



# Fakir Mohan University

Vyasavihar, Nuapadhi, Balasore, Odisha-756089

Tel: 06782-275787 Email: registrarfmuniversity@gmail.com

Website: www.fmuniversity.nic.in

No. FMU/BS&BT/RUSA/2022/ 1176

Date: 17-2-2022

## Indicative Notice Inviting Tender

Sealed quotations are invited from interested Dealers, Suppliers and Manufacturers having valid GSTIN certificate, PAN card and authorized dealer certificate for supply of **Lab equipment/instruments** to Fakir Mohan University, Balasore for different departments, namely P. G. Department of Bioscience and Biotechnology, Zoology, Botany, Chemistry, Environmental Science, Geography and Geology. The quotations completed in all respect should reach the Office of **the Registrar, F.M. University, Vyasa Vihar, Nuapadhi, Balasore-756089** by Registered/ Speed Post on or before **Dt. 08.03.2022 by 4.00 PM**. The tender papers will be opened on **Dt. 09.03.2022 at 11.30 A. M.** in the office chamber of the undersigned. The tender papers along with the details of make and model, specifications, terms and conditions are available in the University website **www.fmuniversity.nic.in**. The authority reserves the right to cancel any/all the quotation(s) without assigning any reasons thereof.

  
Registrar

# TENDER PAPER

**Tender paper for supply and installation of equipment/ instruments for seven P. G. Departments  
of Fakir Mohan University, Vyasa Vihar, Nuapadhi, Balasore – 756089**

**(Notified vide letter number No. FMU/ BS&BT/ RUSA/ 2022/ 1176, dated 17-02-2022)**

Last Date of Submission of Quotation by Registered/ Speed Post: **08.03.2022** (By 4.00 PM)

- 1. P.G. Department of Environmental Science**
- 2. P.G. Department of Chemistry**
- 3. P.G. Department of Geography**
- 4. P.G. Department of Botany**
- 5. P.G. Department of Bioscience and Biotechnology**
- 6. P.G. Department of Zoology**
- 7. P.G. Department of Geology**



**FAKIR MOHAN UNIVERSITY, VYASA VIHAR,  
BALASORE-756089**

**[www.fmuniversity.nic.in](http://www.fmuniversity.nic.in)**

## GENERAL TERMS AND CONDITIONS

### **1. Submission of quotation/ tender/ bid in Two Bid System**

The Bid/ Tender/ Quotation shall be submitted in two-bid system, i.e., Technical Bid & Financial Bid. A firm desirous of submitting quotation for more than one department must submit separate Financial Bids for all the departments in separately sealed envelopes. Technical Bid (Common) and Financial bids (separately for different departments) of the quotation should be separately sealed and it must be clearly mentioned on the top of the envelopes as Cover-A (Technical Bid) and Cover-B (**Financial Bid – P. G. Department of \_\_\_\_\_**). All the sealed envelopes (A & B – One or more) should then be put in one outer cover indicating thereon:

- i) Reference No. of Tender (in Capital letter on the top of the envelope):
- ii) Tender regarding (in Capital letter on the top of the envelope as **Lab equipment/Instrument**).
- iii) Due date for submission of Tender:
- iv) Name and Address of the firm:
- v) Number of departments for which Financial Bids are submitted:
- vi) Name of the departments for which Financial Bids are submitted:

The technical bids are to be opened by the Purchase Committee for evaluation. In the second stage, the financial bids of only the technically acceptable offers will be opened for further evaluation, scrutiny and ranking for awarding the Supply Order.

#### **1.1. Technical Bid:**

**Technical Bid, which is common for all departments, should contain the following documents:**

- a) The firm, desirous of quoting equipment whose price is more than Rs.10 lakhs, must have annual turnover of Rs.1.00 crore or more for the financial year 2020-21 and quoting equipment whose price is less than Rs.10 lakhs, must have annual turnover of Rs.50 lakhs or more for the financial year 2020-21. A declaration in this regard should be submitted along with supporting documents.
- b) **The detailed specifications of the equipment along with make and model with respect to the specification specified by the University should be submitted as per the format enclosed in Annexure I.**
- c) Technical Literature in support of the Lab equipment
- d) Copy of Valid GSTIN Registration Certificate
- e) Copy of PAN
- f) Copy of Audited Balance Sheet for last 03 years
- g) The authorisation certificate of OEM/ authorised Manufacturer/ Distributor/ Dealership Certificate for respective Equipment/Furniture/Chemical or other consumable items
- h) **EMD @ 2% of quoted amount in the shape of Bank Draft drawn in favour of F. M. University Development Fund-II and payable at Balasore with three-month validity**
- i) Non-refundable tender fee

