, violet). The system should be USFDA/CE-IVD certified with automatic template/Application module for IVD certified assays. Relevant documental evidence to be provided along with the quote.
2. All lasers and their excitation-optics should be fixed-aligned/Auto-aligned.
3. System should have a stainless-steel flow cell with a low coefficient of expansion for stable performance.
4. System should have capability of detecting at least 14 parameters (10 or more fluorescence outputs and forward and side scatter).
5. System should have an acquisition rate of 25,000 events per second or better and a sample carryover rate <0.1% with cells.
6. System should accept 5.0 ml tubes and future upgradable with 30/40 tube rack for sample acquisition and should be with universal loader with in-place sample mixing and shaking. The system should be USFDA/CE-IVD certified including the loader.
7. The system should be both CE-IVD and 21 CFR part 11 certified.
8. System should accept 5.0 ml tubes and future upgradable 96 & 384 well plates for sample acquisition and should be supplied with universal loader with in-place sample mixing and shaking. The system should be USFDA/CE-IVD certified
9. The system should have programable start up and shut down process without any manual intervention.
10. System should be provided with software capable of baseline settings of system performance, thereby ensuring automated instrument set-up for consistent results.
11. System should have the capability for compensation in real-time and also post-acquisition.
12. The system should have bidirectional communication with the Bi directional laboratory information system (LIS) to eliminate transcriptional error.
13. The flow cytometer system generated compensation should be valid for a minimum of 60 days and updated with daily QC. The system software should be able to do single fluorochrome addition to an existing setting from panel of reagents and recalculate the spillover matrix by running a single tube.
14. The flow cytometer system should also allow parallel data acquisition & analysis from two different experiments.
15. The flow cytometer system must be capable of standardization and collaboration between inter-lab/intra-lab through assay portability feature to maintain consistency in data quality.
16. Instrument software must be capable of exporting data as FCS file per population. In addition, system software must allow data overlay of tubes in the same experiment & different experiment.

17. System should be supplied with the latest version of acquisition and analysis software and any software upgrades should be provided free of cost during the warranty and CMC period.
18. Should be supplied with high-end data acquisition and analysis unit from source (No local supply hardware) and include all latest and original licensed software with installation media.
19. Vendor should provide on-site post-installation training for system and software.
20. The OEM of the quoted instrument must not be from the LAND -BORDER sharing countries with India
21. Starter kits and reagents should be quoted with the system which includes sheet fluids, tubes, tracking beads, and cleaning & compensation kits.
22. Buffers, washing reagents and other consumables such as, sheath fluids, tubes, calibration beads, cleaning kit and compensation kit compatible with the instruments must be provided adequate for the first 1000 runs or satisfactory installation whichever is later.
23. Latest compatible data workstation (computer) with all system software and LCD monitor (24" X 2), 4 GB RAM, 1 TB HDD, network card and colour laser printer should be quoted with the system.
24. Compatible online UPS with 1 hr backup and color laser printer should be quoted with the tender.
25. Should have at least 4-5 recent installations in the Eastern region of India of the quoted model in last three years. Bidder should submit at least 5 recent publications using the quoted model from quality journal.
26. Bidder should ensure availability of spares and service for 10 years from the date of installation and commissioning.
27. Multiple on-site training for system & software should be provided.
28. Application and service training should be provided directly from the company.
29. Warranty- 3 Years.

10. ROTARY EVAPORATOR WITH VACUUM PUMP AND CHILLER

Specification of Rotary evaporator

- DC brushless motor drive with speed range of 20-280 rpm or more.
- Digital control of heating bath and drive rotation speed
- 1500 cm^2 or larger cooling surface area for better recovery rate
- CW & CCW Rotation with interval option for faster powder drying
- Motorised lift with safety stop function
- Timer function and RS 232 interface for software connectivity
- Heating temperature range of RT to 180˚C for water and oil bath application
- Bath capacity of 3 litres or more.
- Heating bath should have heat control accuracy of ±1 K or less
- Safety temperature circuit and Dry Run protection of heating bath
- Locking function of heating bath for avoiding accidental changes of settings
- Heating bath can be used as standalone unit for different applications

Vacuum pump

- Two stage diaphragm pumps made of PTFE for protection against aggressive solvents Transparent front cover for detection of solvent build up
- Suction capacity or flow rate of1.8 m3/h or more.
- Ultimate vacuum level should be equal or less than 7 mBar.
- Dial gauge vacuum regulator for vacuum control.

Chiller

- Temperature control room temperature to -20°C.
- Bath volume should be 3 L or more.
- Flow rate should be 17 L per minute or more.
- Display resolution should be 0.1°C and stability of 0.5°C.

Warranty: 03 years on Rotary evaporator, vacuum pump and chiller.

