



# CENTRAL UNIVERSITY OF SOUTH BIHAR

SH-7, Gaya- Panchanpur Road, Village- Karhara,  
Post- Fatehpur, P.S- Tekari,  
District- Gaya (Bihar) PIN- 824 236

## Notice Inviting Tender (NIT)

The Central University of South Bihar invites sealed tenders for the Supply & Installation of “**Laboratory Equipments**” at CUSB Panchanpur, Gaya from original manufactures/ authorized dealers/ distributors. The last date and time of submission of tender document is **15/03/2019 by 4:00 PM**. The detailed tender document is available on the University website **www.cusb.ac.in**. The cost of tender form is Rs. 500/- and can be purchased by payment in the form of Demand Draft, from Central University of South Bihar. The tender forms can also be downloaded from University website and be accompanied by DD of Rs. 500/- in favour of ‘Central University of South Bihar’, payable at Gaya. Duly filled in tender is to be sent by Speed Post/ Registered Post/ By Hand (to be dropped in Tender Box) on following Address: -

To  
The Registrar  
(Tender Document)  
**CENTRAL UNIVERSITY OF SOUTH BIHAR**  
SH-7, Gaya- Panchanpur Road, Village- Karhara,  
Post- Fatehpur, P.S- Tekari, District- Gaya (Bihar) PIN- 824 236  
Email – registrar@cub.ac.in, Website – cusb.ac.in

## Index for Tender Form

Sl. No.	Items	:	Details
1.	Tender Notice No.	:	<b>CUSB/PSD/LABEQUIP/TENDER/21/2018-19, Dated: 22/02/2019.</b>
2.	Name of work	:	Tender Bid Document for the Supply & Installation of “ <b>Laboratory Equipments</b> ” for Central University of South Bihar, SH-7, Gaya- Panchanpur Road, Village- Karhara, Post- Fatehpur, P.S- Tekari, District- Gaya (Bihar) PIN- 824 236.
3.	Tender Fee	:	Rs. 500/- in form of Demand Draft

Bidders are requested to read the complete Tender documents and visit the site to understand its locality, terrain, surrounding conditions etc. before submission of Bids. Queries related to Tender may be sent at (registrar@cub.ac.in), ([so1@cub.ac.in](mailto:so1@cub.ac.in)). For further information visit University Website – (www.cusb.ac.in)

<b>4.</b>	Earnest Money Deposit	:	Earnest money as mentioned in NIT in shape of Demand Draft drawn in favour of Central University of South Bihar, payable at Gaya from any scheduled Bank of amount as per Annexure 'A'.
<b>5.</b>	Start of submission of Bids	:	22/02/2019
<b>6.</b>	Last date and time for Receipt of Bids	:	15/03/2019 by 4:00 PM
<b>7.</b>	Date and Time of opening of Technical Bids	:	Shall be intimated on University website.
<b>8.</b>	Place of opening of Bids	:	CUSB Gaya.

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**Name of the work:** Tender Bid Document for the Supply & Installation of “**Laboratory Equipments**” at Central University of South Bihar, Gaya (Bihar).

Sold to Sri/Smt./M/s.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

On payment of Rs. 500/- (Rupees Five Hundred only)

Vide D.D. No. .... Bank & Branch ..... dt.....

**Registrar**

I undertake to abide by the terms and conditions as stipulated in the detail tender call notice and conditions of contract.

**Signature of the contractor**

For Office Use only

- |                                      |   |                          |
|--------------------------------------|---|--------------------------|
| 1. Total Nos. Corrections            | : |                          |
| 2. Total Nos. of Overwriting         | : |                          |
| 3. Total Nos. of Pages               | : |                          |
| 4. Earnest Money Deposit in shape of | : |                          |
| 5. Copy of S.T.C.C                   | : | Furnished/Not Furnished  |
| 6. Copy of I.T.C.C./PAN              | : | Furnished/ Not Furnished |
| 7. Any other enclosure               | : |                          |

**Registrar**  
**Central University of South Bihar**

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Supply & Installation of “**Laboratory Equipments**” at Central University of South Bihar, Gaya.

### Technical Bid

**Note:** This is to be kept in **Envelope “B”** sealed and it should be written on envelope that Technical Bid for **Tender for the Supply & Installation of “Laboratory Equipments”** of following Department(s) at Central University of South Bihar Gaya.

1. Department of Biotechnology
2. Department of Life Science
3. Department of Environmental Science
4. Department of Physics
5. Department of Chemistry

**Please Tick for which technical bid(s) are being submitted.**

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SH-7, Gaya- Panchanpur Road, Village- Karhara,  
Post- Fatehpur, P.S- Tekari,  
District- Gaya (Bihar) PIN- 824 236

## NOTICE INVITING BIDS

The Central University of South Bihar (CUSB), invites sealed tender in two bid system for the Supply & Installation of “**Laboratory Equipments**” at Central University of South Bihar, Gaya (Bihar) from the original manufactures/authorized dealers/distributors. Details are as follows:

Sl. No	Description of Goods	Estimated Cost (Rs.)	Earnest Money to be Deposited	Last date & time of submission of Tender document	Time & date of opening of Tender	Time allowed for completion of delivery
1.	Supply & Installation of “ <b>Laboratory Equipments</b> ” at Central University of South Bihar, Gaya.	<b>As detailed below</b>	Department wise as mentioned in <b>Annexure ‘A’</b>	15/03/2019 by 4:00 PM	Shall be intimated on University website.	30 days after issue of Purchase Order
Sl. NO.	Name of the Department		Estimated Cost (INR)			
1.	Biotechnology		18,40,500.00			
2.	Life Science		22,85,000.00			
5.	Environmental Science		4,60,000.00			
3.	Physics		92,02,000.00			
4.	Chemistry		1,09,00,000.00			
<b>Total estimated cost (INR)</b>			<b>2,46,87,500.00</b>			

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2. The tender must be accompanied by a Demand Draft for the amount mentioned in **Annexure “A”** in Indian Rupees only (alongwith list of quoted items with EMD details), on a schedule bank drawn in favour of Central University of South Bihar, payable at Gaya as Earnest Money for the above tender.
  3. **Eligibility Criteria (details to be submitted in Annexure “B”)**
    - 3.a. **Financial**

The Firm should have average annual financial turnover of Rs. 2.0 Crores during the preceding last 03 consecutive financial years starting from F.Y. 2018-19 to know the financial capability of the firm and supply credentials.
    - 3.b. **Physical**

Three similar supplies in Central Government/ State Government/ PSU/ Universities/ Reputed Higher Educational Institutions costing not less than 40% of the estimated cost or two similar supplies costing not less than 60% of the estimated cost or one similar supplies costing not less than 80% of the estimated cost in the last 3 years ending on the last day of the month previous to the one in which the tenders are invited.
  4. **Sealed tender documents duly signed on all pages** are required to be delivered at Central University of South Bihar, by Registered Post/ Speed Post/By Hand (to be submitted in Tender Box) to reach on or before **15/03/2019 by 4:00 PM**. The Technical Bids will be opened at CUSB, Gaya in presence of the Tenderers or their authorized representatives who wish to attend. The date of opening of the Technical & Financial Bids shall be announced later on University website. If the office happens to be closed on the date of receipt of the bids or opening of bids as specified, the bids will be received and opened on the next day of opening of the office at the same time and venue.
  5. The tenderer shall quote for the materials to be supplied as per detailed specifications as given in the tender document, at Gaya.
  6. For any clarification and doubt related with the Tender, Tenderers should email their queries to **[registrar@cub.ac.in](mailto:registrar@cub.ac.in)**.
  - 7.a Tender for Lab Equipment for each department should be separately submitted quoting Tender Ref., Tender Name and Department for which applied.
  - 7.b. The tender shall be submitted in three separately sealed envelopes marked as “A”, “B”, & “C”. The language used shall be English. In case any information is given in foreign language, then translated (in English) copies of those pages must be enclosed, failing which the tender will be disqualified.

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## **8. ENVELOPE 'A' (Earnest Money & Tender Cost)**

The tender shall be accompanied by the cost of the tender document for Rs. 500/- (Indian Rupees five hundred only) in the form of Demand Draft failing which the tender will not be accepted. Tender must also be accompanied by earnest money as mentioned in Annexure 'A' in the form of Demand Draft in favour of Central University of South Bihar, payable at Gaya executed by any Scheduled Bank. The Demand Draft towards Earnest Money & cost of tender document will be placed in sealed **Envelope 'A'**.

**8.a.** The tender cost and EMD are not required to be submitted by bidders who are exempted in terms of MSME, Govt. of India guidelines. However, they are required to furnish requisite certificate in this regard issued by the Competent Authority.

## **9. ENVELOPE 'B' (Technical Bid Document)**

**9.i.** Those Tenderers, who are not the manufacturer but are authorized by the original manufacturer to supply the goods, should establish their credentials by giving valid documentary evidences of similar supplies to have been executed in India.

### **9.ii. Checklist for Envelope 'B'**

**9.ii.a.** Copy of registration of GST.

**9.ii.b.** Copy of Trade License, Factory License/Excise Registration.

**9.ii.c.** Copy of Income Tax Permanent Account Number.

**9.ii.d.** Copy of Memorandum and Article of Association, Certificate of Incorporation, Partnership Deed, Registration Certificate issued by the Registrar of Firms etc.

**9.ii.e.** Copy of Authorization for Participation in subject bid (not required in case of Proprietorship firm).

**9.ii.f.** Copy of Dealership/ Distributorship Authorisation Certificate.

**9.ii.g.** Copy of Small Scale Unit/ MSME/ NSIC Registration under relevant items (if registered).

**9.ii.h.** All pages of tender document including various sections and Annexure 'A', except priced bid duly signed / sealed by the Tenderer.

**9.ii.i.** Any product manual, credentials etc.

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**10. Envelope 'C' (Financial Bid Document)**

**10.1.** The **Envelope 'C'** shall contain the tender documents and information related to the schedule of quantities quoting the rates per Unit/Price etc. of the item pertaining to the Financial Bid on the Financial Bid document, issued by CUSB, along with the tender document.

**The Financial Bid should be submitted separately for each department in separate envelope clearly mentioning the Name of the Department and Annexure for which Financial Bid is submitted on top of the Envelope.**

**10.2.** All columns shall be duly filled in with specific information on the cost involved.

**10.3.** The rates for the items shall be quoted in Indian Rupees only.

**\*NOTE** The Tenderer should clearly mention in all the three envelopes (i.e. A, B and C) clear description of the items for which the offer is being quoted. If any discrepancy is observed the offer would be treated as non-responsive and would be rejected outrightly.

**11.**

- **Envelope 'A'** (Earnest Money & Tender Cost),
- **Envelope 'B'** (Technical Bid Document), and
- **Envelope 'C'** (Financial Bid Document), shall be in separate sealed envelopes, each marked as "**Envelope 'A'**, **Envelope 'B'** and **Envelope 'C'**", respectively.

- All the three envelopes shall be submitted together in another big envelope sealed and super-scribing thereon **Tender for Supply & Installation of "Laboratory Equipments"** alongwith **Tender Number**.

- The envelope should be addressed to, The Registrar, (Tender Document) Central University of South, SH-7, Gaya - Panchanpur Road, Village - Karhara, Post- Fatehpur, P.S. Tekari, District - Gaya (Bihar) PIN - 824236.

- The envelope marked **Envelope 'B'** of only those Tenderers shall be opened, whose earnest money & tender cost are placed in the **Envelope 'A'** and found to be in order. In case of waiver of the charges, relevant documents shall be submitted in **Envelope 'A'**.

**12.** The Tender Evaluation Committee will evaluate the Technical Bids and is fully authorized to reject any incomplete tender or on its satisfaction that the requirements are not met for the complete need of the CUSB with regard to the Committee. The decision of the Tender Evaluation Committee shall be final. Only those Technical Bids cleared by the Tender Evaluation Committee shall be eligible for consideration of Price Bid. Those successful Tenderers for whom the **Envelope 'C'** (Price Bid) is to be opened shall be duly intimated.

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### **13. Clarification on Tender Documents**

- 13.1.** During evaluation of tenders, the University authorities/ committee may at its discretion ask the Tenderer for any clarification(s) if so deemed fit. The request for clarification and the response shall be in writing. However, the Tenderer is not permitted to alter the price(s) furnished in the Price Bid (**Envelope 'C'**).
- 13.2.** Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price (i.e. obtained by multiplying the unit price and quantity), the unit price shall prevail and the total price shall be corrected. If the supplier does not accept the correction of errors, its tender will be rejected. If there is a discrepancy between words and figures, the amount in words will prevail.
- 14.** The amount of Earnest Money Deposit (EMD), in case of successful Tenderer, shall be refunded on successful completion of delivery/installation. However, EMD of unsuccessful Tenderers will be refunded after the award of the contract to the successful Tenderer.
- 15.** The CUSB, does not bind itself to accept the lowest or any other tender, and reserves the authority to reject any or all the tenders received without assigning any reason. Tenders not in compliance with any of the prescribed conditions or incomplete in any respect or in presence of any correction not duly dated, initialled by the Tenderer will be liable to be rejected. However, the final decision for accepting or rejecting any or all tenders will be in the sole discretion of Vice Chancellor, CUSB.
- 16.** Tender shall remain open for acceptance for a period of 90 days from the date of opening of the tenders. If any Tenderer withdraws his tender before the said period or makes any modifications in the terms and conditions of the tender which are not acceptable to CUSB, then CUSB, shall without any prejudice to any other right or remedy, be at liberty to forfeit full earnest money, absolutely. The decision of Vice Chancellor, CUSB in this behalf shall be final and binding on the Tenderer.
- 17.** The notice Inviting tender shall form a part of the contract document.
- 18.** No additional conditions from the Tenderer shall be acceptable. The tenders having any additional conditions will be summarily rejected without assigning any reason.

Date:

Place:

**Signature of the Tenderer**

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## TECHNICAL BID PROFORMA

<b>NIT No. :</b> CUSB/PSD/EQUIP/TENDER/21/2018-19 Dated:22/02/2019		
Tender for the Supply & Installation of “Laboratory Equipments”.		
1.	Name of the Organization	
2.	Head Office / Registered Office	
	Telephone No/mobile No.	
	Fax No.	
	Email	
	Web site (if any)	
	Date of Establishment	
	Branch Office in Gaya , if any	
	(Provide Complete Address)	
	Telephone No.	
	Fax No./Email	
3.	Name of Chief Executive/ Proprietor / Partners with Designation	
	Telephone No./Mobile No.	
	Fax No./ Email	
4.	Name of Contact Person	
	Telephone No./Mobile No	
	Fax No./Email	
5.	<b>Type of Organization</b>	<b>Certified Documents to be enclosed</b>
a.	Proprietary	Trade License
b.	Partnership	Partnership Deed, Trade License
c.	Private Limited Company	Memorandum of Article
d.	Public Limited Company	Certificate of Registration
e.	Public Sector	Trade License

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<b>6. Nature of Business (tick the relevant)</b>					
Manufacturing		Service		Dealership	
Stockiest		Indian Agent		Indian Branch Office	
Others Pl. Specify					

<b>7. Class / Type of Product / Materials Manufactured / Sold / Serviced/ Fabricated</b>					
Scientific Equipment		Electronics		Lab Consumables & Chemicals	
Electrical Items		Computer Peripherals		Computers	
Laboratory Equipments		Office Automation Product		Electrical Works	
Sport Materials		Water Coolers		Air-conditioners	
AV Equipments		Boards		Other, please specify.....	