## 1.2. Financial Bid:

### Financial Bid Should Contain the Following Documents:

- a) Break up price as per format (Annexure-II)
- b) Total Price must include all admissible taxes including transportation charges, delivery and installation charges in the concerned departments of the University, trial operation, comprehensive training and clearance charges. **The University will make necessary payment in Indian currency only.**
- c) No conditional price will be taken into consideration. No escalation of the price in later stage is acceptable.
- d) Warranty period details should be clearly mentioned
- e) The firm submitting quotation for different departments has to submit separate Financial Bids for each department in separately sealed envelopes marked as Cover B (Financial Bid – P. G. Department of \_\_\_\_\_)

## 2. Goods Eligibility:

ISI, CE, ISO, US FDA/ IEC 60601 or equivalent certificate

## 3. Other Terms and Conditions:

- i) The cost of the tender is **Rs. 5,000/- (Non-refundable).**
- ii) Submission of quotations without tender cost, EMD along with the Technical Bid and received after due date and time will be summarily rejected.
- iii) The quotations completed in all respect should reach **the Office of the Registrar, F.M. University, VysaVihar, Balasore-756089by Speed/Regd. Post only** on or before **Dt.08.03.2022 by 4.00 PM.** The quotations received after due date or incomplete in any respect shall summarily be rejected. The tender papers will be opened on **Dt.09.03.2022 at 11:30 AM** in the Office Chamber of the Registrar, F.M University, Vyasa Vihar, Nuapadhi, Balasore-756089. The quotationers or their authorized representatives may remain present during the opening of the tender papers.
- iv) The supplier must be either manufacturer of the equipment or the authorized agent/ dealer of the manufacturer.
- v) The price should be quoted in the Indian currency only.
- vi) **The bid should remain valid for a period of 180 days from the date of opening. In case your offer has a different validity period that should be clearly mentioned in the quotation.**
- vii) The successful bidders should supply the equipment within a period of 4 weeks from the issuing date of purchase order by the competent authority of Fakir Mohan University or within the period mentioned in the supply order. The equipment/instrument shall be delivered to the Person concerned at the concerned PG Departments of the University that will be mentioned in the supply order.

- viii) The EMD of the successful bidders will be refunded after the supply and installation of the equipment, on completion of warranty period.
- ix) The EMD of the unsuccessful bidders will be returned as such to the concerned quotationers immediately after finalization of the tenders by Regd. Post.
- x) Documents such as operation manual and other technical specifications of the equipment should be supplied by the successful bidders along with the equipment.
- xi) A warranty certificate for the period of minimum three years or as specified in annexure III from the date of installation should be provided. Thus the basic price of all instruments should be quoted along with the warranty period covered.
- xii) Inspection certificates of the equipment inspected by the qualified engineer of the manufacturer.
- xiii) During the warranty period or later whenever the firm is called upon to attend for the rectification of the defects/ faults in the consignments, the firm shall attend to the repair of instrument within 48-96 hours. They should render timely back up service whenever called upon. A certificate to that effect should be attached along with the invoice or delivery challan
- xiv) The invoices should be submitted in triplicate in the name of **“The Registrar, Fakir Mohan University, Vyasa Vihar, Balasore-756089”** for pass/ approval and payment. The payments will be made only after successful installation/ Training/ Demonstration of instruments in the concerned PG Departments supported with a certificate by the concerned HOD/Coordinator of the department.
- xv) The University authority reserves the right to refuse payment in the event of unsuccessful installation and the non-submission of the installation certificates.
- xvi) The authority of the F. M. University, Balasore reserves the right to accept/ reject any part or all quotations; and also increase or decrease the number of individual items to be procured; or cancel the entire procurement process without assigning any reason thereof.
- xvii) Once the rate is approved by the Purchase Committee and supply order is placed to the successful bidder and in the event of failure on the part of the bidder for supply of the equipment on any account, the authority reserves the right to forfeit the EMD.
- xviii) The rates/ price should be quoted in Indian currency only and payment shall be made in Indian Currency. The price shall be inclusive of all taxes (Rate & Taxes should be mentioned separately), Transportation cost and Cost of Installation and Commissioning, trial operation, comprehensive training and clearance charges.
- xix) Dispute, if any, with regard to the tender/ quotation shall be settled within the jurisdiction of Balasore Court, Odisha only.