Accessories:

1. Sample flask (1 Lit): 02
2. Receiving flask (1 lit): 02
3. Steel clip for holding receiving flask: 02
4. Plastic joint clips for sample flask: 20
5. Laboratory jack (mild steel) 6” x 6” to support receiving flask: 02

11. ROTARY VACUUM PUMP

Specifications

- Two stage Rotary vane Pump
- Nominal rotational speed: 1500 rpm or better
- Displacement: 14 M^3/hr or better
- Peak pumping speed: 12 m^3h^{-1} or better
- Ultimate vacuum (total pressure): 2 x 10^{-3} mbar / 1.5 x 10^{-3} Torr or better
- Max allowed outlet pressure: 0.2 bar gauge or better
- Exhaust flange: NW25 or equivalent
- Noise level: ~ 48 dB(A)
- Operating temperature range :12 to 40 °C
- Water vapour capacity : 200 gh-1 or better
- Water vapor tolerance: 20 mbar or better
- Power connector 1-ph: IEC EN60320 C13 or equivalent
- Pumps with inbuilt anti- suck back protection.
- Vendor should supply Rotary Pump with Suitable filter and Pump Line Cord.
- Vendor should also supply all other fitting like clamping ring. Nozzle, o ring with suitable corrosive resistant Active Pirani gauge & suitable digital controller etc for full installation and functioning of the pump.
- Extra oil: 2.0 lit
- Warranty: 3 years on-site warranty.

12. FUME HOOD

Sl. No.	Features	Specifications
	Type	High performance fume hood
1.	Usage	Heavy duty in chemistry laboratory
2.	Reference Standards	Parameters to qualify ASHRAE110-2016 , EN14175 & SEFA-1-010
3.	Design structure	Aerodynamic, high performance
4.	Air suction capacity	600 cfm @ 80FPM face velocity at 450 mm safe open height or better
5.	**Dimension**	
6.	Outer with base	Approx. 1800L x 900D X 2400H mm
7.	Internal working	Approx. 1740 x 650 x 1195H mm
8.	Base cabinet size	Approx. 865L x 600D x 640H with plinth base
9.	Materials of construction	Heavy gauge rectangular hollow pipes in MS construction, duly hot dip galvanized and finished with corrosion resistant epoxy based coating (Fume hood superstructure should be mounted on the base structure and not on the cabinets. Cabinets should be easily removable).
10.	superstructure	Galvanized Iron (GI) as per IS 277: 2003 standard of Epoxy Powder coated (60 to 70 microns) durable, attractive Ivory & Blue shade. > 1.2 mm for outer panels > 2.0 mm for structural frame > 1.2 mm for front corner post
11.	Superstructure Panel thickness	Min 1.0 mm thickness for panels, min 1.2 mm for back pillar sand corner posts
12.	Front Top Panel	Easily open able hinged Top Panel with self-lifting pneumatic cylinders on both sides, for easy access to Flow Control Valve and Electrical Lighting fixtures for maintenance
13.	Corner Post	Triangular profiled corner post at LHS and RHS of the Fume hood. It should house the gas and water flow control valves and electrical sockets, isolated from each other with a proper protection. All utility outlets will be fitted on the back side of the post and are terminated at the top of the fume hood.
14.	Service Panel	Easily openable, gas spring mounted top service panel. 1.2 mm powder coated, made up of GI. Gives easy access to tube light, electrical junction box, utility end connections, airflow valve, fire extinguisher (if any)

15.	Inside liner & baffle	Chemical & heat resistant, fire retardant, smooth finish, easily cleanable panels made out of durable PRL integral work walls
16.	Baffle arrangement	3-point suction design (for light, medium and heavy fumes), fix type baffle arrangement for effective evacuation of fumes.
17.	Airfoil	Aerodynamic Design, Horizontal flip-on type aerofoil mounted on the worktop made of SS 316 L.
18.	Worktop	Chemical resistant splash & spillage proof dished ***'Jet Black Granite'*** work top (18±1 mm thick). Skirting of 15 mm from all sides for no chemical spillage.
19.	Sink, Water tap with drain arrangement	Worktop will have oval shaped cup sink sealed with epoxy sealant for drainage with water tap on left back side of worktop. Sink will have a bottle trap for solid waste collection and flexible design drain pipe in PP construction, extended up to fume hood bottom. dimensions of sink should be 100 mm X 200 mm sink. (Indian Make
20.	Sash (Shutter)	Combination type / vertical rising sash in 5 mm thick tempered glass construction, having clear opening height of at least 750 mm, sash will operate through nylon pulleys with SS ball bearing and multi strand monel wire with **single counter weight** mechanism for easy and safe operation.
21.	Wet & Dry Service valves	Remotely operated Colour coded **Brass Needle Valves** for fine control over utilities (as per DIN 12920 norms) **total 6 nos**. service valves with SS braided/PU tube plumbing with 6mm internal dia, withstands up to 10 kg f Pressure. Duly tested at factory.
22.	Internal nozzles	Internal nozzles are fitted in the rear side of the front corner posts. Also, the taps are tapered in shape to use with flexible tubing of sizes from ¼" to ½" in dia, to provide greater flexibility to the user.
23.	Lighting	Option for two 20w LED light fitting with vapour-proof, spark proof fitting for proper illumination.
24.	Electrical utilities	**4 nos.** electrical sockets (230V, 6/16A, 50Hz), 4 **nos.** Cables & wires 'Fire Retardant' grade.
25.	Electrical Accessories	Blower on-off switch, Light switch, Air flow monitor switch, Emergency stop are fixed in the facia and all are pre wired and terminated in the electrical box fitted at the top of the hood On front fascia, one DP switch for entire fume hood single-phase supply. Cables & Wires FRLS grade. All sockets, MCBs and DP switch will be mounted on front fascia below air foil.
26.	Cable entering port	Useful to connect the lab instruments cables to the sockets. Moulded PP port (dia 70 mm) with transperent acrylic cover in both sides of front pillar for easy access of cables with plug.