**Audited Annual Turnover during last 3 years (Rs. In Lakhs) (enclose Chartered Accountant's certification & Income Tax Return Copy)**

Year	Rupees (in Lakhs)	Annexure (Number)
2017-18		
2016-17		
2015-16		

<b>8. Commercial Information (enclose Attested Copy wherever Applicable)</b>			
S. No.	Information	Details	Annexure (Number)
a.	GST Registration Number		
b.	Excise Registration Number Trade / Factory License Number		

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<b>c.</b>	PAN No.			
<b>d.</b>	Details of Registration Certificate with DGS&D/NCCF			
<b>e.</b>	MSME/SSI/NSIC Certificate			
<b>f.</b>	Current dealership agreement with Principal Letter No. / Date / Valid upto			
<b>g.</b>	Relevant IISI/ SO Certificate, if any			
<b>h.</b>	<u>Bank Details :</u> Account No.			
<b>i.</b>	Name of Bank & Branch			
<b>j.</b>	IFSC Code			
<b>k.</b>	Details of Tender Fee	Amount:	DD Details:	Name of the issuing Bank & Branch
<b>l.</b>	Details of EMD	Amount:	DD Details:	Name of the issuing Bank & Branch
<b>m.</b>	Details of Previous Supply in Govt. Organisations/ Govt. Educational Institutions (Enclose Supply order & Performance report. If required enclose separate sheets )	Name of the organization	Item Supplied / Qty.	Total Value (Rs in lakhs)
I/ We hereby give an undertaking that the information provided are true to the best of my knowledge and belief. If anything found to be false at any stage my tender will be liable to be rejected and EMD amount will be forfeited.				
<b>Signature of authorized representative:</b> .....				
<b>Date:</b> .....				
<b>9.</b>	<b>Note</b>			
<b>9.1.</b>	Separate information sheet may be provided for item (s) in case space provided is not adequate.			
<b>9.2.</b>	Affidavit in the enclosed format on Non Judicial stamp paper duly attested by Magistrate/Notary shall also be furnished by the bidder.			

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## **GENERAL CONDITIONS OF PURCHASE**

### **1. Definitions**

- 1.1. In this Purchase, the following terms shall be interpreted as indicated.
- (a) "The Order" means the agreement entered into between the Purchaser and the Supplier including all the attachments and appendices and all documents incorporated as per notification of award.
  - (b) "The Purchase Price" means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations;
  - (c) "The Goods" means all the items, which the Supplier is required to supply to the Purchaser under the Contract;
  - (d) "Services" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services training and other obligations of the Supplier covered under the Contract;
  - (e) "GCP" means the General Conditions of Purchase contained in this section.
  - (f) "The Purchaser" means the organization purchasing the Goods i.e **CENTRAL UNIVERSITY OF SOUTH BIHAR, GAYA.**
  - (g) "The Purchaser's country" is India.
  - (h) "The Supplier" means the individual or firm supplying the Goods and Services.
  - (i) "Day" means calendar day.

### **2. Application**

- 2.1. These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the tender.

### **3. Standards**

- 3.1. The Goods supplied under this Purchase shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned Institution.

### **4. Use of Purchase Documents and Information**

- 4.1. The Supplier shall not, without the Purchaser's prior written consent, disclose the Purchase, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in performance of the Contract. Disclosure to

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any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

- 4.2. The Supplier shall not, without the Purchaser's prior written consent, make use of any document or information except for purposes of performing the Contract.
- 4.3. Any document, other than the Contract itself, shall remain the property of the Purchaser and shall be returned (in all copies) to the Purchaser on completion of the Supplier's performance under the Contract if so required by the Purchaser.

## **5. Patent Rights**

- 5.1. The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in India.

## **6. Submission of the bids**

- 6.1. All bids completed in all respect must reach the purchaser within the last date and time of receipt of bid. No extension shall be allowed for any reason what so ever. Late tenders/delayed bids and tenders received without earnest money etc. shall be rejected.

## **7. Inspections and Tests**

- 7.1. The Purchaser or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the Purchaser.
- 7.2. The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery and/or at the Goods final destination. If conducted on the premises of the Supplier or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data shall be furnished to the inspectors at no charge to the Purchaser.
- 7.3. Should any inspected or tested Goods fail to conform to the specifications, the Purchaser may reject the goods and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Purchaser.
- 7.4. The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at Project Site shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to the Goods shipment.
- 7.5. Nothing in GCP Clause 7 shall in any way release the Supplier from any warranty or other obligations under this Contract.

## **8. Consequences of rejection**

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- 8.1. If in the event the stores are rejected by the purchaser at the destination and the supplier fails to make satisfactory supplies within the stipulated period of delivery, the purchaser will be at liberty to:
- (a). Allow the supplier to resubmit the stores in replacement of those rejected, within a specified time without any extra cost to the purchaser or
  - (b). Reject the material, which shall be final and binding on the contractor.
  - (c). Procure the rejected materials of comparable quality from the open market/Govt. stores and the supplier shall be liable to pay the difference in price over the RC prices or get the amount adjusted from the outstanding bills of the supplier, if any or EMD.

## 9. Packing

- 9.1. The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.
- 9.2. The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract including additional requirements, in any subsequent instructions ordered by the Purchaser.

## 10. Delivery and Documents

- 10.1. The Supplier shall make delivery of the Goods within specified period from the placement of purchase order in pursuance of the notification of award. The purchase order would be placed after assessing the requirements on quarterly basis. However, the supplier shall also arrange to execute all orders on priority basis which would be placed to meet any emergent requirements
- 10.2. In case the purchaser decides to conclude parallel rate contracts, then the requirements would be split on different firms on equitable basis as per the discretion of the purchaser.
- 10.3. The delivery of Stores shall be affected at the premises of the University free of all delivery charges and within the stipulated time and as may be elucidated in the confirmed order, accompanied by a delivery challan. No extension of time for delivery of Stores shall normally be accorded.

**Time and date of delivery – the essence of the contract:** The time for and the date of delivery of the stores stipulated shall be deemed to be of the essence of the contract and delivery must be completed not later than

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the date(s) specified.

## **11. Insurance**

**11.1.** The Goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery. The insurance shall be obtained by the suppliers in an amount equal to 110% of the value of the goods from “warehouse to warehouse” (final destinations) on “all risks” basis including war risk and strike.

## **12. Transportation**

**12.1.** Where the Supplier is required under the Contract to transport the Goods within India defined as Project site, transport to such place of destination in India including insurance, as shall be specified in the Contract, shall be arranged by the Supplier, and the related cost shall be included in the contract Price.

## **13. Warranty**

**13.1.** The Supplier warrants that the Goods supplied under this Contract are **new, unused**, of the **most recent** or **current models** and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that all Goods supplied under this Contract shall have no defect arising from design, materials or workmanship or from any act or omission of the Supplier that may develop under normal use of the supplied Goods in the conditions prevailing in India.

**13.2.** This warranty shall remain valid for 12 months after the Goods or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the Contract, unless specified otherwise

**13.3.** The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.

**13.4.** Upon receipt of such notice, the Supplier shall with all reasonable speed, repair or replace the defective Goods or parts thereof, without any extra cost to the Purchaser.

**13.5.** If the Supplier, having been notified, fails to remedy the defect(s) within a reasonable period, the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

## **14. Payment**

**14.1.** The payment shall be made after inspection of the materials and

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satisfactory performance.

- 14.2.** The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and the Services performed, and by documents, submitted pursuant to GCC Clause 10, and upon fulfilment of other obligations stipulated in the contract.

**15. Prices**

- 15.1.** Prices charged by the Supplier for Goods delivered and Services performed under this Purchase shall not vary from the prices quoted by the Supplier in his bid.

**16. Change Orders**

- 16.1.** The Purchaser may at any time, by written order given to the Supplier, make changes within the general scope of the Contract in any one or more of the following:

- (a) Drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
- (b) The method of shipping or packing;
- (c) The place of delivery; and/or
- (d) The services to be provided by the Supplier.

- 16.2.** If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the Supplier's receipt of the Purchaser's change order.

**17. Contract Amendments**

- 17.1.** Subject to GCP Clause 16, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

**18. Assignment**

- 18.1.** The Supplier shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchaser's prior written consent

**19. Subcontracts**

- 19.1.** The Supplier shall notify the Purchaser in writing of all subcontracts awarded under this Contract if not already specified in the bid. Such notification, in his original bid or later, shall not relieve the Supplier from

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any liability or obligation under the Contract.

## **20. Delays in the Supplier's Performance**

- 20.1.** Delivery of the Goods and performance of the Services shall be made by the Supplier in accordance with the time schedule specified by the Purchaser as per GCP clause 10.
- 20.2.** If at any time during performance of the Contract, the Supplier or its sub-contractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may, at its discretion, extend the Supplier's time for performance with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of the Contract
- 20.3.** Except as provided under GCP Clause 23, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of penalty pursuant to GCP Clause 21, unless an extension of time is agreed upon pursuant to GCC Clause 20.2 without the application of liquidated damages.

## **21. Penalty**

- 21.1.** Subject to GCP Clause 23, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty, a sum equivalent to 1% per week and the maximum deduction is 10% of the contract price of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance. Once the maximum is reached, the Purchaser may consider termination of the Contract pursuant to GCC Clause 22.

## **22. Termination for Default**

- 22.1.** The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part
- (a)** If the Supplier fails to deliver any or all of the Goods within the period(s) specified in the purchase order, or within any extension thereof granted by the Purchaser pursuant to GCP Clause 20; or
- (b)** If the Supplier fails to perform any other obligation(s) under the Contract.
- (c)** If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

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'For the purpose of this Clause:

**“Corrupt practice”** means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

**“Fraudulent practice”**: a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition;”

**22.2.** In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 22.1, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Services similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess costs for such similar Goods or Services. However, the Supplier shall continue the performance of the Contract to the extent not terminated.

### **23. Force Majeure**

**23.1.** Notwithstanding the provisions of GCP Clauses 20 & 21, the Supplier shall not be liable for imposition of liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

**23.2.** For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

**23.3** If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

### **24. Termination for Insolvency**

**24.1.** The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any

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right of action or remedy, which has accrued or will accrue thereafter to the Purchaser.

## **25. Termination for Convenience**

- 25.1.** The Purchaser, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.
- 25.2.** The Goods that are complete and ready for shipment within 30 days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices.

## **26. Resolution of Disputes**

- 26.1.** The Purchaser and the supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.
- 26.2.** If, after thirty (30) days from the commencement of such informal negotiations, the Purchaser and the Supplier have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms as specified below. These mechanisms may include, but are not limited to, conciliation mediated by a third party, adjudication in an agreed national or international forum, and national or international arbitration.
- 26.3.** In case of Dispute or difference arising between the Purchaser and a supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996.

## **27. Governing Language**

- 27.1.** The contract shall be written in English language. Subject to GCC Clause 28, English language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in the same language.

## **28. Applicable Law**

- 28.1.** The contract shall be governed by the Law of Contract for the time being in force.
- 28.2** Irrespective of the place of delivery, the place of performance or place of payment under the contract, the contract shall be deemed to have been made at the place from which the acceptance of tender has been issued.
- 28.3.** Jurisdiction of Courts: The courts of the place from where the acceptance

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of tender has been issued shall alone have jurisdiction to decide any dispute arising out of or in respect of this contract.

**28.4.** One month notice will be given by either party for termination of Contract during the tenure of Contract for breach of Clause or otherwise.

**29. Taxes and Duties**

**29.1.** Suppliers shall be entirely responsible for all taxes, duties, license fees, octroi, road permits, etc., incurred until delivery of the contracted Goods to the Purchaser.

**30.** All legal disputes arising out of this contract /bid shall be subject to competent court and forum under judicature of Gaya only.

**31.** Submission of Performance Bank Guarantee as per GFR Rules 2017 (if applicable).

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# CENTRAL UNIVERSITY OF SOUTH BIHAR

SH-7, Gaya- Panchanpur Road, Village- Karhara,  
Post- Fatehpur, P.S- Tekari,  
District- Gaya (Bihar) PIN- 824 236

## Department wise list of Equipment

Annexure 'A'

1. Biotechnology				
Sl. No.	Equipment	Qty.	EMD Amount (INR)	Technical Specification enclosed as 'Annexure'
1	Biosafety Cabinet	1	40,000.00	Spec-BTN
2	Stereomicroscope	1		
3	Digital Magnetic Stirrer Hot Plate	1		
4	BOD Incubator	1		
5	UV Quartz Cuvette (700 µl)	2		
6	Digital MicroPipettes	1		
7	Micro Centrifuge with Refrigeration	1		
2. Life Science				
1	Laminar Air Flow Chambers	3	50,000.00	Spec-LSC
2	Autoclave	2		
3	Digital pH Meter	2		
4	Cyocan/ Liquid Nitrogen Container with canister (20 lit and 50 lit each)	1		
5	(-20C) Deep Freezer	1		
6	(-86c) Deep Freezer - Double Door upright)	1		
7	Sphygmomanometer - Mercurial (with Stethoscope)	2		
8	Digital Glucometer (with Strips)	4		
9	Tissue culture rack (3 for Plants Tissue Culture 3 for Microbiology) with light fitting	6		
10	Micropipette	4		
11	Weighing Balance (0.01 mg)	1		
3. Environmental Science				
1	Binocular Stereo-zoom microscope	1	10,000.00	Spec-EVS
2	Double distillation Unit	2		

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<b>4. Physics</b>			
1	Determination of Plank's constant by solar cell (complete set-up)	2	<b>200,000.00</b>  <b>Spec-PHY</b>
2	Determination of Stefan's constant (complete set up)	2	
3	Study of electromagnetic induction and verification of Fraday's law (complete set up)	2	
4	Determination of Young's modulus by bending of beam (complete set up)	2	
5	Experiment with sonometer (find out frequency of A.C. mains) (complete set up)	2	
6	Determination of the value of "g" with the help of a bar compound pendulum (complete set up)	2	
7	Determination of the refractive index of a glass/water with the help of a microscope (complete set up)	2	
8	Verification of Hooke's law (complete set up)	2	
9	Moment of inertia of a flywheel (complete set up)	2	
10	Find spring constant of helical spring from load extension graph (complete set up)	2	
11	Study of harmonic oscillator coefficient of damping, relaxation time, and quality factor using simple pendulum (complete set up)	2	
12	Study of bending of cantilever (complete set up)	2	
13	Determination of velocity of sound with the help of resonance tube (complete set up)	2	
14	Determine the surface tension of water by capillary rise method (complete set up)	2	
15	Familiarizing with C.R.O. (complete set up)	5	
16	Half wave and full wave rectifier (complete set up)	2	
17	Transfer characteristic (Complete set up)	2	
18	To study Lissajous Figures	3	

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19	To determine the modulus of Rigidity and Moment of Inertia, using Torsional Pendulum.	3		
20	Determine the temperature co-efficient of resistance by Platinum resistance thermometer	3		
21	Determine the coefficient of thermal conductivity of Cu by Searle's Apparatus	3		
22	Determine the coefficient of thermal conductivity of a bad conductor by Lee and Charlton's disc method	3		
23	Determine Rigidity Modulus by Static Method	3		
24	Determine 'g' and velocity for a freely falling body using Digital Timing Technique. & Measurement of 'g'	3		
25	Michelson Interferometer Kit (with He-Ne Laser)	3		
26	Fresnel's Bi Prism Experiment Kit (with Sodium Light Source)	3		
27	Polarization of Light & Verification of Malus Law	3		
28	Polarization of Light using Half-Wave Plate	3		
29	Polarization of Light by Quarter-Wave Plate	3		
30	Resolving Power of a Telescope	3		
31	Franck Hertz Experiment (Neon Tube) with Data Logger and Sensor	3		
32	Hall Effect in Metals (Silver)	3		
33	Superconductivity Experiment Kit	3		
34	B-H Curve Kit	3		
35	Basic Electronics	3		
36	IC 555 Timer	3		
37	Thermal Expansion Experiment	3		
38	Viscosity of Glycerin with Intelligent Timer	3		
39	Advanced Polarimeter Kit	3		
40	FTIR Spectrometer (complete set up)	1		
41	Experimental set-up for recording and reconstruction of holograms	2		