**Registrar**  
**Fakir Mohan University**



## 1. PG Department of Environmental Science

Sl. No.	Name of the equipment/ Instrument	Specifications	Quantity
1.	Double beam UV Visible Spectrophotometer	i. Optics: Double beam, Grating should be 1200 lines/mm or better ii. Source: Xenon flash lamp will be given priority (Deuterium -Tungsten-Halogen lamp can be considered if required) iii. Detector: 2 silicon diode detectors iv. Measurable range: 190-1100 nm v. Spectral bandwidth: 2 nm or better vi. Stray Light: $\leq 0.05\%T$ at 220 nm or better vii. Wavelength Accuracy: $\pm 0.1$ nm or better viii. Wavelength Repeatability: $\leq 0.1$ nm or better ix. Photometric Accuracy: $\pm 0.005$ Abs at 1.0 Abs or better x. Photometric Repeatability: 0.002Abs (0.5-1Abs) or better xi. Photometric Range: 0-200%T, -0.3~3A or better xii. Baseline Flatness: $\pm 0.001$ Abs or better throughout UV-Vis range xiii. Photometric Stability: $< 0.0004$ A/h @500 nm xiv. Photometric noise: $\leq 0.0005$ Abs or better xv. Scan speeds: Hi, Med, Low (Max. 3000nm/min) xvi. Compatible PC software: Compatible PC software for data analysis should be provided xvii. Local accessories: 4 sets of 10 mm quartz cuvette to be offered xviii. <b>Other terms and conditions:</b> a. Standard comprehensive <b>warranty and support should be three years</b> without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument. b. Details of Annual Maintenance Contract (AMC) after standard warranty should be quoted. c. Pre-installation requirements should be clearly specified in the quotation. d. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser. e. After Sale, Service should be available promptly f. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items. g. The spare parts/wear & tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.	1
2.	COD Analyser	The standard supply include following items a) COD digester with detailed specification below: 1 Nos. b) Portable photometer with detailed specification below: 1 Nos. c) COD reagents with detailed specification below: 50 Nos.	1

		<p>d) Hard copy and soft copy of Operation and maintenance manual.</p> <p><b>1. Specification for COD digester:</b></p> <p>i. Heating Block is made of Quality Aluminium thick block with cavities for placing digestion tubes. The COD Digester should consist of 25 number of test tubes/vials position heating block for 16 mm vial.</p> <p>ii. Temperature control: With predefined heating at 150°C with built in timer.</p> <p>iii. Temperature accuracy: <math>\pm 2^{\circ}\text{C}</math></p> <p>iv. Power requirement: Suitable to operate on 230<math>\pm</math>10 V, 50 Hz</p> <p><b>2. Specification for COD analyser photometer:</b></p> <p>i. Photometer should portable, pre-programmed for measurement of complete COD range and has Large LCD display and soft key for easy-to-use. It should adopt potassium dichromate fast digestion Spectrophotometric method.</p> <p>ii. Cell holder: 16mm round cell.</p> <p>iii. Bandpass filter wavelength accuracy: <math>\pm 1.0</math> nm</p> <p>iv. Power supply: Suitable to operate on 230<math>\pm</math>10 V, 50 Hz.</p> <p>v. Data storage: It should have data storage facility and accessed any time with the current measurement data.</p> <p><b>3. Reagents/Consumable Kit for COD analysis:</b></p> <p>i. Reagent vials and other necessary consumables should be supplied with the instrument for the determination chemical oxygen demand (COD) in the range of 0 to 150 mg/litre using a potassium dichromate fast digestion Spectrophotometric method,</p> <p>ii. The reagents should have marked expired date on the label.</p> <p>4. The instrument should be complete in all respect for chemical oxygen demand (COD) measurement</p> <p><b>5. Other terms and conditions:</b></p> <p>a. Standard comprehensive warranty and support should be three years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</p> <p>b. Details of Annual Maintenance Contract (AMC) after standard warranty should be quoted.</p> <p>c. Pre-installation requirements should be clearly specified in the quotation.</p> <p>d. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</p> <p>e. After Sale, Service should be available promptly</p> <p>f. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</p> <p>g. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	
3.	Table top	i. Manufactured according to the latest national	1