27.	Drawer for consumables	One soft closing drawer for keeping lab consumables/records/stationery above the base cabinet and made of corrosion resistive materials.
28.	Base cabinet (Reagents/chemical storage)	Ventilated and on plinth, MoC: GI powder having internal PP liner, One shelf of` ~20 kg load bearing capacity, doors fitted with CED coated hinges ORSS butt hinges for superior chemical resistance. Exhaust port is connected to a flexible pipe with fume hood top for ventilation. All the accessories should be corrosion resistive.
29.	Apparatus Holding Grid (Lattice Assembly)	A grid made up of Duralumin FRP rod (Dia. 12 mm) to hold the apparatus. It should cover the entire length of the fume hood and should be built-in at fume hood backside. Installed at the distance of 150 mm from backside of fume hood 150 X 150 grid should be fabricated out of 12 Dia epoxy rods and shall be mounted on rear side of the hood.
30.	Exhaust Port	Exhaust port design should ensure that the fumes will be exhausted smoothly without any turbulence at the exhaust port. Also it should ensure low noise level.
31.	Flow control Damper	Built in compact damper to adjust air flow within the hood for air balancing. Butterfly type damper with locking arrangement. MoC:PP. Diaaprrox 250mm
32.	Sash stopper	Sash stopper should be installed at safe opening height to restrict frequent opening of sash.
33.	Grid	Lattice Grid for clamping stirrer or distillator, Moc:SS. Of suitable grid size
34.	**Centrifugal Blower**	
35.	Construction	SISW type, chemical & heat resistant PP + FRP blower with aerodynamically balanced PP impeller, with drain plug
36.	Air Suction Capacity	At least **850 CFM at 50 mm WC static pressure** confirming to international face velocity norms and as per safe fume hood air flow pattern
37.	Motor	**1.5 HP, 415 V, 50 Hz, DutyS1,** 3 Phase TEFC, IP55, Class F, Non FLP, as per IS325
38.	Connection to blower	Directly to the blower Shaft, Factory balanced
39.	Ducting	Chemical resistant PP + FRP (**3mm + 2mm**) rigid & flexible ductwork from Fume hood to exhaust stack point with weather proof canopy. Total ducting with horizontal, vertical members, flanges, bends, bracketed supports and goose neck exhaust stack
40.	Duct support	MS angle support with MS Bracket, Nut and bolt
41.	Warranty	3 years on-site warranty on whole body of fume hood + 2 yeas CAMC

13. Cryogenic Liquid Nitrogen Container

Model A: Specifications

- Container Type- Open Top Container
- Tank Material- Aluminium/similar materials
- Capacity- 10 lit, 20 lit, and 2 lit
- Aldrich® low form dewar flask: 600 ml, 275ml
- Vencil low form dewar flask (cat. 8195): 300 ml
- Low temp thermometer: -50 to +50C (Resolution: 1˚C)
- Warranty: 3 years

Model B: Specifications for Liquid Nitrogen container for sample storage system with Rack: -

- LN2 capacity of 70 liters more
- Neck diameter of 8.5'' or less
- Vacuum insulation.
- Should have Static holding time of 82 days or more
- 2mL vial capacity of 2000 vials or more
- 5mL vial capacity of 648 vials or more
- Temperature uniformity: samples are stored below -180°C even when less than 2 in. (5 cm) of liquid nitrogen remains in the vessel.
- Should have Ultrasonic Level Monitor safeguards irreplaceable samples with minimal liquid nitrogen evaporation and conduction.
- Monitor should provide continuous LED readout of liquid nitrogen level in 1/8 increments
- Should have vacuum insulation minimizes liquid nitrogen evaporation and reduces operating costs
- Should have Secure locking clasp prevents unauthorized entry.
- It Should Include stainless-steel racks designed for use with 2" (5cm) cryogenic boxes.
- Must include 4 or more Stainless steel racks, each rack designed to hold (5) boxes of 1.2/2.0 mL vials
- CE certification
- Warranty – 3 year