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42	Experimental set-up for measurement of rotation of the plane of polarization through optically active liquid and to determine the concentration and specific rotation of the liquid.	3		
43	Experimental set-up for study of Faraday effect and measurement of Verdet's constant using He-Ne Laser	2		
44	Experimental set-up for study of Kerr effect and measurement of Kerr constant using Halogen light source	2		
45	Experimental set-up for interference and diffraction with He-Ne laser source.	2		
46	Experimental set-up for interference and diffraction with Diode laser source.	2		
47	Experimental set-up for investigation of Field lines and Equipotential lines	5		
48	Experimental set-up for demonstration of Biot-Savart Law	5		
49	Experimental set-up for investigation of magnetic field in Helmholtz coil	2		
50	Experimental set-up for verification of Faraday's and Lenz's law of induction	2		
51	Experimental set-up for investigation of optical phenomena in microwaves such as reflection, refraction, polarization, double-slit interference and single-slit diffraction.	2		
52	Experimental set-up for measurement of dielectric constant of different materials	1		
53	Experimental set-up for measurement of permeability and permittivity of air	1		
54	Experimental set-up for investigation of magnetic field along the axis of a current carrying	1		
55	Experimental set-up for determination of dielectric constant of ferroelectric materials and its Curie temperature	1		
56	Experimental set-up for measurement of energy bandgap of semiconductors	1		

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57	Experimental set-up for measurement of transition temperature of a high- $T_c$ superconductor	1		
58	Experimental set-up for measurement of resistivity by four-probe method	1		
59	Experimental set-up for measurement of susceptibility of paramagnetic samples using Quinck's tube method	1		
60	Experimental set-up for demonstration of dia-, para-, ferro-magnetism	1		
61	Experimental set-up for determination of dispersion relation of monoatomic and diatomic lattice	1		
62	Experimental set-up for measurement of heat capacity of solids	1		
63	Experimental set-up for determination of refractive index of liquids and solids	1		
64	Experimental set-up for determination of dipole-moment of liquids	1		
65	Megger meter 1000 M Ohms, 1000V	2		
66	Experimental set-up to study Thermoelectric effect and to measure Seebeck and Peltier Coefficient	1		
67	Travelling Microscope	5		
68	Sensitive microbalance	1		
69	Ultrasonicator	1		
70	Experimental set-up to study Newton's ring	1		
71	Experimental set-up for particle size measurement using He-Ne Laser	1		
72	Experimental set-up for determination of focal length of a combination of lenses	1		
73	Experimental set-up to determine speed of light in air	1		
74	Experimental set-up to study Zeeman effect	1		
75	Experimental set-up for measurement of hydrogen spectrum and determination of Rydberg constant	1		

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76	<b>(A) Function/Arbitrary waveform Generator:</b> 2 channels, up to 25 MHz, 14-bit, upto125 MSa/s, 8k point, sine, square, triangle, and arbitrary waveform, MB, USB connectivity with PC with cable, Software for PC control.	10 Items;		
	<b>(B) Digital Storage Oscilloscope (DSO):</b> Compatible with item (A); Channel:2 or 4, Bandwidth : 200 MHz (or better), Sample Rate: 1 GSa/s (or better), Resolution: 8 bits, Memory depths: 16kpts (or better), Input coupling: AC, DC, and Ground, standard USB 2.0 connectivity with USB cable and standard accessories, Software for PC control, save and recall facility, Instruction Manual/CDs/ Online resources.	10 iteams;		
	<b>(C) Digital Multimeter:</b> DC/AC voltage and current, capacitance, resistance, temperature, diode test, transistor test & gain, audible continuity test, polarity indication, necessary lead and cords for various testing.	10 iteams;		
	<b>(D) Power Supply:</b> (i) 0-30 VDC at 0-6A, (ii)0-500 VDC, 0-100 mA Constant voltage & current mode with test lead, high resolution	4 items each		

### 5. Chemistry

1	FT- IR Spectrometer (Specifications as per Chem-1	1	<b>218,000.00</b>	<b>Spec-CHEM</b>
2	Rotary Evaporation System with accessories (A) Rotary Evaporator (B) Vacuum Pump (C) Vacuum Aspirator (D) Chiller (0°C to -20° C) (Specification as per Chem-2)	1		
3	Muffle Furnace (Specifications as per Chem-3)	1		
4	Melting Point Apparatus (Specifications as per Chem-4)	1		
5	Refrigerator (For Reagents' Storage) (Specifications as per Chem-5)	2		
6	Oil-Free Diaphragm Pump (Specifications as per Chem-6)	1		
7	Low Temperature Reaction Bath with Magnetic Stirrer	1		

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	(Specifications as per Chem-7)		
8	Microwave Synthesizer	1	
	(Specifications as per Chem-8)		
9	Steady State Spectrofluorometer (UV-Vis-NIR)	1	
	(Specifications as per Chem-9)		
10	Distillation units	1	
	(Specifications as per Chem-10)		
11	Heating Mantle	10	
	(Specifications as per Chem-11)		
12	Hot-plate-cum-Magnetic Stirrer	10	
	(Specifications as per Chem-12)		
13	20 Kva UPS ONLINE	1	
	One hour power backup (Specifications as per Chem-13)		
14	Electrochemical Workstation	1	
	(Specifications as per Chem-14)		
15	Differential Scanning Calorimeter	1	
	(Specifications as per Chem-15)		
16	Gas cylinders & Accessories		
	(Specifications as per annexure-Chem-16)		
	(a) Argon Gas Cylinder with regulator	2	
	(b) Nitrogen Gas Cylinder with regulator	2	
	(c) Gas Cylinder Brackets	2	
	(d) Cylinder Trolley	2	

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## 1. Technical Specifications for Biotechnology

### Annexure 'Spec-BTN'

Sl. No.	Equipment	Specification
1.	Stereomicroscope	<ul style="list-style-type: none"> <li>• Trinocular with camera</li> <li>• Lead-free optical components</li> <li>• Working distance at least 100 mm</li> <li>• Magnification ranging from 0.8x to 4.5x or more</li> <li>• With eyepieces ranging from 10x to 30x</li> <li>• With LED illumination source and flexible light guide</li> </ul>
2.	Digital Magnetic Stirrer Hot Plate	<ul style="list-style-type: none"> <li>• Ceramic/Aluminium top</li> <li>• Digital Speed Control: 100-1200 rpm</li> <li>• Digital Temperature Control: 50-500 °C</li> <li>• Platform size: 18 cm x 18 cm</li> </ul>
3.	BOD Incubator	<ul style="list-style-type: none"> <li>• Capacity: At least 350 Ltrs. total</li> <li>• Double door with at least two to three racks in each compartment</li> <li>• Double walled</li> <li>• CFC-free cooling</li> <li>• Temperature range: 5 °C to 60 °C</li> <li>• Humidity controller</li> <li>• Digital display and controller</li> <li>• Chamber with timer based illumination (light could be set to 12 hours light and 12 hours dark)</li> <li>• Two doors with inner door full length thick plexi glass/float glass</li> </ul>
4.	UV Quartz Cuvette (4 Pieces)	<ul style="list-style-type: none"> <li>• Material - Quartz</li> <li>• Volume 700ul or 1400 ul with PTFE stopper</li> </ul>
5.	Digital MicroPipettes	<ul style="list-style-type: none"> <li>• Micropipettes variable range between 0.1-2.5µl-1pc.</li> <li>• Micropipettes variable range between 20-200µl-1pc.</li> <li>• Micropipettes variable range between 1000µl-3 pc.</li> <li>• Three to five year guarantee.</li> <li>• Bi annual calibration.</li> </ul>
6.	Micro Centrifuge with refrigeration	<ul style="list-style-type: none"> <li>• Maximum Rotational Speed: 14,000 rpm</li> <li>• Maximum RCF: 16,800 x g</li> <li>• Power supply: 230 V/50-60 Hz</li> <li>• Aerosol-tight</li> <li>• Single Rotor should be provided for 0.2 ml PCR tubes, 0.5 ml tubes, 1.5 ml tubes, 2 ml tubes</li> <li>• Alternatively single rotor with changeable metal plate top attachments for different tube sizes (0.2 ml PCR tubes, 0.5 ml tubes, 1.5 ml tubes, 2 ml tubes)</li> <li>• With Hanging Bucket</li> </ul>

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## 2. Technical Specifications for Life Science

### Annexure 'Spec-LSC'

1.	<b>Laminar air flow chambers</b>	<ul style="list-style-type: none"><li>• Horizontal type</li><li>• Microprocessor based Touch screen display system with special features (on/off switch for UV light and LED tube light (15 W), digital UV Lamp Hour-meter to count the total uses of UV light in minutes)</li><li>• Working surface size (W x D x H) ft = (6 X 2 X 2)</li><li>• Fully SS body</li><li>• Pre filter (10m) of dry fiber washable type with the frame on all the sides should be located horizontally on the top of the unit</li><li>• Air suction should be from front side</li><li>• Ultra low vibration during operation</li><li>• Air cleanliness within work area should be class 100 @ <math>\geq 0.3</math> micron</li><li>• HEPA/ULPA Filter efficiency (&gt;99.999% at 0.1 to 0.3 microns)</li><li>• Pressure gauge to measure filter performance</li><li>• Intensity of illumination approx 1500 Lux (white LED tube light)</li><li>• 250-400 watt power consumption</li><li>• Rating air flow should be 0.3-0.6 m/sec, adjustable</li><li>• U.V.-C (germicidal) light should emit 253.7 nm wavelengths.</li><li>• U.V. light should be operational after door closed properly</li><li>• Noise label should be &lt;65 dB</li><li>• Glass bead sterilizer should be fitted from bottom/out side</li><li>• One power socket should be located at the bottom portion</li><li>• Lower portion of LAF should have shelf, entire LAF should fixed with movable stands through castor wheels</li><li>• Single phased, 220-250 V 50 Hz power supply with circuit breaker</li><li>• Working bench should be spill-retaining work top design with a recessed central area contains accidental liquid spills</li><li>• Cleanliness - Class 100</li><li>• Velocity – 90 FPM <math>\pm 10\%</math></li></ul>
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2.	<b>Autoclave</b>	<ul style="list-style-type: none"> <li>• Operating temperature- <ul style="list-style-type: none"> <li>o Sterilizing – 105 – 135 °C (0.019-0.212 MPa)</li> <li>o Heating – 45-104 °C (0-0.015 MPa)</li> <li>o Warming – 45-95 °C</li> </ul> </li> <li>• Maximum operating pressure – 0.25 MPa</li> <li>• Temperature display – Digital</li> <li>• Pressure display – analog</li> <li>• Pressure display range – 0-0.4 MPa</li> <li>• Time display – Digital</li> <li>• Heat Source – 3.0kW electric heater</li> <li>• Safety device – Water level sensor, current leakage breaker, Lid interlock, over heating prevention, over pressure prevention, Safety valve, Open temperature sensor detection</li> <li>• Protection type against electrical shock – class I equipment</li> <li>• Pressure chamber type – PED category II</li> <li>• Chamber dimension – 370 X 774 mm</li> <li>• Effective diameter X effective depth – 360 X 675 mm</li> <li>• Chamber capacity – Effective internal volume – 69L Internal volume of the chamber – 79 L</li> <li>• Chamber material – SUS304</li> <li>• Dimensions (mm) – 470W,528D, 1003H With protruding: 625 D</li> <li>• Weight- 72 kg</li> <li>• Rated voltage – 230 V AC</li> <li>• Power Input – 13A</li> <li>• Required power supply – Single phase – 230 V AC (50/60 Hz) 15A or more</li> <li>• Power consumption (calorific power) – 3.0kW(2580kcal/h)</li> <li>• Accessories – Stainless basket</li> </ul>
3.	<b>Digital pH Meter</b>	<ul style="list-style-type: none"> <li>• research grade Instrument with 128 x 64 large Graphical LCD display having auto temperature compensation,</li> <li>• Range -2.000 to 20.000 pH,</li> <li>• Resolution 0.001</li> <li>• Auto buffer recognition,</li> <li>• Fluid resistant housing &amp;</li> <li>• Rotational electrode stands along with accessories.</li> <li>• Its features include 5 point calibration.</li> <li>• Complete with pH electrode,</li> <li>• Temperature probe, rotational electrode stand</li> </ul>
4.	<b>Cryocan / Liquid Nitrogen container with canister (20 lit and 50 lit. each)</b>	<ul style="list-style-type: none"> <li>• Capacity: 20 liters and 50 liters separately</li> <li>• It should come with six to ten stainless-steel canisters to accommodate vials.</li> <li>• Canisters should be numbered and color- coded to simplify sample identification</li> <li>• Durable aluminum construction and vacuum insulation</li> <li>• Narrow-mouth design to minimize LN<sub>2</sub> evaporation</li> <li>• Secure locking clasp should be there.</li> </ul>

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		<ul style="list-style-type: none"> <li>• Static holding time should be more than 120 days.</li> <li>• Wheel cart, Low level alarm should be offered.</li> <li>• Square Rack Option interchangeable with canisters including 5 cardboard boxes, each box with 40 cell dividers should be offered.</li> <li>• Vials and cases should be included.</li> </ul>
5.	<b>-20C deep freezer</b>	<ul style="list-style-type: none"> <li>• Freezer Upright Solid Door Freezers</li> <li>• CAPACITY : 300 - 400 L</li> <li>• DEFROST : manual</li> <li>• NO. OF BASKETS / SHELVES &gt; 6</li> <li>• DOOR - double door</li> <li>• Temperature Range: -17° C to -24°C</li> <li>• Microprocessor control</li> <li>• Powerful industrial grade compressor</li> <li>• High density CFC free, blown in insulation</li> <li>• Temperature indicator should be in-built with alarm system.</li> <li>• Low noise level may be preferred</li> </ul>
6.	<b>-86C Deep Freezer (Double door Upright)</b>	<ul style="list-style-type: none"> <li>• Capacity : 600 - 700L</li> <li>• Temperature range :-50C to -86C</li> </ul> <p>Microprocessor Controls: Centralized, eye level information center, including microprocessor control and monitoring system</p> <p>Exterior that resists chipping and rust</p> <p>Inner doors and Stainless steel interior</p> <ul style="list-style-type: none"> <li>• Design with visible and audible alarm systems for low battery, condenser, power failure and high low temperatures Door seal and Digital display for temperature</li> </ul>
7.	<b>Sphygmomanometer - Mercurial (with Stethoscope)</b>	<ul style="list-style-type: none"> <li>• Sphygmomanometer (B.P. Apparatus), Mercurial, Desk Model.</li> <li>• 300 mm/Hg, complete inflation system, in an aluminium case.</li> </ul>
8.	<b>Digital Glucometer (with strips)</b>	<p>TECHNICAL SPECIFICATION TECHNICAL SPECIFICATION</p> <ul style="list-style-type: none"> <li>• Should be a hand held meter</li> <li>• Should require no routine maintenance</li> <li>• Should have reading range/linearity from 20 to 600 mg/dl</li> <li>• Should have a maximum reading time of less than 10 seconds</li> <li>• Should use electrochemical technology</li> <li>• 6. Should use a minimum blood sample less than 1.5µl</li> <li>• Should have a LCD display</li> <li>• Should have measuring unit in mg/dl.</li> <li>• Should have wide operating temperature</li> <li>• 10. Should have a minimum memory of 50</li> <li>• 11. Should have life time replacement offer</li> <li>• 12. Should have easy code entry technique</li> <li>• 13. Battery should be replaceable without using any tools.</li> <li>• 14. Should have facility to ensure accuracy of measurements.</li> <li>• 15. Should be supplied with three types of control solutions of each at least 20 ml</li> <li>• 16. Should have safety certificate from a</li> </ul>