	centrifuge (non-refrigerated) with fixed angle rotor	<p>and international standards (e.g. EN 61010-2-020)</p> <ul style="list-style-type: none"> <li>ii. Max. speed: 15,000 rpm</li> <li>iii. Max. RCF [x g]: 15 000 x g or better</li> <li>iv. Minimum. capacity [ml]: 12 x 2 ml</li> <li>v. Noise level at maximum speed [dB(A)]: ≤ 60</li> <li>vi. With Speed/RCF and Time LCD display <ul style="list-style-type: none"> <li>a. Time increment [s]: 1</li> <li>b. Speed increment [rpm]: 100</li> <li>c. RCF increment [x g]: 10</li> </ul> </li> <li>vii. Rotor Specifications: <ul style="list-style-type: none"> <li>a. Fixed angle rotor with lid</li> <li>b. Max. capacity: 12 x 2 ml/1.5 ml</li> <li>c. Max. speed: 15,000 rpm or better</li> <li>d. Max. RCF: 15,000 x g or better</li> </ul> </li> <li><b>viii. Other terms and conditions:</b> <ul style="list-style-type: none"> <li>a. Standard comprehensive warranty and support should be three years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</li> <li>b. Details of Annual Maintenance Contract (AMC) after standard warranty should be quoted.</li> <li>c. Pre-installation requirements should be clearly specified in the quotation.</li> <li>d. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> <li>e. After Sale, Service should be available promptly</li> <li>f. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</li> <li>g. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</li> </ul> </li> </ul>	
4.	Inverted Phase Contrast Microscope	<p>Inverted Phase Contrast microscope with digital camera and image analysis software –1 Set consisting of Microscope, digital Camera, Image analysis software, Personal Computer and Accessories including Lamp, Graticule, Dust cover, Glass slide. Detailed specifications of the items listed above are given below:</p> <p><b>1. MICROSCOPE</b></p> <ul style="list-style-type: none"> <li>a) Objectives Plan Achromatic of 4x/5x, 10x, 20x and 40x with long working distance for Bright field and Phase contrast applications.</li> <li>b) Condenser: Suitable for Bright field/Dark Field and Phase contrast with Phase rings for 20X and 40X objectives and Dark field Ring.</li> <li>c) Eyepiece: Trinocular, 300 viewing angle with IPD 50 – 75 mm with constant focus and widefield 10x eyepiece</li> <li>d) Stage: Mechanical stage: Attachable Mechanical stage for X-Y movement. Universal Holder (Adjustable) suitable for all types of specimen holder. Stage movement should have at least X=120mm, Y=78mm or more.</li> <li>e) Focus Drive: 3 step focusing coarse, medium, fine with</li> </ul>	1

		<p>micron scale. Step size for fine focussing should be less 1 micron</p> <p>f) Illumination: Suitable Transmitted light Halogen / LED, Stabilized power supply Mains 230V, 50 Hz.</p> <p><b>2. COLOR DIGITAL CAMERA</b></p> <p>a) Minimum 5 M Pixel [2048 x 1536] Resolution</p> <p>b) USB or Fire wire interface.</p> <p>c) Screen: HD screen with minimum 12” size 2</p> <p><b>3. IMAGE ANALYSIS SYSTEM</b> Software should have the following features:</p> <p>a) Automatic / manual calibration with stage micrometer.</p> <p>b) Compare live and stored image side by side on the screen.</p> <p>c) Micron marker, point to point length measurement, Annotation and other parameters.</p> <p>d) All actions should be reversed by means of Undo.</p> <p>e) The annotation should be merged into the image for a permanent record.</p> <p><b>4. TECHNICAL SPECIFICATIONS OF PC</b></p> <p>Minimum required Core i5, 8 GB RAM, 1 TB HDD, Preloaded licensed Windows operating system and licensed MS Office with recovery DVD, minimum 6 USB ports (2.0/3.0) with 2 USB ports on cabinet front, 21” LCD monitor,</p> <p><b>5. ACCESSORIES REQUIRED</b></p> <p>a) Lamp 12V 100W, 2 nos. b) Graticule having 1mm squares,1 no. c) Dust cover for microscope and camera, 1no. d) Glass slide with calibrated scale of 1 mm, 1no</p> <p><b>6. Other terms and conditions:</b></p> <p>a. Standard comprehensive warranty and support should be three years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</p> <p>b. Details of Annual Maintenance Contract (AMC) after standard warranty should be quoted.</p> <p>c. Pre-installation requirements should be clearly specified in the quotation.</p> <p>d. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</p> <p>e. After Sale, Service should be available promptly</p> <p>f. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</p> <p>g. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	
5.	Muffle furnace (1200 degree)	<p>Muffle furnace -</p> <ol style="list-style-type: none"> <li>1. Double Shell case, Stainless Steel</li> <li>2. High Purity insulation material with efficient low thermal insulation</li> <li>3. Bench top model</li> <li>4. Vertically lift break switch/side lift break with front</li> </ol>	1