14. Schlenk Line

Specification

- Schlenk line manifold double bore glass stopcock (Schott duran Germany), two end closed and Hose barb connections at other two ends, 4 ports.
- Accessories: Solvent Traps, vacuum detachable 45 x 250 mm, 40/38, gas bubbler to fit with the line; Dewar flask- wide mouth with aluminium housing: One litre capacity: 01No
- Warranty: One Years

15. Electrochemical Analyzer/ Workstation (Bipotentiostat/Galvanostat)

Potentiostat

- 2- or 3 or 4 electrode configuration
- Maximum potential: ±10 V or better
- Maximum current: ±250 mA continuous (sum of two current channels), ±350 mA peak or better
- Compliance Voltage: ±13 V or better
- Potentiostat rise time: < 1 μs or better
- Applied potential resolution: 0.0015% of potential range
- Applied potential accuracy: ±1 mV, ±0.01% of scale
- Measured current resolution: 0.0015% of current range, minimum 0.3 fA or better
- Current measurement accuracy: 0.2% or better
- Input bias current: < 20 pA

Galvanostat

- Galvanostat applied current range: 3 nA - 250 mA
- Applied current resolution: 0.03% of applied current range
- Measured potential resolution: 0.0015% of measured range

Electrometer

- Reference electrode input impedance: $1x10^{12}$ ohm
- Reference electrode input bandwidth: 10 MHz
- Reference electrode input bias current: <= 10 pA @ 25°C

Waveform Generation and Data Acquisition

- Fast waveform update: 10 MHz @ 16-bit
- Fast data acquisition: dual channel 16-bit ADC, 1,000,000 samples/sec simultaneously

Experimental Parameters

- CV and LSV scan rate: 0.000001 to 10,000 V/s, two channels simultaneously
- Potential increment during scan: 0.1 mV @ 1,000 V/s
- CA and CC pulse width: 0.0001 to 1000 sec
- CA and CC minimum sample interval: 1 μs
- i-t sample interval: minimum 1 μs, both channels
- DPV and NPV pulse width: 0.001 to 10 sec
- IMP frequency: 0.00001 Hz to 3 MHz
- IMP amplitude: 0.00001 V to 0.7 V rms

Techniques

- Cyclic Voltammetry (CV)
- Linear Sweep Voltammetry (LSV) with stripping
- Tafel Plot (TAFEL) potentiodynamic deactivation, pitting corrosion, corrosion rate, linear Polarisation, Corrosion current etc.
- ChronoAmperometry (CA)
- ChronoCoulometry (CC)

- Amperometric i-t Curve (i-t) – Lifetime testing
- Bulk Electrolysis with Coulometry (BE)
- Polarisation I-V curves Linear Sweep
- AC Impedance (IMP)
- Impedance – Time (IMPT)
- Impedance – Potential (IMPE)
- Impedance Simulator with fitting
- ChronoPotentiometry (CP)
- Chronopotentiometry with Current Ramp (CPCR)
- Multi-Current Steps (ISTEP)
- Potentiometric Stripping Analysis (PSA)
- Open Circuit Potential – Time (OCPT)
- Galvanostatic Charge discharge single/multiple cycle - ChronoPotentiometry (CP) with potential limits, polarity by potential or time, no. of cycles etc
- Limited Version of CV simulator
- Impedance Simulator
- IR Compensation
- External Potential Input
- Auxiliary Signal Measurement Channel
- AC Impedance Plots with Simulation
- Bode and Nyquist plot can be done

Photovoltaic studies

Software provision for measurement of I-V measurements, I max, Pmax, Fill factor etc

Electrode:

- Glass cell(50ml) - 4 Nos
- Two cell top
- Pt Working Electrode-4 Nos
- Ag/AgCI reference (aq)-4 Nos
- Pt wire counter electrode-4 Nos
- Calomel electrode: 4 Nos

Computer

System configuration: HP Core- i5 Processor or more, 8GB RAM, 1 TB Hard Drive, 24'' LED Monitor, DVD Writer, Keyboard, Mouse .

UPS

Branded UPS for 30 min back up for instrument operation with 3 years warranty.

Warranty: **3 years on-site warranty + 2 years CAMC on the whole instrument.**

Service Facility: Supplier should mention their details of service setup and man powers, who are responsible for after sales support. Response time should be within 48-72 hrs.