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		competent authority CE / FDA (US) / STQC CB certificate / STQC S certificate or valid detailed electrical and functional safety test
9.	<b>Tissue culture rack (3 For Plant Tissue Culture 3 for Microbiology)with light fitting</b>	<p><b>Height 7'1" Width 4'2", Depth 18"</b>, Shelves 6, Illuminated Shelves 5, <b>Shelf</b> to shelf distance 16"( clear pipe to pipe ). Shelf size 50" x 18", shelves surface 3mm Thick White Hylem sheet in each shelf. Four LED 20 W Tube lights in each shelf Three cool white/one warm white LED tube lights 18 watt in single illuminated shelf with individual ON/OFF switches for added flexibility for light control. Minimum light intensity 8 to 10 Klux at self surface area – Total 16 Nos. LED tube lights Operating voltage 85 V to 300 V, Luminous flux intensity 1900 Lm ± 5%, Tube efficiency (lm/W) minimum 100., Beam angle &gt;120°, power factor 0.9 .Life expectancy of driver minimum 30,000Hrs LED life 30,000 Hrs. Batten made of High quality fire retardant polybutylene Terephthalate (PBT) powder coated CRCA sheets. Input connected wires side of batten. Self protected 12 mm pipe powder coated to protect the culture bottle tray. Frame MS 2.5 x 2.5 cm sq pipe of mild steel, with anti – corrosive, humidity resistant powder coating, Castor –4 Nos. Trolley can be connected directly to photoperiodic controller Voltage Input 220-240V, Ambient Temperature 5 – 50°C, up to 95%</p> <p><b>Special Features:</b></p> <ul style="list-style-type: none"> <li>• Each rack shelf should be able to hold about 65 Kg of weight.</li> <li>• Each rack should have one power input point and one output point for series connection of growth racks there are no sharp edges in racks.</li> <li>• 3.5 m Three core connecting wire should be provided.</li> <li>• Approx Weight : 65 kg</li> </ul> <p><b>COMPLITE HEIGHTS: - 7'7" (with castor)</b> Option 2.</p> <p><b>Tissue Culture Castor Growth Rack:-</b> <b>Technical Specification:-</b></p> <p><b>Height 7'6" Width 4'2", Depth 24"</b>, Shelves 7, Illuminated Shelves 6, <b>Shelf</b> to shelf distance 13"( clear pipe to pipe ). Shelf size 50" x 24", shelves surface 3mm Thick White Hylem sheet in each shelf. 6 LED 20 W Tube lights in each shelf Four cool white/Two warm white LED tube lights 18 watt in single illuminated shelf with individual ON/OFF switches for added flexibility for light control. Minimum light intensity 8 to 10 Klux at self surface area – Total 36 Nos. LED tube lights Operating voltage 85 V to 300 V, Luminous flux intensity 1900 Lm ± 5%, Tube efficiency (lm/W) minimum 100., Beam angle &gt;120°, power factor 0.9 .Life expectancy of driver minimum 30,000Hrs LED life 30,000 Hrs. Batten made of High quality fire retardant polybutylene Terephthalate (PBT) powder coated CRCA sheets.</p>

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		<p>Excellent Thermal Insulation : K-Value or U-Value range Excellent Weather Resistance Safe Fire Performance: Fire retardant with anti fungal coat .Pt-100 sensors used by Vista are located at such a place inside the installation places which ensures correct and true parameters</p> <p>Compressor denfoss evaporator body stainless steel 304 grade .Hp/LP, drier , motor, fan, denfoss sound less airflow 3200cfm 2nos ,2 ton capacity with sequentially operated. Piping &amp; Fitting and Insulation ISI Standards controlling through microprocessor temperature controller</p> <ol style="list-style-type: none"> <li>1. Compressor Copland Emerson</li> <li>2. Condenser F.L. in grove pipe.</li> <li>3. Evaporator ( Long Evaporator) Vista ( Long Bad tube )</li> <li>4. <b>Evaporator Body Stainless Steel.</b></li> <li>5. HP/LP Denfos.</li> <li>6. Drier Denfoss/Sporlan</li> <li>7. Motor Rotech / fregmaster</li> <li>8.. Fan External rotor driven fans have low noise levels. energy efficient &amp; silent fans, permanently lubricated bearings.</li> <li>9. Refrigerant: R-22 .</li> <li>10. Piping &amp; Fitting and Insulation ISI Standards</li> </ol> <p><b>Evaporator fan – 2 Nos.</b></p> <p><b>Ozone Friendly Refrigeration System</b></p> <p><b>Condensing Unit – ISI Make</b></p> <p><b>Sequential Timer</b> to operates two air conditioners upto 2 ton capacity each alternately directly from the powered output of timer.</p> <p><b>Specifications:</b> - Min. ON/OFF cycle 15 min. NiCad backup up to 90 minutes, auto recharging. INPUT- 110/220 V AC, 50 Hz. Single phase, Ambient - 0-50°C, Rh- upto 95%. LCD - read out</p>
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		<p>Temperature controller</p> <p>Heating System</p> <p>Humidity system</p> <p>Light</p> <p>Racks SS</p> <p>Electrical Device</p> <p>Additional Feature</p>	<p><b>Microprocessor Temperature Controller</b>  <b>Specifications:</b> Real time microprocessor based user programmable time proportional controller, Temperature Range – 0.1°C – 59.9°C, Display resolution 0.1°, Accuracy ± 0.1°C, Platinum sensor probe Pt - 100 , Sensor failure indication, Audio Visual Alarm For Higher Temperature Ranges, 4 Independent powered output, Cooling/Heating – Auto Select. High and Low cutoff device incorporated.</p> <p>Through Pyralytic Heating Technique(Through Paralytic Technique) Inbuilt auto thermal cut off device, Biotech grade 2 KW , variable heat selector switch, Oil filled Heat dissipation fins technology for non utilization of atmospheric oxygen. Input 200-240 VAC, 50 HZ, single phase. Ambient 5°C to 50°C , RH upto 90%.</p> <p>Humidity Range: 85% ± 5% Maintained through AHU units (Air handling units) by using this unit, RH can be achieved upto 90% ± 2% with humidified air. Microclimatic humidity controller to control the humidity.</p> <p>4 nos 20 W LED lights</p> <p><b>Racks 4 Shelves</b> –. 4nos (Size : 5’6” x 5’ x 18”) .Inside the chamber. Non magnetic 25 mm x 25 mm squire pipe .</p> <p>High quality ISI approved fittings with copper multi strand twisted FR Grade cable and rigid Stds of safety with proper M.C.B . and Lamp operating switch.  Copper Cable Make :- Plaza .  MCB Make :- Hager/ Havells.</p> <p>Temperature safety limit control , light on set temp between 15°C to 30°C. high and low temp controls , audible alarms and visual indicators provided. Thermometer, Temperature , light and humidity display controller will be provided out side of units.</p>
10.	Micropipette	<p>Autoclavable</p> <p>Variable volume</p> <p>Volume range:</p> <p>0.2 – 20 µl</p> <p>1 – 10 µl</p> <p>20 – 200 µl</p> <p>100 – 1000 µl</p> <p>0.5 – 5.0 ml</p>	

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11.	Weighing balance (0.01 mg)	<p>Features:</p> <p>Thermo scientific  Sartorius Cubis Analytical balance 220gx0.01mg  Catalogue: SARMSE225S-100-DI  Cubis Analytical balance  220gx0.01mg  MSE LCD display with Automatic Draftshield with Ionizer USB /  RS232 / 25-pin with auto levelling 240V 50HZ</p> <p>Justification:</p> <p>Used to weigh samples, reagents etc</p>
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**3. Technical Specification for Environmental Science**

1. The "Instrument and related services" shall comply with following Technical Specifications and Standards:
2. The Bidder shall prepare a similar table to justify compliance with the requirements.

<b>Sl. No.</b>	<b>Equipment</b>	<b>Specification</b>
1.	<b>Stereo Zoom Microscope</b>	<ul style="list-style-type: none"> <li>• <b>Binocular stereo-zoom microscope with zoom ratio: 7:1 with following accessories</b></li> <li>• 7:1 Zoom microscope body</li> <li>• 30 degrees inclined Binocular observation tube</li> <li>• Transmitted and reflected light LED illuminator stand</li> <li>• Achromat objective 1X, W.D. 90mm</li> <li>• Eyepiece 10X with ESD capability, F.N. 22, focusable</li> <li>• Image processing system</li> <li>• Dust cover</li> <li>• Power cord</li> </ul>
2.	<b>Quartz Double Distillation Unit</b>	<ul style="list-style-type: none"> <li>• Quartz Distillation Units are manufactured with imported fused quartz tubes. The specially high chemical purity (100%), very low solubility, good technical performance, simplicity of use and very high efficiency.</li> <li>• Distillation Water Capacity (Output)- 2-5 lt/hr</li> <li>• Minimum Cooling Water requirement - 2 Lit /minute</li> <li>• Electricity Requirement- 230-250 volts; 4.4 kw single phase</li> <li>• Biological Activity - Pyrogen Free</li> <li>• Organic Matter (mg/lit)- Nil</li> <li>• Total Organic Carbon ( TOC) (µg/l) - &lt; 600</li> <li>• Total Solids (mg/lit) - &lt; 0.1</li> <li>• Distillate Temp. - (60-800C)</li> <li>• Conductivity of distillate water (S/cm) - &lt; 1x10<sup>-6</sup></li> <li>• Total plate count - 0</li> <li>• Standard Plate Count - 0</li> <li>• Potassium per magnate color retention -1 hr</li> <li>• UV absorbance at 254 nm - 0.007</li> <li>• One year onsite warranty.</li> </ul>

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#### 4. Technical Specification for Physics

#### Annexure 'Spec-PHY'

**Specifications for the equipment for Physics Department are mentioned in Annexure 'A' (Department wise list of Equipment).**

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## 5. Technical Specification for Chemistry

### Annexure 'Spec-CHEM'

Sl. No.	Equipment	Specification																		
1.	<b>FTIR Spectrophotometer</b>	<p>PC based FTIR Spectrophotometer optionally extendable to 220 <math>\text{cm}^{-1}</math> light source air cooled ceramic sources with atmospheric correction and self diagnostic function, automatic recognition of accessory with below mentioned features and specification:</p> <ul style="list-style-type: none"> <li>• The light source should be of high intensity ceramic source with the provision of "stand-by mode" operation when the instrument is not in use to protect the source from damaging thermal shock</li> <li>• The instrument must accommodate simultaneously two light source and two detectors, which is selected by software</li> <li>• Beam splitter must be automatically recognized by system software</li> <li>• The instrument should have facility of Quick Start button and Quick Start software program</li> <li>• The instrument should have Auto Recognition Accessory System</li> <li>• The instrument must have optional Rapid Scan (10Hz) facility</li> </ul> <p><b>FTIR Specifications:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Wavelength Range:</td> <td>7800 – 350 <math>\text{cm}^{-1}</math></td> </tr> <tr> <td>Extended Wavelength Range</td> <td>15000 - 220 <math>\text{cm}^{-1}</math></td> </tr> <tr> <td>Minimum Resolution:</td> <td>0.7 <math>\text{cm}^{-1}</math> or better</td> </tr> <tr> <td>Signal-to-Noise Ratio:</td> <td>25,000:1 (4 <math>\text{cm}^{-1}</math>, 1 min, near 2200 <math>\text{cm}^{-1}</math>) or better</td> </tr> <tr> <td>Interferometer:</td> <td>45<sup>0</sup> Michelson , Auto alignment, Sealed interferometer</td> </tr> <tr> <td>Light Source</td> <td>High Intensity Ceramic</td> </tr> <tr> <td>Beam Splitter:</td> <td>Ge/KBr</td> </tr> <tr> <td>Detector:</td> <td>DLATGS</td> </tr> <tr> <td>Sampling System</td> <td>Single Reflection ATR, ZnSe prism, Transmission mode</td> </tr> </table>	Wavelength Range:	7800 – 350 $\text{cm}^{-1}$	Extended Wavelength Range	15000 - 220 $\text{cm}^{-1}$	Minimum Resolution:	0.7 $\text{cm}^{-1}$ or better	Signal-to-Noise Ratio:	25,000:1 (4 $\text{cm}^{-1}$ , 1 min, near 2200 $\text{cm}^{-1}$ ) or better	Interferometer:	45 <sup>0</sup> Michelson , Auto alignment, Sealed interferometer	Light Source	High Intensity Ceramic	Beam Splitter:	Ge/KBr	Detector:	DLATGS	Sampling System	Single Reflection ATR, ZnSe prism, Transmission mode
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		with KBr/ZnSe window
		<p><b>Operating System:</b></p> <ul style="list-style-type: none"> <li>PC based systems working in Window 10.0 with powerful 64 bit software. Software should include all standard data processing functions and also specialized functions like Single / Multipoint Quantitation, Spectral Search, Wavelength scan (Abs, %T, %R, Sample, Reference), Time scan (Abs, %T, %R, Sample, Reference), Abs/%T monitor, Data processing, Peak picking, Peak height, Peak area, Peak width, Derivatives, Smoothing, Data truncation, Arithmetic, Baseline correction, Subtraction, Deconvolution, Vertical axis conversion, Horizontal axis conversion. Validation Software, Enzyme activity calculation etc</li> </ul> <p>•</p> <p><b>Accessories Required:</b></p> <ul style="list-style-type: none"> <li>Single Reflection ATR with ZnSe prism</li> <li>Pelletizer for making KBr pellets</li> <li>ZnSe flow-cell for liquid samples (2 no.)</li> <li>Branded PC (8GB RAM, 1 TB HDD, Intel core-5 Intel processor or better), Laser Printer and UPS (1.1 kVA or better)</li> </ul>
<b>2.1</b>	<b>Rotary Evaporator</b>	<ul style="list-style-type: none"> <li>Operating voltage : 220 - 240 V</li> <li>Frequency : 50/60 Hz</li> <li>Rotation speed : (range) 20 - 280 rpm or more</li> <li>Flask size : 1000 - 4000 ml or more</li> <li>Condenser : Vertical with double spiral glass coil</li> <li>Manual lifting jack for lift up/down.</li> <li>Rate of evaporation : 23ml/min(Water)</li> <li><b>Liquid Contact Parts : Glass &amp; PTFE</b></li> <li>Vacuum seal : Teflon and Viton</li> <li>Rotary Joint : Standard Ts 29/38, ID18 x 178L</li> <li>Stand Base : T-shape with lift jack with lock, 130mm max. lift</li> </ul>
<b>2.2</b>	<b>Heating Bath</b>	Heating bath should be constructed of an insulated double wall for user protection against burns and