		<p>loading</p> <p>5. Door positive break switch</p> <p>6. Inside Chamber Size 245-280 mm x 340-400 mm x 230-250 mm (WDH)</p> <p>7. Maximum temperature 1200° C; Standard continuous temperature 1050 ° C or more</p> <p>8. Heating Rate: The furnace should be fast heating type with maximum attainable temperature should reach in 110 mins or better Temperature control. Should be microprocessor based with necessary safety features. Programmable Temperature controller with heating rate control from 10 deg. min<sup>-1</sup> to 100 deg.min<sup>-1</sup></p> <p>9. Preferable Temperature Accuracy: ± 5 °C over the whole temperature range of operation and in the entire muffle</p> <p>10. Safety: Over Temperature protection should be added Gas purging: Gas purging facility (inert gas inlet and outlet)</p> <p>11. The furnace should be CE certified with suitable power supply.</p> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>a. Standard comprehensive warranty and support should be three year without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</li> <li>b. Pre-installation requirements should be clearly specified in the quotation.</li> <li>c. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> <li>d. After Sale, Service should be available promptly</li> <li>e. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</li> <li>f. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</li> </ol>	
6.	Ultrasonic Probe Sonicator	<ol style="list-style-type: none"> <li>1. System with microprocessor based Control</li> <li>2. Automatic tuning and frequency control</li> <li>3. Option to set the time and amplitude</li> <li>4. Should capable of simultaneous monitoring and controlling of both the temperature of the sample and the amount of energy that is being delivered</li> <li>5. Pulse mode with full function ON and OFF cycle. Continuous mode up to 30 minutes or preferably more.</li> <li>6. With sound abating enclosure and jack stand</li> <li>7. Ultrasonic Power : 500 W or better, Frequency (KHz): 20 or better</li> <li>8. Processing Capacity: up to 1000 ml</li> <li>9. Digital amplitude / Intensity control : Output amplitude can be set from 10 to 100%</li> <li>10. Display: Energy monitor, Watt meter, Amplitude, Time indicator, Pulsar and Temperature.</li> <li>11. Probe: Titanium Probe, suitable for processing volume 5 ml to 500 ml</li> </ol>	1

		<p>12. Probes of different diameter (for different processing volumes) and multiple sample processing probes can be quoted optionally</p> <p>13. Set of standard tool kits to be provided with Ultrasonic Processor</p> <p><b>Terms and Conditions:</b></p> <p>1. Standard comprehensive warranty and support should be three year without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</p> <p>2. Pre-installation requirements should be clearly specified in the quotation.</p> <p>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</p> <p>4. After Sale, Service should be available promptly</p> <p>5. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</p> <p>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	
7.	Rotary Evaporator with vacuum pump	<p><b>A. ROTARY VACUUM EVAPORATOR WITH JACK-UP FUNCTION</b> (with digital water bath)</p> <ol style="list-style-type: none"> <li>1. Driving Unit: Encased induction motor with electronic speed control</li> <li>2. Condenser: Vertical Double spiral glass coil</li> <li>3. Drive Unit: Motorized drive unit</li> <li>4. Jack up Function</li> <li>5. Rotation Speed: up to 200 rpm or better with microprocessor control.</li> <li>6. Display: digital display of rotation speed and heating bath.</li> <li>7. Speed display: Digital</li> <li>8. Sample Flask: 1L, Pear Style,</li> <li>9. Receiving flask: 1L, round style with ball joint.</li> <li>10. Evaporating flask from 50-4000 ml can be used on the same joint adapter without additional connections.</li> <li>11. 1 liter Evaporating Flask and Receiving Flasks should be provided in standard scope of supply.</li> <li>12. Vacuum seal: PTFE seal (seal should also be covered in standard warranty period of three year)</li> <li>13. Liquid Contact parts: Glass &amp; PTFE</li> </ol> <p><b>Includes Digital Water Bath</b></p> <ol style="list-style-type: none"> <li>1. Temp. Control range: Ambient temp. to 200° C or higher.</li> <li>2. Accuracy: ± 1°C</li> <li>3. Bath features: Inner Teflon coating and outer heat resistant cover</li> <li>4. Bath capacity: should be between 4 to 5L</li> <li>5. Temp controller: Microprocessor based PID Control</li> <li>6. Safety features: Overheating protector, auto cut off at 5°C secondary over temperature cut off 250°C</li> </ol> <p><b>B. VACUUM PUMP:</b></p> <ol style="list-style-type: none"> <li>1. Two stage oil free diaphragm pump made from</li> </ol>	1