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		<p>scalding</p> <ul style="list-style-type: none"> <li>• Diameter Heating Bath : Approx. 250 - 300 mm</li> <li>• Operating voltage : 220 - 240 V</li> <li>• Frequency: 50/60 Hz</li> <li>• IP class : 20 or 21</li> <li>• Bath size : 3.5 – 4.5 liter</li> <li>• Temperature range : At least 20 – 100°C or more</li> <li>• Temp controller : Microprocessor based PID Controller &amp; Display</li> <li>• Regulation accuracy : +/- 1°C or better</li> <li>• Display : LED/LCD</li> <li>• Safety features : Overheating protector, bath cover, fuse with calibration facility</li> </ul>
<b>2.3</b>	<b>Vacuum Pump</b>	<ul style="list-style-type: none"> <li>• Vacuum Pump (diaphragm/ rotary) : 2 Stages</li> <li>• Volume flow rate : 1.7 -1.8 m<sup>3</sup> /h or better.</li> <li>• Ultimate vacuum : 7-9 mbar or better</li> <li>• Operating voltage : 220 - 240 V/ 50-60Hz</li> </ul>
<b>2.4</b>	<b>Powerful Aspirator Pump</b>	<ul style="list-style-type: none"> <li>• Displacement method : Pressured Circulation system by water pump</li> <li>• Displacement : 16/19L/min., 50/60Hz (at water temperature 6<sup>0</sup>C)</li> <li>• Ultimate vacuum : 30Pa/7mmHg(5<sup>0</sup>C)-4266Pa/32mmHg(30<sup>0</sup>)</li> <li>• Motor : Induction Motor 150W</li> <li>• Aspirator element : Metal aspirator x 2(Nickel coated brass)</li> <li>• Bath material: Polypropylene</li> <li>• Ambient Temp. : 5~35<sup>0</sup>C</li> <li>• Power : 220VAC, 50Hz</li> <li>• Safety function : Check valve, thermal protection</li> <li>• Water bath capacity : 10L</li> <li>• Suction nozzle : O.D 9mm X 2, two independent built-in source</li> <li>• Drain nozzle : ø 13mm</li> <li>• Overflow Nozzle : ø 17.5mm</li> <li>• <b>Its comes complete with Vacuum Gauge/Regulator</b></li> </ul>

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2.5	<b>Low Temperature Circulator and cold trap</b>	<ul style="list-style-type: none"> <li>• Circulation method : Closed loop</li> <li>• Temp. control range: -20°C to Ambient</li> <li>• Temp. stability : +0.1°C</li> <li>• Temp. control and display : Digital</li> <li>• Temp. control: Compressor ON-OFF control</li> <li>• Safety features: Breaker for leakage and excess current, Overload relay Maintaining circuit, circulating pump protection, Self Check function for temp. Controller</li> <li>• Circulating pump: Max. flow 10L/min., Max. Head 4.2m</li> <li>• Bath material: SUS 304</li> <li>• Refrigeration unit: Air cooled, Output 350w</li> <li>• Cooling coil : Copper Nickel galvanizing</li> <li>• Cooling capacity: 385kcal/h at 10<sup>0</sup>C liquid, 300kcal/h at 0<sup>0</sup>C liquid 220kcal/h at -10<sup>0</sup>C liquid</li> <li>• External circulation nozzle : OD11mm Hose size</li> <li>• Bath capacity: 4L</li> <li>• Power : 220VAC, 50Hz.</li> </ul>
3.	<b>Muffle Furnace (Rectangular)</b>	<ul style="list-style-type: none"> <li>• Maximum Temperature: 1000°C</li> <li>• Operating temperature: 900 °C</li> <li>• Size of the Heating Chamber: 5" × 5" × 10" (approximate)</li> <li>• Controller: Programmable PID controller to program digitally</li> <li>• Rate of Heating: 2-10 °C/ minute</li> <li>• Temperature Accuracy: ±1 °C</li> <li>• Input Power: 50Hz/220 V, Single phase</li> <li>• Double walled inner and outer body should be made of proper Sheet.</li> <li>• Heating element : Kanthal A".</li> <li>• Appropriate ceramic insulation to avoid thermal loss.</li> </ul>

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Sl. No.	Equipment	Specification
4.	<b>Melting Point Apparatus</b>	<ul style="list-style-type: none"> <li>• Melting-point measuring Range - Ambient temperature to 300°C</li> <li>• Display - Big LCD</li> <li>• Linear Heating up rate - 0.2, 0.5, 1.0, 1.5, 2 , 3, 4, 5°C / min.</li> <li>• Temperature Readability - 0.1°C</li> <li>• Temperature Accuracy Upto 200°C - ±0.5°C</li> <li>• Temperature Accuracy 200 to 300°C - ±0.8°C</li> <li>• Dimension (mm) - 510 x 380 x 360</li> <li>• Power Supply - 220V /50Hz</li> </ul>
5.	<b>Refrigerator (for chemicals storage)</b>	<ul style="list-style-type: none"> <li>• Capacity - ~ 300 lit (approx.)</li> <li>• Refrigeration - Air cooled, CFC free refrigeration system with reliable compressors. Automatic defrost for optimum cooling capacity and automatic condensate removal</li> <li>• Inbuilt stabilizer</li> <li>• Shelves - Adjustable shelves (minimum 5) to create interior compartments</li> <li>• Temperature Control - Manual/automatic</li> <li>• Locking system for both the Freezer (-10 deg ) and refrigerator compartment should be provided</li> <li>• With Chiller Zone (-10 deg C), Anti-Bacteria Gasket, Humidity Controller</li> <li>• There should be two compartments, one for refrigeration (maintained at <b>8 deg. C</b>) and other for chiller zone (maintained at <b>minus 10 deg. C.</b>) and both should have separate doors.</li> </ul>
6.	<b>Oil-Free Diaphragm Pump</b>	<ul style="list-style-type: none"> <li>• Ultimate Vacuum: 1.5 Torr, (2 mbar)</li> <li>• Free Air Capacity: 25 lpm, (0.88cfm)</li> <li>• Two stage chemical resistance</li> <li>• Non sparking motor</li> <li>• Internal parts of the pump should not be made of Glass. Instead it should be made of PTFE or PTFE-like chemical resistant material</li> </ul>

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		<ul style="list-style-type: none"> <li>• Motor rotation: 1450 rpm or better</li> </ul>
7.	<b>Low Temp. Reaction Bath with Magnetic Stirrer</b>	<ul style="list-style-type: none"> <li>• The system should have annular vacuum insulation for temperature retention &amp; amp, Timer For auto start/stop operation.</li> <li>• Low Temperature Bath with Built-in sturdy Magnetic Stirrer designed.</li> <li>• Long time stable control even at ultra low temperature of <b>0 °C to -80 ° C.</b></li> <li>• Vacuum insulated bath realized excellent insulating effect and optional lid cover for consecutive operation. Auto-start/stop function is built in as standard.</li> </ul> <p><b>Specifications:</b></p> <ul style="list-style-type: none"> <li>• Temp. control range : -80 °C to 0 °C</li> <li>• Temp. accuracy: within + 1.0 °C</li> <li>• Temp. Setting, display : Membrane key pad, digital display.</li> <li>• Refrigerator &amp; coolant : Air cooling 450W x 2*R404A*R23</li> <li>• Sensor : Thermister Pt 100Ω</li> <li>• Ambient temperature : 5 ° C to 35 ° C</li> <li>• Safety features : Overheat protector, Over-load relay for compressor, Breaker for electrical leakage and excess current, Sensor fault, Independent over temperature protector</li> <li>• Rotation/Stirring range : 100 -800 rpm</li> <li>• Temp. control : Heater, P.I.D. control</li> </ul>
8.	<b>Microwave Synthesizer</b>	<p><b>Specification</b></p> <ul style="list-style-type: none"> <li>• Temperature range: <b>40–300°C</b></li> <li>• Temperature increaseTypically 2-5 °C/sec depending on solvent and power applied</li> <li>• Reaction time: Up to 96 hours.</li> <li>• Pressure: range 0–30 bar (3 MPa; 435 psi)</li> <li>• Power range: 0–400 W from magnetron at 2.45 GHz</li> <li>• Reaction volumes: 0.2–20 mL</li> <li>• Agitation: Variable magnetic stirrer (300-900 RPM)</li> <li>• Sample processor: Upgradable with Robot Eight / Robot Sixty Processing capacity</li> <li>• Temperature: Operating Temperature, Storage and transportation temp: 18–32°C</li> <li>• Humidity: 20–95% at room temperature</li> <li>• Electrical supply: 220–240 V~,</li> </ul>

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		<ul style="list-style-type: none"> <li>• Maximum power consumed: 1100 VA</li> <li>• Cooling: Pressurized air supply: &gt; 60 l/min</li> <li>• Max sound level: 70 dB(A)</li> <li>• Touch screen or controlled by laptop or computer: should be and around 10.4"</li> <li>• Ethernet LAN: Complies</li> <li>• USB: USB 2.0</li> <li>• Archiving/back-up: Via USB or by laptop or computer</li> <li>• Printing: Via LAN</li> <li>• Certifications: with recognised certification agencies like CE, CSA</li> </ul>
9.	<p><b>Steady State Spectrofluorometer (UV-Vis-NIR)</b></p> <p>Price has to be including clearing at Kolkata custom and transport it to Gaya. Necessary custom duty exemption certificates will be provided by the University authority. Road permit will be provided</p>	<ul style="list-style-type: none"> <li>• Computer controlled Steady state fluorometer (intensity based) for measuring Fluorescence (downconversion &amp; upconversion), Phosphorescence, Bioluminescence etc.</li> <li>• <b>Light Sources</b> <ul style="list-style-type: none"> <li>(i) Light Source for measuring steady state <b>downconversion</b> fluorescence: 150W, Xenon Arc lamp</li> <li>(ii) Light Source for measuring steady state <b>upconversion</b> fluorescence: CW diode laser, wavelength 980 nm, with variable power options (100 mW to 500 mW), (Laser controller and power meter should be included) for up-conversion study to be hooked up with necessary fitting in the second entrance port of sample compartment with software, controller etc.</li> </ul> </li> <li>• Emission Range : 200 nm to 1400 nm, continuously tunable</li> <li>• Bandwidth : 0-20 nm in steps variable</li> <li>• Wavelength accuracy: <math>\pm 1.0</math> nm</li> <li>• Czerny – Turner optical configuration</li> <li>• Excitation Monochromator - Czerny-Turner Optical Configuration</li> <li>• Emission Monochromator - Czerny-Turner Optical Configuration</li> <li>• Monochromator specifications:--Auto-calibrated and computer-controlled for scanning and positioning <ul style="list-style-type: none"> <li>-Adjustable spectral bandwidth from 0 to 15 nm</li> </ul> </li> <li>• <b>Sample Compartment Specifications:</b> <ul style="list-style-type: none"> <li>-Roomy compartment for easy access</li> <li>- Thermostatable 10 x 10 mm cuvette holder</li> <li>- One 10 x 10 mm quartz cuvette included</li> <li>- Lid-activated emission shutter to protect sensitive</li> </ul> </li> </ul>

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		<p>detectors</p> <ul style="list-style-type: none"> <li>- Excitation and emission filter holders accommodate</li> <li>- Provision for injection into sample</li> <li>- Gas purgeable compartment</li> </ul> <ul style="list-style-type: none"> <li>• Lid activated Shutter on excitation side</li> <li>• Reference channel excitation / reference detector</li> <li>• <b>Detector:</b> detector system (PMT or InGaAs Detector or combination of both detectors for enhanced sensitivity)</li> </ul> <ul style="list-style-type: none"> <li>• Operating Software: <ul style="list-style-type: none"> <li>- The fluorometer should be controlled by PC with Microsoft Windows based software.</li> <li>- The Software for performing steady-state data acquisition as well as Fluorescence Decay and phosphorescence data acquisition</li> <li>- The experimental data must be exportable in ASCII or other formats compatible for analysis by any other software.</li> <li>- The software should show corrected emission spectrum and corrected excitation spectrum (intensity with wavelength), emission (or excitation) intensity vs. time etc.</li> <li>- The software should have various data analysis facilities like smoothening, arithmetic functions, first to fourth order derivatives, pick peak, area peak, normalization etc.</li> <li>- The software should generate high quality graphs for usable in presentation directly.</li> <li>- Off-line data access facility should be present in the software.</li> </ul> </li> </ul> <p>Data exportable in many formats for use in other applications. The software package should also have contain:</p> <ul style="list-style-type: none"> <li>- -Micellar quenching kinetics</li> <li>- -Anisotropy analysis</li> </ul> <ul style="list-style-type: none"> <li>• In built cut-off filters set.</li> <li>• <b>Accessory 1 :</b> <b>QUANTUM YIELD MEASUREMENT - INTEGRATING SPHERE</b> Integrating sphere for Quantum Yield measurement Easy to use 60 mm diameter Integrating Sphere that can</li> </ul>
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		<p>be installed in seconds replacing standard cuvette holder - no optics change or LLG coupling required.</p> <p>Easily removable top for changing samples Compatible with regular 10 x 10 mm cuvettes. Slide holder and powder holder included</p> <ul style="list-style-type: none"> <li>• <b>Accessory 2 : QUARTZ CUVETTE</b> - Normal cuvette, 10mm pathlength, 3.5ml (2 nos.) - Micro Cuvette ( 1 ml volume)</li> <li>• <b>Accessory 3: COMPUTER, Printer &amp; UPS</b> Computer (8 GB or higher RAM, Intel Core-i5 processor, 1 TB HDD, pre-installed Microsoft Windows, CD/DVD ROM, monitor, keyboard and mouse with instrument controller) and Laser Printer (Black and white), UPS</li> <li>• <b>Optional Accessory :</b> ANISOTROPY MEASUREMENT UNIT: AUTOMATIC POLARIZERS with hardware</li> </ul>
10.	<b>Distillation unit</b>	<p>All Quartz, double distillation set-up for dispensing ultrapure water, with built-in-heater, Other parameters are as given below:</p> <ul style="list-style-type: none"> <li>• Distillation Water Output Capacity (Approx) - 2.5 lt/hr or more <ul style="list-style-type: none"> <li>• Electrical Requirements - 230-250 volts Single phase 3,5 x 2 kw Quartz heater</li> </ul> </li> <li>• Cooling water consumption - 150 lt/hr (approx.)</li> <li>• Biological activity - Pyrogen Free</li> <li>• pH - Pyrogen Free</li> <li>• Conductivity s/cm - <math>&lt; 1 \times 10^{-6}</math></li> <li>• Distillate Temp - 65-75 °C</li> </ul>
11.	<b>Heating Mantle</b>	<ul style="list-style-type: none"> <li>• Thermal Insulation: Ceramic Fibre</li> <li>• Energy controller: Built-in Simmer stat</li> <li>• Maximum temperature: Up to 450°C</li> <li>• Case construction: Yes</li> <li>• Safety cut-off: 3 Core, 2 Meter long</li> <li>• Mains chord: 220 V, 50 Hz</li> <li>• A total of 10 units are required, five with a heating capacity of 250 ml and five with a heating capacity of 100 ml round bottom flasks.</li> </ul>
12.	Magnetic Stirrer with	<ul style="list-style-type: none"> <li>• Ceramic Top, 100-1500 rpm</li> </ul>

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	Ceramic Hot Plate	<ul style="list-style-type: none"> <li>• Stirring quantity of minimum (H<sub>2</sub>O) of 10 L</li> <li>• Motor rating input/output = around 14/1.8W</li> <li>• Speed range [rpm] in between = 90 – 1500</li> <li>• Heating temperature range [°C] in between = 50 – 500</li> <li>• Heat control accuracy have around [±K] 10</li> <li>• Speed control scale = 0 – 6</li> <li>• Set-up plate material ceramic</li> <li>• Dimensions of magnetic stirrer = around 150 x 150 mm</li> <li>• Display: Digital (LCD or LED)</li> </ul>
13.	<b>20 kVA UPS online one hour power back-up</b>	<p>AC input PARAMETERS</p> <ul style="list-style-type: none"> <li>• <b>AC Input Voltage</b> - a-230 V-20%-15% Single Phase or any Voltage ranges as per Customer Requirement</li> <li>• <b>Frequency</b> - a-50Hz ± 10 % Can also Work on Good Quality Generators. <ul style="list-style-type: none"> <li>a-Out Voltage 220/230 V AC Single Phase</li> <li>b-Voltage Regulation ± 1%</li> <li>c-Frequency 50Hz ±0.05 Hz ( Crystal Controlled )</li> <li>d-Waveform Sine wave</li> <li>e-Harmonic Distortion Less than 3 %</li> </ul> </li> <li>• <b>Account Parameters</b> <ul style="list-style-type: none"> <li>f-Efficiency &gt; 92 % for 180 V DC</li> <li>&gt; 85 % for 48 V DC/72V DC 87 %</li> <li>g- Power Factor 0.8 Lagging</li> <li>h-Overload 110% for 10 minute. 200 % for <ul style="list-style-type: none"> <li>• Cycles.</li> </ul> </li> <li>i- Crest Factor &gt;4:1</li> <li>j-Transient Recovery Within 3 Cycles <ul style="list-style-type: none"> <li>• <b>Protections</b></li> </ul> </li> </ul> <p>An Electronics Circuit with Digital Logics Continuously Searches for the following Faults &amp;Trips the system with Audio – visual Indication</p> <ul style="list-style-type: none"> <li>a- Battery over Voltage</li> <li>b-Battery Under Voltage</li> <li>c- Output AC Over Voltage</li> <li>b-Output Overload /short Circuit</li> </ul> </li> <li>• <b>Indications</b> <ul style="list-style-type: none"> <li>Main On</li> <li>Load On Battery</li> </ul> </li> </ul>

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		<p>Battery Low  Inverter Over load  Load On Main  Battery Boost  Battery Level Graph  Load Level Graph</p> <ul style="list-style-type: none"> <li>• <b>Metering</b>  Digital metering available for Output Voltage / Battery Voltage /Output Current /Output Frequency (Customised metering Option Available)</li> </ul>
14.	Electrochemical Workstation	<ul style="list-style-type: none"> <li>• Computer-controlled Multichannel Electrochemical Workstation (Potentiostat/Galvanostat) with four number channels and two impedance modules</li> <li>• <b>Operational modes:</b>  The workstation should be able to function in different operational modes and a variety of electrochemical measurements should be possible using the system. It should support the following analytical techniques <ul style="list-style-type: none"> <li>• Linear Sweep voltammetry</li> <li>• Cyclic voltammetry</li> <li>• Chronomaperometry</li> <li>• Pulsed Voltamtery (SCP, NPV, DPV, SWV)</li> <li>• OCP measurement</li> <li>• Tafel Analysis</li> <li>• Linear Polarization</li> <li>• Electrodeposition,</li> <li>• Battery/ Fuel cell, Solar cell testing,</li> <li>• Spectro-electrochemical testing</li> </ul> </li> <li>• <b>Specifications for each channel :</b> <ul style="list-style-type: none"> <li>(i) Compliance voltage Range: <math>\pm 12V</math> or more</li> <li>(ii) Current Ranges: 100 nA to 300 mA or better</li> <li>(iii) Current Resolution: 1nA (at 100 nA current range) or better</li> <li>(iv) Applied potential range: <math>\pm 10mV</math> to 10V or better</li> <li>(v) Applied potential resolution: 150 <math>\mu V</math> or better</li> <li>(vi) Applied Potential Accuracy: within 0.05% of the voltage scale</li> <li>(vii) Scan rate: 1<math>\mu V/s</math> to 1000 mV/s</li> <li>(viii) Maximum Current: <math>\pm 100</math> mA continuous, <math>\pm 250</math> mA peak or better</li> </ul> </li> </ul>

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		<p>(ix) Bandwidth of potentiostat: &gt;1MHz  (x) Input impedance &gt; 1 G-Ohm  (xi) Input Bias current &lt;30 pA  (xii) Computer Interface: USB  (xiii) EIS range: 10μHz to 1 MHz, up to 300mA  (xiv) AC Amplitude: 0.2 mV to 350mV or better;  (xv) Gain Band width: 1MHz or more Bandwidth of potentiostat: &gt;1MHz</p> <ul style="list-style-type: none"> <li>• Basic electrochemical set-up with all accessories which must include <ol style="list-style-type: none"> <li>(a) cell vessel 10-20 ml</li> <li>(b) vessel lid with facility for mounting electrodes and purge tube (1nos)</li> <li>(c) glassy carbon electrode : 10</li> <li>(d) Platinum counter electrode: 4</li> <li>(e) Ag/AgCl reference electrode: 6</li> <li>(f) Electrode polishing kit</li> </ol> </li> <li>• <b>Operating Software</b> <ul style="list-style-type: none"> <li>- The Software to be provided with the Potentiostat/Galvanostat should be comprehensive, fully windows based with three-dimensional view of graphics and analysis software.</li> <li>- Software should record current, voltage and time for cyclic and linear sweep voltammetric measurement. It should be possible to record current, voltage and time data in tabular format for each measuring point in voltammogram.</li> <li>- The experimental data must be exportable in ASCII or other formats compatible for analysis by any other software.</li> <li>- Software should be capable of supporting a wide variety of electrochemical techniques as mentioned below:  Linear Sweep voltammetry, Cyclic voltammetry, Chronoamperometry, Pulsed Voltammetry (SCP, NPV, DPV, SWV), OCP measurement, Tafel Analysis, Linear Polarization</li> </ul> </li> <li>• <b>COMPUTER, Printer &amp; UPS</b>  Branded PC (8GB or higher RAM, Intel Core-i5 processor or better, 1TB HDD, pre-installed Microsoft Windows 10, CD/DVD ROM, monitor, keyboard and mouse with instrument controller) and Laser Printer (black &amp; white), UPS (1.1 kVA or better) should be supplied with warranty.</li> <li>• <b><u>Guarantee/Warranty and after sales technical support:</u></b></li> </ul>
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		<p>The tender must be quoted with three years on-site comprehensive Warranty / Guarantee commencing after completion of one year standard warranty (FOC) against the defect of any manufacturing, workmanship and poor quality of the components.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• Price has to be including clearing at Kolkata custom and transport it to CUSB, Gaya . Necessary documents will be provided by the University authority.</li> <li>• Vendor should provide warranty for at least two years for smooth functioning and maintenance of the machine</li> </ul>
15.	<b>Differential Scanning Calorimeter</b>	<ul style="list-style-type: none"> <li>• Power compensation or Heat flux DSC with wide temperature range should be quoted.</li> <li>• Suitable CE compliant cooling accessories should be quoted</li> <li>• System should be supplied with latest branded PC and Printer.</li> <li>• The latest Microsoft windows based user friendly software should be supplied.</li> </ul> <p>The software should have the ability to perform data access, storage and analysis. Software supplied as standard needs to include: Specific Heat and Purity software packages, Baseline correction, integration and preparation of overlay of curves. Possibility of converting data into ASCII format and export the same for further manipulation should also be included.</p> <ul style="list-style-type: none"> <li>• Temperature sensors: Distributed, thermopile sensors of platinum/ceramic or equivalent.</li> <li>• The furnace should be made with silver for rapid /cooling and resistant to corrosion.</li> </ul> <p>The system should satisfy the following features.</p> <ul style="list-style-type: none"> <li>• Temperature range - Ambient or less to 700 °C or more</li> <li>• With Cooling Accessories : (-80 °C) or less to 200 °C or more</li> <li>• Temperature accuracy : <math>\pm 0.2</math> °C or better</li> </ul>

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		<ul style="list-style-type: none"> <li>• Temperature precision : <math>\pm 0.02</math> °C or better</li> <li>Programmable temperature scanning rate (heating and cooling): Heating : <math>0.02</math> °C to <math>30</math> °C.min<sup>-1</sup> or better and Cooling rate: <math>0.02</math> °C to <math>30</math> °C or better</li> <li>• Enthalpy accuracy: <math>\pm 1</math> % or better</li> <li>• Calorimetric Precision: <math>\pm 0.1</math> % or better</li> <li>• RMS Noise: <math>0.2</math> <math>\mu</math>W or better</li> <li>• Resolution: <math>0.04</math> <math>\mu</math>W or better</li> <li>• Dynamic range: +/- <math>350</math>mW or more</li> <li>• Gases: Option for 3 carrier gases or more Software-controlled mass flow controllers (preferably inbuilt) should be supplied</li> <li>• Crucibles: Entire range from aluminium (1000 Nos), platinum (10), silica (10) and quartz (10) crucibles with crimping machines</li> <li>• Power requirements: <math>230</math> V - <math>50/60</math> Hz</li> </ul> <p><b>Should be certified complete for performing the following kind of experiments:</b></p> <ul style="list-style-type: none"> <li>• Thermal analysis of various kinds of materials such as organic and inorganic compounds, polymers, drugs, explosives etc. to find out transition temperatures and enthalpy of phase transition.</li> <li>• Finding out glass transition temperature and enthalpy of glass transition accurately.</li> <li>• Specific heat capacity with a precision of +/- <math>1</math> % or better.</li> <li>• Polymorphism, purity and thermal stability of drugs, explosives etc.</li> <li>• Gas cylinder: High purity (99.999%) nitrogen, zero air gas cylinder (capacity 47 litre) with double stage double meter gas regulator with stainless steel diaphragm and pressure gauge suitable for above cylinder should be quoted.</li> <li>• Suitable UPS to support the full instrument should be quoted.</li> <li>• Standard sample for calibration the instrument should be supplied along with the system.</li> <li>• For all the third party items being quoted, the model</li> </ul>
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		<p>and make should be specified in the quotation and printed brochure should be supplied. However, the supplier of the main equipment will be responsible for after sale service of all third party items.</p> <ul style="list-style-type: none"> <li>• Installation &amp; Training: Installation and Training to be provided at installation site. Installation requirement to be submitted in advance. IIT Mandi will provide suitable power connection and suitable working space for the instrument. All parts/accessories required for meeting the pre-installation as well as operation of the instrument should be quoted by the supplier.</li> <li>• Manuals: One set of manuals with all details of parts should be supplied.</li> <li>• Warranty: Three Years or more onsite.</li> </ul>
16.	<b>Gas Cylinders and Accessories</b>	
16.a	<b>Argon Gas Cylinder with regulator</b>	<p><b><u>(i) Specification of Cylinder:</u></b></p> <ul style="list-style-type: none"> <li>• Steel Cylinders for Gases of Medium Volume with concave bottom and with rotund bottom and supporting ring</li> <li>• 50 Liters Water Capacity</li> <li>• Working Pressure (MPa/bar): 15/150</li> <li>• Cylinders are equipped with valve, ring of neck and protective cap, supporting ring (for cylinders with rotund bottom).</li> <li>• Diameter of cylindrical part, 219 mm</li> <li>• Length of body: 740 - 1755 mm Mass: 32,3 - 93 kg</li> </ul> <p><b>Each cylinder marked with the following information:</b></p> <ol style="list-style-type: none"> <li>1) Trade mark of a manufacturer,</li> <li>2) Number of a cylinder,</li> <li>3) Date (month, year) manufacture</li> <li>4) Year of following examination</li> <li>5) Working and testing pressure in at., 1 at = 0,980665 bar.</li> <li>6) Volume (Liter) of a cylinder,</li> <li>7) Mass (Kilogram) of a cylinder,</li> <li>8) Sign of a quality inspection of a manufacturer</li> </ol>

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### Make of carbon steel

C carbon	Si silicon	Mn manganese	Cr chrome	Ni nickel	S sulfur	P phosphorus
carbon steel	0,42-	0,17-0,37	0,50-	0,25	-	-

#### (ii) Specification for Argon

- Pre-purified Grade
- 99.998% minimum purity
- 1800 psi supplied pressure from the tank
- Tank pressure recommended to be at least 2640 psi

#### (iii) Specification for Gas Regulator (Two Stage)

- Designed for heavy duty gas application in laboratory.
- Two Stage Regulator
- Gas Service : Nitrogen and Argon
- Delivery Pr. Ranges : 0.5kg/cm<sup>2</sup>g – 5.5 kg/cm<sup>2</sup>g
- Max Flow : 80LPM
- Seat : TEFZEL
- Internal Seals : Teflon
- Maximum Inlet Pressure : 3000 psi
- Maximum deliveryPressure : 10-250 psi
- Filter : 10 micron sintered bronze / cupro-nickle
- Temperature Range : -40°F to 140 °F
- Inlet Gauges : 2-1/2", 4000 PSI
- Outlet Gauges : 2-1/2", 400PSI
- Ports : ¼" NPT(F) x 6 nos
- Weight : 1.8 kg
- Delrin cap bushing for smooth adjustments
- Self re-seating external safety pressure relief valve
- Sintered bronze inlet filter
- Stem type seat assembly for more reliable seating
- 2-1/2" gauges for easy reading
- 2" and 3-1/4" Diaphragms
- Weight: 7 lbs 6 oz
- Conforms to CGA E-4 Standard for Gas Pressure Regulators
- Body and housing cap are machined from class "A" brass bar stock

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16.b	<b>Nitrogen Gas Cylinder with regulator</b>	<p>(i) <b>Cylinder:</b></p> <ul style="list-style-type: none"> <li>• Steel Cylinders for Gases of Medium Volume with concave bottom and with rotund bottom and supporting ring</li> <li>• 50 Liters Water Capacity</li> <li>• Working Pressure (MPa/bar): 15/150</li> <li>• Cylinders are equipped with valve, ring of neck and protective cap, supporting ring (for cylinders with rotund bottom).</li> <li>• Diameter of cylindrical part, 219 mm</li> <li>• Length of body: 740 - 1755 mm Mass: 32,3 - 93 kg</li> <li>• Each cylinder marked with the following information:             <ol style="list-style-type: none"> <li>1) Trade mark of a manufacturer,</li> <li>2) Number of a cylinder,</li> <li>3) Date (month, year) manufacture</li> <li>4) Year of following examination</li> <li>5) Working and testing pressure in at., 1 at = 0,980665 bar.</li> <li>6) Volume (Liter) of a cylinder,</li> <li>7) Mass (Kilogram) of a cylinder,</li> <li>8) Sign of a quality inspection of a manufacturer</li> </ol> </li> </ul> <p style="text-align: center;">Make of carbon steel</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">C</th> <th style="text-align: center;">Mn</th> <th style="text-align: center;">Cr</th> <th style="text-align: center;">Ni</th> <th style="text-align: center;">S</th> <th style="text-align: center;">P</th> </tr> <tr> <th style="text-align: center;">carbon</th> <th style="text-align: center;">manganese</th> <th style="text-align: center;">chrome</th> <th style="text-align: center;">nickel</th> <th style="text-align: center;">sulfur</th> <th style="text-align: center;">phosphorus</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">carbon steel</td> <td style="text-align: center;">0,17-0,37</td> <td style="text-align: center;">0,50-0,80</td> <td style="text-align: center;">0,25</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> </tbody> </table> <p>(ii) <b>Specification for Nitrogen</b></p> <ul style="list-style-type: none"> <li>• Pre-purified Grade</li> <li>• 99.998% minimum purity</li> <li>• 1800 psi supplied pressure from the tank</li> <li>• Tank pressure recommended to be at least 2640 psi</li> </ul> <p>(iii) <b>Gas Regulator (Two Stage)</b></p> <ul style="list-style-type: none"> <li>• Designed for heavy duty gas application in</li> </ul>	C	Mn	Cr	Ni	S	P	carbon	manganese	chrome	nickel	sulfur	phosphorus	carbon steel	0,17-0,37	0,50-0,80	0,25	-	-
C	Mn	Cr	Ni	S	P															
carbon	manganese	chrome	nickel	sulfur	phosphorus															
carbon steel	0,17-0,37	0,50-0,80	0,25	-	-															