		<p>chemically resistant material.</p> <ol style="list-style-type: none"> <li>Suction capacity in m<sup>3</sup>/hour: 2.0 m<sup>3</sup> /h or better.</li> <li>Vacuum pump should have ultimate vacuum of 7mbar or better.</li> <li>Power input in watt: 180</li> <li>Supply voltage (V/Hz): 230/50.</li> </ol> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>Standard comprehensive warranty and support should be one year without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</li> <li>Pre-installation requirements should be clearly specified in the quotation.</li> <li>The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> <li>After Sale, Service should be available promptly</li> <li>Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</li> </ol>	
8.	Water bath with shaker	<ol style="list-style-type: none"> <li>Heating capacity: 10L</li> <li>Temp. Control Range: Ambient to 99° C</li> <li>Temp.Stability (100°C): ±0.5°C</li> <li>Temperature control: Digital PID control</li> <li>Oscillation mode: Reciprocating</li> <li>Oscillation range: 0~26mm</li> <li>Speed range: 20~200rpm</li> <li>Sink size vol: 15 l</li> <li>Voltage: AC 220/110V, 50/60Hz</li> <li>Power: 1100W</li> <li>Display: LCD /LED, displaying operating speed, temperature, time.</li> <li>Inner chamber and outer body of SS 304</li> <li>Oscillation and heating function should have a split design, the moving frame can be taken out when it does not do not need to oscillation, can be used as a constant temperature water bath box, a dual-purpose machine.</li> <li>Safety and comprehensive protection features like Low level water alarm, safety shut down audible/visual alarm etc.</li> </ol> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>Standard comprehensive warranty and support should be three year without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</li> <li>Pre-installation requirements should be clearly specified in the quotation.</li> <li>The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> <li>After Sale, Service should be available promptly</li> <li>Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</li> </ol>	1

		6. The spare parts/wear & tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.	
9.	Analytical balance	<ol style="list-style-type: none"> <li>1. Complete with glass wind shield and one touch function key, having sliding door opening/closing system.</li> <li>2. Overload Protection</li> <li>3. Leveling feet and Level indicator</li> <li>4. Anti theft device</li> <li>5. In built RS-232 WITH USB to connect PC.</li> <li>6. Back lit display</li> <li>7. Maximum Capacity: 220 gm.</li> <li>8. Readability : 0.1 mg or lower</li> <li>9. Repeatability and resolution: 0.1 mg.</li> <li>10. Linearity: 0.2 mg.</li> <li>11. Response time: 2 sec.</li> <li>12. AC Adapter 230 Volts.</li> <li>13. Tare range full.</li> <li>14. Platform dimension: 90 mm.</li> <li>15. Protective Covers</li> </ol> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>1. Standard comprehensive warranty and support should be three year without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</li> <li>2. Pre-installation requirements should be clearly specified in the quotation.</li> <li>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> <li>4. After Sale, Service should be available promptly</li> <li>5. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</li> <li>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</li> </ol>	1
10.	Kjeldahl Apparatus	<p><b>Kjeldahl Digestion unit</b></p> <ol style="list-style-type: none"> <li>I. No of positions:6</li> <li>II. Tube capacity: 250 ml</li> <li>III. Temperature range: up to 470 °C with <math>\pm 1^\circ\text{C}</math> precision</li> <li>IV. Graphical real time representation with LCD display. PID based control system.</li> <li>V. Stainless steel body</li> <li>VI. Power consumption &gt;6A</li> <li>VII. Front Glass Reinforced Polymer control panel</li> <li>VIII. Single point and two point calibration of temperature</li> <li>IX. 2.8 KW SS316 cased cartridge for long heater life</li> <li>X. Data transfer port for PC or printer connectivity</li> <li>XI. First in class borosilicate glass exhaust manifold with tubeless attachment</li> </ol> <p><b>Fume Scrubber</b></p>	1