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		<p>laboratory</p> <ul style="list-style-type: none"> <li>• Two Stage Regulator</li> <li>• Gas Service : Nitrogen and Argon</li> <li>• Delivery Pr. Ranges : 0.5kg/cm<sup>2</sup>g – 5.5 kg/cm<sup>2</sup>g</li> <li>• Max Flow : 80LPM</li> <li>• Seat: TEFZEL</li> <li>• Internal Seals: Teflon</li> <li>• Maximum Inlet Pressure : 3000 psi</li> <li>• Maximum deliveryPressure: 10-250 psi</li> <li>• Filter : 10 micron sintered bronze / cupro-nickle</li> <li>• Temperature Range : -40°F to 140 °F</li> <li>• Inlet Gauges : 2-1/2", 4000 PSI</li> <li>• Outlet Gauges 2-1/2", 400PSI</li> <li>• Ports : ¼" NPT(F) x 6 nos</li> <li>• Weight : 1.8 kg</li> <li>• Delrin cap bushing for smooth adjustments</li> <li>• Self re-seating external safety pressure relief valve</li> <li>• Sintered bronze inlet filter</li> <li>• Stem type seat assembly for more reliable seating</li> <li>• 2-1/2" gauges for easy reading</li> <li>• 2" and 3-1/4" Diaphragms</li> <li>• Weight: 7 lbs 6 oz</li> <li>• Conforms to CGA E-4 Standard for Gas Pressure Regulators</li> <li>• Body and housing cap are machined from class "A" brass bar stock</li> </ul>
16.c	<b>Gas Cylinder Brackets</b>	<p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>• All steel construction wall mounted brackets</li> <li>• Holds one cylinder from 4.0 to 12.0 inch diameter</li> <li>• All steel, finishing, packaging</li> <li>• Edges are protected with steel reinforced vinyl edge guarding to help maintain your cylinders and provide extra grip</li> <li>• Steel parts are sealed with powder paint to assure long service life and chemical resistance</li> <li>• Support straps are 1.5 inch wide by 54 inch long polypropylene with steel cinch buckle and rate a robust 1138 PSI and are the primary means of support as they enable the cylinders to be held tight</li> </ul>

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		<p>and secure against the brackets</p> <ul style="list-style-type: none"> <li>• Chain set is included and is used as a secondary means of support</li> <li>• Dimensions: 4.25"L. x 8"W. x 2.25"H.</li> <li>• Weight: 3 lbs</li> </ul>  <p>(photograph: indicative only)</p>
16.d	<b>Cylinder Trolley</b>	<p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>• The trolley should be able to carry 50 L Cylinder</li> <li>• 150 kg capacity</li> <li>• Fully welded tubular steel construction</li> <li>• Steel sheet blade with 3-sided rim and safety chain holds gas cylinders securely</li> <li>• Takes 1 bottle</li> <li>• Solid rubber or pneumatic tyred models</li> </ul>  <p>(photograph: indicative only)</p>

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# CENTRAL UNIVERSITY OF SOUTH BIHAR

SH-7, Gaya- Panchanpur Road, Village- Karhara,  
Post- Fatehpur, P.S- Tekari,  
District- Gaya (Bihar) PIN- 824 236

Annexure 'B'

Name of the Department: Biotechnology

Sl. No.	Equipment	Qty.	Quoted/ Not Quoted	Annexure Sl. No. [w.r.t. tender clause No. 3 (Eligibility Criteria)]
1	Biosafety Cabinet	1		
2	Stereomicroscope	1		
3	Digital Magnetic Stirrer Hot Plate	1		
4	BOD Incubator	1		
5	UV Quartz Cuvette (700 µl)	2		
6	Digital MicroPipettes	1		
7	Micro Centrifuge with Refrigeration	1		

Date:

Signature \_\_\_\_\_

Name: \_\_\_\_\_

Designation & seal

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Annexure 'B'

Name of the Department: Life Science

Sl. No.	Equipment	Qty.	Quoted/ Not Quoted	Annexure Sl. No. [w.r.t. tender clause No. 3 (Eligibility Criteria)]
1	Laminar Air Flow Chambers	3		
2	Autoclave	2		
3	Digital pH Meter	2		
4	Cyocan/ Liquid Nitrogen Container with canister (20 lit and 50 lit each)	1		
5	(-20C) Deep Freezer	1		
6	(-86c) Deep Freezer - Double Door upright)	1		
7	Sphygmomanometer - Mercurial (with Stethoscope)	2		
8	Digital Glucometer (with Strips)	4		
9	Tissue culture rack (3 for Plants Tissue Culture 3 for Microbiology) with light fitting	6		
10	Micropipette	4		
11	Weighing Balance (0.01 mg)	1		

Date:

Signature \_\_\_\_\_

Name: \_\_\_\_\_

Designation & seal

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District- Gaya (Bihar) PIN- 824 236

Annexure 'B'

Name of the Department: Environmental Science

Sl. No.	Equipment	Qty.	Quoted/ Not Quoted	Annexure Sl. No. [w.r.t. tender clause No. 3 (Eligibility Criteria)]
1	Binocular Stereo-zoom microscope	1		
2	Double distillation Unit	2		

Date:

Signature \_\_\_\_\_

Name: \_\_\_\_\_

Designation & seal

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District- Gaya (Bihar) PIN- 824 236

## Annexure 'B'

Name of the Department: Physics

Sl. No.	Equipment	Qty.	Quoted/ Not Quoted	Annexure Sl. No. [w.r.t. tender clause No. 3 (Eligibility Criteria)]
1	Determination of Plank's constant by solar cell (complete set-up)	2		
2	Determination of Stefan's constant (complete set up)	2		
3	Study of electromagnetic induction and verification of Fraday's law (complete set up)	2		
4	Determination of Young's modulus by bending of beam (complete set up)	2		
5	Experiment with sonometer (find out frequency of A.C. mains) (complete set up)	2		
6	Determination of the value of "g" with the help of a bar compound pendulum (complete set up)	2		
7	Determination of the refractive index of a glass/water with the help of a microscope (complete set up)	2		
8	Verification of Hooke's law (complete set up)	2		
9	Moment of inertia of a flywheel (complete set up)	2		
10	Find spring constant of helical spring from load extension graph (complete set up)	2		
11	Study of harmonic oscillator coefficient of damping, relaxation time, and quality factor using simple pendulum (complete set up)	2		
12	Study of bending of cantilever (complete set up)	2		
13	Determination of velocity of sound with the help of resonance tube (complete set up)	2		
14	Determine the surface tension of water by capillary rise method (complete set up)	2		
15	Familiarizing with C.R.O. (complete set up)	5		

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16	Half wave and full wave rectifier (complete set up)	2		
17	Transfer characteristic (Complete set up)	2		
18	To study Lissajous Figures	3		
19	To determine the modulus of Rigidity and Moment of Inertia, using Torsional Pendulum.	3		
20	Determine the temperature coefficient of resistance by Platinum resistance thermometer	3		
21	Determine the coefficient of thermal conductivity of Cu by Searle's Apparatus	3		
22	Determine the coefficient of thermal conductivity of a bad conductor by Lee and Charlton's disc method	3		
23	Determine Rigidity Modulus by Static Method	3		
24	Determine 'g' and velocity for a freely falling body using Digital Timing Technique. & Measurement of 'g'	3		
25	Michelson Interferometer Kit (with He-Ne Laser)	3		
26	Fresnel's Bi Prism Experiment Kit (with Sodium Light Source)	3		
27	Polarization of Light & Verification of Malus Law	3		
28	Polarization of Light using Half-Wave Plate	3		
29	Polarization of Light by Quarter-Wave Plate	3		
30	Resolving Power of a Telescope	3		
31	Franck Hertz Experiment (Neon Tube) with Data Logger and Sensor	3		
32	Hall Effect in Metals (Silver)	3		
33	Superconductivity Experiment Kit	3		
34	B-H Curve Kit	3		
35	Basic Electronics	3		
36	IC 555 Timer	3		
37	Thermal Expansion Experiment	3		
38	Viscosity of Glycerin with Intelligent Timer	3		
39	Advanced Polarimeter Kit	3		
40	FTIR Spectrometer (complete set up)	1		
41	Experimental set-up for recording and reconstruction of holograms	2		
42	Experimental set-up for measurement of rotation of the plane of polarization through optically active liquid and to	3		

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	determine the concentration and specific rotation of the liquid.			
43	Experimental set-up for study of Faraday effect and measurement of Verdet's constant using He-Ne Laser	2		
44	Experimental set-up for study of Kerr effect and measurement of Kerr constant using Halogen light source	2		
45	Experimental set-up for interference and diffraction with He-Ne laser source.	2		
46	Experimental set-up for interference and diffraction with Diode laser source.	2		
47	Experimental set-up for investigation of Field lines and Equipotential lines	5		
48	Experimental set-up for demonstration of Biot-Savart Law	5		
49	Experimental set-up for investigation of magnetic field in Helmholtz coil	2		
50	Experimental set-up for verification of Faraday's and Lenz's law of induction	2		
51	Experimental set-up for investigation of optical phenomena in microwaves such as reflection, refraction, polarization, double-slit interference and single-slit diffraction.	2		
52	Experimental set-up for measurement of dielectric constant of different materials	1		
53	Experimental set-up for measurement of permeability and permittivity of air	1		
54	Experimental set-up for investigation of magnetic field along the axis of a current carrying	1		
55	Experimental set-up for determination of dielectric constant of ferroelectric materials and its Curie temperature	1		
56	Experimental set-up for measurement of energy bandgap of semiconductors	1		
57	Experimental set-up for measurement of transition temperature of a high- $T_c$ superconductor	1		
58	Experimental set-up for	1		

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	measurement of resistivity by four-probe method			
59	Experimental set-up for measurement of susceptibility of paramagnetic samples using Quinck's tube method	1		
60	Experimental set-up for demonstration of dia-, para-, ferromagnetism	1		
61	Experimental set-up for determination of dispersion relation of monoatomic and diatomic lattice	1		
62	Experimental set-up for measurement of heat capacity of solids	1		
63	Experimental set-up for determination of refractive index of liquids and solids	1		
64	Experimental set-up for determination of dipole-moment of liquids	1		
65	Megger meter 1000 M Ohms, 1000V	2		
66	Experimental set-up to study Thermoelectric effect and to measure Seebeck and Peltier Coefficient	1		
67	Travelling Microscope	5		
68	Sensitive microbalance	1		
69	Ultrasonicator	1		
70	Experimental set-up to study Newton's ring	1		
71	Experimental set-up for particle size measurement using He-Ne Laser	1		
72	Experimental set-up for determination of focal length of a combination of lenses	1		
73	Experimental set-up to determine speed of light in air	1		
74	Experimental set-up to study Zeeman effect	1		
75	Experimental set-up for measurement of hydrogen spectrum and determination of Rydberg constant	1		
76	<b>(A) Function/Arbitrary waveform Generator:</b> 2 channels, up to 25 MHz, 14-bit, upto125 MSa/s, 8k point, sine, square, triangle, and arbitrary waveform, MB, USB connectivity with PC with cable, Software for PC control.	10 Items		

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	(B) <b>Digital Storage Oscilloscope (DSO):</b> Compatible with item (A); Channel:2 or 4, Bandwidth : 200 MHz (or better), Sample Rate: 1 GSa/s (or better), Resolution: 8 bits, Memory depths: 16kpts (or better), Input coupling: AC, DC, and Ground, standard USB 2.0 connectivity with USB cable and standard accessories, Software for PC control, save and recall facility, Instruction Manual/CDs/ Online resources.	10 items		
	(C) <b>Digital Multimeter:</b> DC/AC voltage and current, capacitance, resistance, temperature, diode test, transistor test & gain, audible continuity test, polarity indication, necessary lead and cords for various testing.	10 items		
	(D) <b>Power Supply:</b> (i) 0-30 VDC at 0-6A, (ii)0-500 VDC, 0-100 mA Constant voltage & current mode with test lead, high resolution	4 items each		

**Date:**

**Signature** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Designation & seal**

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# CENTRAL UNIVERSITY OF SOUTH BIHAR

SH-7, Gaya- Panchanpur Road, Village- Karhara,  
Post- Fatehpur, P.S- Tekari,  
District- Gaya (Bihar) PIN- 824 236

Annexure 'B'

Name of the Department: Chemistry

Sl. No.	Equipment	Qty.	Quoted/ Not Quoted	Annexure Sl. No. [w.r.t. tender clause No. 3 (Eligibility Criteria)]
1	FT- IR Spectrometer (Specifications as per Chem-1)	1		
2	Rotary Evaporation System with accessories (A) Rotary Evaporator (B) Vacuum Pump (C) Vacuum Aspirator (D) Chiller (0°C to -20° C) (Specification as per Chem-2)	1		
3	Muffle Furnace (Specifications as per Chem-3)	1		
4	Melting Point Apparatus (Specifications as per Chem-4)	1		
5	Refrigerator (For Reagents' Storage) (Specifications as per Chem-5)	2		
6	Oil-Free Diaphragm Pump (Specifications as per Chem-6)	1		
7	Low Temperature Reaction Bath with Magnetic Stirrer (Specifications as per Chem-7)	1		
8	Microwave Synthesizer (Specifications as per Chem-8)	1		
9	Steady State Spectrofluorometer (UV-Vis-NIR) (Specifications as per Chem-9)	1		
10	Distillation units (Specifications as per Chem-10)	1		
11	Heating Mantle (Specifications as per Chem-11)	10		
12	Hot-plate-cum-Magnetic Stirrer (Specifications as per Chem-12)	10		
13	20 Kva UPS ONLINE One hour power backup (Specifications as per Chem-13)	1		
14	Electrochemical Workstation (Specifications as per Chem-14)	1		
15	Differential Scanning Calorimeter (Specifications as per Chem-15)	1		

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16	Gas cylinders & Accessories			
	(Specifications as per annexure-Chem-16)			
	(a) Argon Gas Cylinder with regulator	2		
	(b) Nitrogen Gas Cylinder with regulator	2		
	(c) Gas Cylinder Brackets	2		
(d) Cylinder Trolley	2			

**Date:**

**Signature** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Designation & seal**

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## CERTIFICATE

**(to be provided on letter head of the firm)**

I hereby certify that the above firm has not been ever blacklisted by any Central/State Government/Public Undertaking/Institute on any account.

I also certify that the above information is true and correct in all respect and in any case at a later date, if it is found that any details provided above are incorrect, then the contract given to the above firm may be summarily terminated and the firm may be blacklisted.

Date:

Place:

Authorized Signatory

Name:

Seal

Designation:

Contact No.:

---

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District- Gaya (Bihar) PIN- 824 236

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## AFFIDAVIT

(on ₹ 100/- Non Judicial Stamp Paper duly attested by Magistrate/ Notary)

1. I/We the undersigned do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither our firm M/s \_\_\_\_\_ have abandoned any work/supply nor any contract awarded to us for such works/supplies have been rescinded, during last three years prior to the date of this bid.
3. The undersigned hereby authorize and request any bank, person, firm or Corporation to furnish pertinent information deemed necessary as requested by the Central University of South Bihar, to verify this statement or regarding my (our) competence and general reputation.
4. The undersigned understands and agrees that further qualifying information may be requested, and agrees to furnish any such information at the request of the Central University of South Bihar.