		<p>XII. Power consumption:1A  XIII. Pump delivery: &gt;28 Ltr/min  XIV. Automatic cooling water cut off post process completion for water saving  XV. Vacuum pump technology for evacuation of acid fumes,  XVI. Transparent PC Protective front shield and easy removable bottle tray</p> <p><b>Kjeldahl distillation unit</b></p> <p>XVII. Auto addition of Steam, distilled water, Alkali, Boric acid  XVIII. Auto Tube Drainage  XIX. 7" touch screen display &amp; Tube capacity of 250ml &amp; 400ml  XX. Body constructed of glass reinforced polymer for enhance durability  XXI. Programmable Reaction Time with Continuous real time monitoring of steam temperature, display at the time of water filling and other parameters  XXII. Tube capacity: 250/400 ml  XXIII. Adjustable steam power 25-100%  XXIV. Nitrogen recovery-&gt;99.5%  XXV. Nitrogen reproducibility <math>\pm 1\%</math>  XXVI. Sensors for reagent level, tube error, door close  XXVII. One point Calibration for alkali and distilled water pump  XXVIII. Two point calibration for acid pump  XXIX. Power consumption:1000 W  XXX. Pre-sets and editable programs  XXXI. Single press precise addition of alkali anytime during the distillation cycle  XXXII. Removable bottom tray extra protection against acidic attack  XXXIII. Combined bulb and coiled condenser with condensing surface area 550 Sq cm, SS 304 steam generator  XXXIV. Reagent level sensor that indicates refilling for low levels of water, alkali and boric acid  XXXV. Password protection for factory reset and SELV Protection  XXXVI. Inbuilt Nitrogen calculator with Nitrogen and protein in different formats</p> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>Standard comprehensive warranty and support should be three year without any additional cost to the purchaser form the date of satisfactory commissioning of the instrument.</li> <li>Pre-installation requirements should be clearly specified in the quotation.</li> <li>The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> <li>After Sale, Service should be available promptly</li> <li>Additional features/accessories if any that can potentially increase the productivity and safety of the</li> </ol>	
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		<p>instrument should be quoted as optional items.</p> <p>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	
11.	Thermal cycler (PCR Machine)	<ol style="list-style-type: none"> <li>1. Display Interface- LCD</li> <li>2. Touch Screen of display should be responsive for both gloved and ungloved fingers</li> <li>3. Compatibility of Reagent- Open</li> <li>4. Block Format- Fixed</li> <li>5. Capacity of Blocks- 0.2ml x 1x96well</li> <li>6. Maximum Heating Ramp rate in degree cycle per second- 4° C/S</li> <li>7. Maximum Cooling Ramp rate in degree cycle per second- 3° C/S</li> <li>8. Adjustable heating/cooling Ramp Rate</li> <li>9. Operating Temperature range (in °C)- 10 to 100 °C</li> <li>10. Temperature setting accuracy (in °C)- ±0.3 °C</li> <li>11. Well to well temperature uniformity in °C- ±0.4 °C</li> <li>12. Gradient Range in °C- 30 - 100°C</li> <li>13. Gradient Spread in °C- 1-25°C</li> <li>14. Hot Lid Temperature- 30-110°C</li> <li>15. Input supply- Single phase (230 V, 50 Hz)</li> <li>16. Max No of Programmable Steps- 40</li> <li>17. Max No of Programmable Cycles- Upto 100</li> <li>18. Availability of USB ports- 2</li> <li>19. Memory to store programs- upto 1000</li> <li>20. Should be Pause/Start function and Built-in Tm Calculator.</li> <li>21. Warranty 3 years</li> <li>22. Compatible to be used with PC</li> <li>23. With online UPS having battery backup of 1 hours</li> <li>24. Instruction manual should to be provided and auto restart after power outages</li> </ol> <p>Boot up time should not be more than 1 min</p> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>1. Standard comprehensive warranty and support should be three year without any additional cost to the purchaser form the date of satisfactory commissioning of the instrument.</li> <li>2. Pre-installation requirements should be clearly specified in the quotation.</li> <li>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> <li>4. After Sale, Service should be available promptly</li> <li>5. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</li> <li>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</li> </ol>	1