(Signed by an Authorized Officer of the Firm)

Title of Officer

Name of Firm

Date:

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## Bill of Quantities

for

### Supply & Installation of “Laboratory Equipments” at Central University of South Bihar

### Financial Bid

**Note :** This is to be kept in **Envelope ‘C’** sealed and it should be written on envelop that **Supply & Installation of “Laboratory Equipments”** of following Department(s) at Central University of South Bihar Gaya.

1. Department of Biotechnology
2. Department of Life Science
3. Department of Environmental Science
4. Department of Physics
5. Department of Chemistry

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## FINANCIAL BID PROFORMA

(It should be submitted department wise in a separate sealed envelope)

Tender Notice No.: CUSB/PSD/EQUIP/TENDER/21/2018-19, Date: 22/02/2019

Subject: Supply & Installation of "Laboratory Equipments".

Name of the Department: Biotechnology.

Name of the Bidder: \_\_\_\_\_

Sl. No.	Equipment	Qty. (Nos.)	Unit Price (Rs.)	Total Amount (Rs.)
1	Biosafety Cabinet	1		
2	Stereomicroscope	1		
3	Digital Magnetic Stirrer Hot Plate	1		
4	BOD Incubator	1		
5	UV Quartz Cuvette (700 µl)	2		
6	Digital MicroPipettes	1		
7	Micro Centrifuge with Refrigeration	1		
<b>Total Amount without GST (Rs.)</b>				
<b>Add GST extra @ ....%</b>				
<b>Installation Charges</b>				
<b>Freight &amp; Other Charges (if any)</b>				
<b>Total Amount F.O.R. CUSB Campus (including GST)</b>				
<b>Total amount in words (Rs. ....)</b>				

**Note: No overwriting or use of whitener is permitted. If done then it will be summarily rejected.**

**Date:**

**Signature** \_\_\_\_\_

**Name:** \_\_\_\_\_

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## FINANCIAL BID PROFORMA

(It should be submitted department wise in a separate sealed envelope)

**Tender Notice No.: CUSB/PSD/EQUIP/TENDER/21/2018-19, Date: 22/0/2019**

**Subject: Supply & Installation of “Laboratory Equipments”.**

**Name of the Department: Life Science**

**Name of the Bidder: \_\_\_\_\_**

Sl. No.	Equipment	Qty. (Nos.)	Unit Price (Rs.)	Total Amount (Rs.)
1	Laminar Air Flow Chambers	3		
2	Autoclave	2		
3	Digital pH Meter	2		
4	Cyocan/ Liquid Nitrogen Container with canister (20 lit and 50 lit each)	1		
5	(-20C) Deep Freezer	1		
6	(-86c) Deep Freezer - Double Door upright)	1		
7	Sphygmomanometer - Mercurial (with Stethoscope)	2		
8	Digital Glucometer (with Strips)	4		
9	Tissue culture rack (3 for Plants Tissue Culture 3 for Microbiology) with light fitting	6		
10	Micropipette	4		
11	Weighing Balance (0.01 mg)	1		
<b>Total Amount without GST (Rs.)</b>				
<b>Add GST extra @ ....%</b>				
<b>Installation Charges</b>				
<b>Freight &amp; Other Charges (if any)</b>				
<b>Total Amount F.O.R. CUSB Campus (including GST)</b>				
<b>Total amount in words (Rs. ....)</b>				

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**Date:**

**Signature \_\_\_\_\_**

**Name: \_\_\_\_\_**

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## FINANCIAL BID PROFORMA

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Subject: Supply & Installation of "Laboratory Equipments".

Name of the Department: Environmental Sciences

Name of the Bidder: \_\_\_\_\_

Sl. No.	Equipment	Qty. (Nos.)	Unit Price (Rs.)	Total Amount (Rs.)
1	Binocular Stereo-zoom microscope	1		
2	Double distillation Unit	2		
Total Amount without GST (Rs.)				
Add GST extra @ ....%				
Installation Charges				
Freight & Other Charges (if any)				
Total Amount F.O.R. CUSB Campus (including GST)				
Total amount in words (Rs. ....)				

**Note: No overwriting or use of whitener is permitted. If done then it will be summarily rejected.**

Date:

Signature \_\_\_\_\_

Name: \_\_\_\_\_

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## FINANCIAL BID PROFORMA

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Tender Notice No.: CUSB/PSD/EQUIP/TENDER/21/2018-19, Date: 22/02/2019

Subject: Supply & Installation of “Laboratory Equipments”.

Name of the Department: Physics

Name of the Bidder: \_\_\_\_\_

Sl. No.	Equipment	Qty. (Nos.)	Unit Price (Rs.)	Total Amount (Rs.)
1	Determination of Plank's constant by solar cell (complete set-up)	2		
2	Determination of Stefan's constant (complete set up)	2		
3	Study of electromagnetic induction and verification of Fraday's law (complete set up)	2		
4	Determination of Young's modulus by bending of beam (complete set up)	2		
5	Experiment with sonometer (find out frequency of A.C. mains) (complete set up)	2		
6	Determination of the value of “g” with the help of a bar compound pendulum (complete set up)	2		
7	Determination of the refractive index of a glass/water with the help of a microscope (complete set up)	2		
8	Verification of Hooke's law (complete set up)	2		
9	Moment of inertia of a flywheel (complete set up)	2		
10	Find spring constant of helical spring from load extension graph (complete set up)	2		
11	Study of harmonic oscillator coefficient of damping, relaxation time, and quality factor using simple pendulum (complete set up)	2		
12	Study of bending of cantilever (complete set up)	2		
13	Determination of velocity of sound with the help of resonance tube (complete set up)	2		
14	Determine the surface tension of water by capillary rise method (complete set up)	2		
15	Familiarizing with C.R.O. (complete set up)	5		
16	Half wave and full wave rectifier (complete set up)	2		
17	Transfer characteristic (Complete set up)	2		
18	To study Lissajous Figures	3		

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19	To determine the modulus of Rigidity and Moment of Inertia, using Torsional Pendulum.	3		
20	Determine the temperature co-efficient of resistance by Platinum resistance thermometer	3		
21	Determine the coefficient of thermal conductivity of Cu by Searle's Apparatus	3		
22	Determine the coefficient of thermal conductivity of a bad conductor by Lee and Charlton's disc method	3		
23	Determine Rigidity Modulus by Static Method	3		
24	Determine 'g' and velocity for a freely falling body using Digital Timing Technique. & Measurement of 'g'	3		
25	Michelson Interferometer Kit (with He-Ne Laser)	3		
26	Fresnel's Bi Prism Experiment Kit (with Sodium Light Source)	3		
27	Polarization of Light & Verification of Malus Law	3		
28	Polarization of Light using Half- Wave Plate	3		
29	Polarization of Light by Quarter- Wave Plate	3		
30	Resolving Power of a Telescope	3		
31	Franck Hertz Experiment (Neon Tube) with Data Logger and Sensor	3		
32	Hall Effect in Metals (Silver)	3		
33	Superconductivity Experiment Kit	3		
34	B-H Curve Kit	3		
35	Basic Electronics	3		
36	IC 555 Timer	3		
37	Thermal Expansion Experiment	3		
38	Viscosity of Glycerin with Intelligent Timer	3		
39	Advanced Polarimeter Kit	3		
40	FTIR Spectrometer (complete set up)	1		
41	Experimental set-up for recording and reconstruction of holograms	2		
42	Experimental set-up for measurement of rotation of the plane of polarization through optically active liquid and to determine the concentration and specific rotation of the liquid.	3		
43	Experimental set-up for study of Faraday effect and measurement of Verdet's constant using He-Ne Laser	2		
44	Experimental set-up for study of Kerr effect and measurement of Kerr constant using Halogen light source	2		
45	Experimental set-up for interference and diffraction with He-Ne laser source.	2		
46	Experimental set-up for interference and diffraction with Diode laser source.	2		
47	Experimental set-up for investigation of Field lines and Equipotential lines	5		
48	Experimental set-up for demonstration of Biot-Savart Law	5		

Bidders are requested to read the complete Tender documents and visit the site to understand its locality, terrain, surrounding conditions etc. before submission of Bids. Queries related to Tender may be sent at (registrar@cub.ac.in), ([so1@cub.ac.in](mailto:so1@cub.ac.in)). For further information visit University Website – ([www.cusb.ac.in](http://www.cusb.ac.in))

49	Experimental set-up for investigation of magnetic field in Helmholtz coil	2		
50	Experimental set-up for verification of Faraday's and Lenz's law of induction	2		
51	Experimental set-up for investigation of optical phenomena in microwaves such as reflection, refraction, polarization, double-slit interference and single-slit diffraction.	2		
52	Experimental set-up for measurement of dielectric constant of different materials	1		
53	Experimental set-up for measurement of permeability and permittivity of air	1		
54	Experimental set-up for investigation of magnetic field along the axis of a current carrying	1		
55	Experimental set-up for determination of dielectric constant of ferroelectric materials and its Curie temperature	1		
56	Experimental set-up for measurement of energy bandgap of semiconductors	1		
57	Experimental set-up for measurement of transition temperature of a high- $T_c$ superconductor	1		
58	Experimental set-up for measurement of resistivity by four-probe method	1		
59	Experimental set-up for measurement of susceptibility of paramagnetic samples using Quinck's tube method	1		
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61	Experimental set-up for determination of dispersion relation of monoatomic and diatomic lattice	1		
62	Experimental set-up for measurement of heat capacity of solids	1		
63	Experimental set-up for determination of refractive index of liquids and solids	1		
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65	Megger meter 1000 M Ohms, 1000V	2		
66	Experimental set-up to study Thermoelectric effect and to measure Seebeck and Peltier Coefficient	1		
67	Travelling Microscope	5		
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70	Experimental set-up to study Newton's ring	1		
71	Experimental set-up for particle size measurement using He-Ne Laser	1		
72	Experimental set-up for determination of focal length of a combination of lenses	1		
73	Experimental set-up to determine speed of light in air	1		
74	Experimental set-up to study Zeeman effect	1		
75	Experimental set-up for measurement of hydrogen spectrum and determination of Rydberg constant	1		

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76	<b>(A) Function/Arbitrary waveform Generator:</b> 2 channels, up to 25 MHz, 14-bit, upto125 MSa/s, 8k point, sine, square, triangle, and arbitrary waveform, MB, USB connectivity with PC with cable, Software for PC control.	10 Items		
	<b>(B) Digital Storage Oscilloscope (DSO):</b> Compatible with item (A); Channel:2 or 4, Bandwidth : 200 MHz (or better), Sample Rate: 1 GSa/s (or better), Resolution: 8 bits, Memory depths: 16kpts (or better), Input coupling: AC, DC, and Ground, standard USB 2.0 connectivity with USB cable and standard accessories, Software for PC control, save and recall facility, Instruction Manual/CDs/ Online resources.	10 items		
	<b>(C) Digital Multimeter:</b> DC/AC voltage and current, capacitance, resistance, temperature, diode test, transistor test & gain, audible continuity test, polarity indication, necessary lead and cords for various testing.	10 items		
	<b>(D) Power Supply:</b> (i) 0-30 VDC at 0-6A, (ii)0-500 VDC, 0-100 mA Constant voltage & current mode with test lead, high resolution	4 items each		
<b>Total Amount without GST (Rs.)</b>				
<b>Add GST extra @ ....%</b>				
<b>Installation Charges</b>				
<b>Freight &amp; Other Charges (if any)</b>				
<b>Total Amount F.O.R. CUSB Campus (including GST)</b>				
<b>Total amount in words (Rs. ....)</b>				

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**Date:**

**Signature** \_\_\_\_\_

**Name:** \_\_\_\_\_

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## FINANCIAL BID PROFORMA

(It should be submitted department wise in a separate sealed envelope)

Tender Notice No.: CUSB/PSD/EQUIP/TENDER/21/2018-19, Date: 22/02/2019

Subject: Supply & Installation of “Laboratory Equipments”.

Name of the Department: Chemistry

Name of the Bidder: \_\_\_\_\_

Sl. No.	Equipment	Qty. (Nos.)	Unit Price (Rs.)	Total Amount (Rs.)
1	FT- IR Spectrometer (Specifications as per Chem-1)	1		
2	Rotary Evaporation System with accessories (A) Rotary Evaporator (B) Vacuum Pump (C) Vacuum Aspirator (D) Chiller (0°C to -20° C) (Specification as per Chem-2)	1		
3	Muffle Furnace (Specifications as per Chem-3)	1		
4	Melting Point Apparatus (Specifications as per Chem-4)	1		
5	Refrigerator (For Reagents' Storage) (Specifications as per Chem-5)	2		
6	Oil-Free Diaphragm Pump (Specifications as per Chem-6)	1		
7	Low Temperature Reaction Bath with Magnetic Stirrer (Specifications as per Chem-7)	1		
8	Microwave Synthesizer (Specifications as per Chem-8)	1		
9	Steady State Spectrofluorometer (UV-Vis-NIR) (Specifications as per Chem-9)	1		
10	Distillation units (Specifications as per Chem-10)	1		
11	Heating Mantle (Specifications as per Chem-11)	10		
12	Hot-plate-cum-Magnetic Stirrer	10		

Bidders are requested to read the complete Tender documents and visit the site to understand its locality, terrain, surrounding conditions etc. before submission of Bids. Queries related to Tender may be sent at (registrar@cub.ac.in), ([so1@cub.ac.in](mailto:so1@cub.ac.in)). For further information visit University Website – (www.cusb.ac.in)

	(Specifications as per Chem-12)			
13	20 Kva UPS ONLINE	1		
	One hour power backup (Specifications as per Chem-13)			
14	Electrochemical Workstation	1		
	(Specifications as per Chem-14)			
15	Differential Scanning Calorimeter	1		
	(Specifications as per Chem-15)			
16	Gas cylinders & Accessories			
	(Specifications as per annexure- Chem-16)			
	(a) Argon Gas Cylinder with regulator	2		
	(b) Nitrogen Gas Cylinder with regulator	2		
	(c) Gas Cylinder Brackets	2		
	(d) Cylinder Trolley	2		
<b>Total Amount without GST (Rs.)</b>				
<b>Add GST extra @ ....%</b>				
<b>Installation Charges</b>				
<b>Freight &amp; Other Charges (if any)</b>				
<b>Total Amount F.O.R. CUSB Campus (including GST)</b>				
<b>Total amount in words (Rs. ....)</b>				

**Note: No overwriting or use of whitener is permitted. If done then it will be summarily rejected.**

**Date:**

**Signature** \_\_\_\_\_

**Name:** \_\_\_\_\_

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**UNDERTAKING**  
[ by Tenderer(s) ]

Name of the work : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Tender No. : \_\_\_\_\_

We confirm that we have quoted the rates in the tender considering Inter-alia the

1. Tender Document(s) with all Annexures, Scope of Vendor
2. Additional Document(s), if any
3. BOQ Document (Price Bid Format)
4. Corrigendum, if any
5. Pre Bid Meeting Minutes, if any

Signed for and on behalf of  
Tenderer(s)

Name of Tenderer(s)

Date : \_\_/\_\_/\_\_\_\_

Place :

Seal & Signature of Tenderer

**Note :**

This declaration should be signed by the Tenderer's authorized representative on COMPANY LETTERHEAD who is signing the Bid and to be submitted with tender.

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