12.	-20 °C Refrigerator	<ol style="list-style-type: none"> <li>1. Upright Vertical Deep Freezer Temperature range -10°C to -40°C</li> <li>2. Direct Cooling Type</li> <li>3. Microprocessor controlled system.</li> <li>4. Capacity 220 – 265 Lit</li> <li>5. LED Display</li> <li>6. Minimum 5 drawers required</li> <li>7. CFC- free refrigerant.</li> <li>8. Noise level less than 45 dB.</li> <li>9. Alarms for systems malfunction over and under temperature &amp; sensor error</li> <li>10. Equipment should CE Certified.</li> <li>11. Warranty – Minimum three Years.</li> </ol> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>1. Standard comprehensive warranty and support should be three year without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</li> <li>2. Pre-installation requirements should be clearly specified in the quotation.</li> <li>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> <li>4. After Sale, Service should be available promptly</li> <li>5. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</li> <li>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</li> </ol>	1
13.	Chromatography Fraction Collector	<p>Capacity: Up to Eighty 13 x 100 mm glass, polypropylene, or polystyrene test tubes, With micro tube adaptor for 1.5 ml microtubes</p> <p>Collection Basis: 1–999 drops in 1 drop increments, 0.05–9.99 min in 0.01 min increments, 10.0–99.9 min in 0.1 min increments</p> <p>Operating temperature: 4–40°C (Ice bath, coldroom compatible)</p> <p>Safety: Should meet IEC 61010 and CSA 22.2 certification</p> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>1. Standard comprehensive warranty and support should be three years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</li> <li>2. Pre-installation requirements should be clearly specified in the quotation.</li> <li>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> <li>4. After Sale, Service should be available promptly</li> <li>5. Additional features/accessories if any that can</li> </ol>	1

		<p>potentially increase the productivity and safety of the instrument should be quoted as optional items.</p> <p>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	
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## 2. P.G. Department of Chemistry

Sl. No.	Name of the equipment/ Instrument	Specifications	Quantity
1.	Double Glass Distillation Unit with auto cut-off	<ul style="list-style-type: none"> <li>✓ Borosil make,</li> <li>✓ Distillation Water output cap (Approx) (Ltr/hr):4.0</li> <li>✓ With Borosilicate Boiler, Borosilicate Condenser &amp; Quartz Heater, Horizontal Type</li> <li>✓ On demand Automatic water distillation unit</li> <li>✓ Size: 4.0 to 5.0 Lit.</li> <li>✓ Approx. 650×630×520(W×D×H)± 5% mm</li> <li>✓ Approximate weight 20 kg</li> <li>✓ Distillation Appt Power supply (DAPS) for above</li> </ul> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>1. Standard comprehensive warranty and support should be one year without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</li> <li>2. Pre-installation requirements should be clearly specified in the quotation.</li> <li>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> <li>4. After Sale, Service should be available promptly</li> <li>5. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</li> <li>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</li> </ol>	1
2.	Oil free vacuum pump. Glass Filter Holder Filtration Assembly.	<ul style="list-style-type: none"> <li>✓ Borosil make/Tarson</li> <li>✓ Max vacuum: 100 mbar</li> <li>✓ Max Flow Rate: 17± 2.0 ltr/min</li> <li>✓ Motor rotation: 1450±100 RPM</li> <li>✓ Borosilicate Glass with fitted Glass filter base               <ul style="list-style-type: none"> <li>- With Anodized aluminum spring clamp</li> <li>- Filter size 47 mm</li> <li>- Flask Capacity: 1ltr</li> <li>- Funnel Capacity: 300 ml to 100 ml.</li> </ul> </li> <li>✓ Complete filtration set (Glass)</li> <li>✓ Power supply set for above operation.</li> </ul> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>1. Standard comprehensive warranty and support</li> </ol>	1

		<p>should be one year without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</p> <p>2. Pre-installation requirements should be clearly specified in the quotation.</p> <p>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</p> <p>4. After Sale, Service should be available promptly</p> <p>5. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</p> <p>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	
3.	Conductivity meter	<ul style="list-style-type: none"> <li>✓ Portable</li> <li>✓ Efficient</li> <li>✓ Automatic/Manual calibration up to minimum 3 points</li> <li>✓ Conductivity Auto-Ranging ( 0 to 300 ± 50 mS)</li> <li>✓ Automatic Temperature Compensation</li> <li>✓ Accuracy: ±1 % full scale</li> <li>✓ Power supply: 100 .. 240 V adapter</li> <li>✓ PK:1</li> </ul> <p><b>Terms and Conditions:</b></p> <p>1. Standard comprehensive warranty and support should be three years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</p> <p>2. Pre-installation requirements should be clearly specified in the quotation.</p> <p>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</p> <p>4. After Sale, Service should be available promptly</p> <p>5. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</p> <p>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	3
4.	Oil bath	<ul style="list-style-type: none"> <li>✓ Borosil maker</li> <li>✓ Model: OMS020</li> <li>✓ Flask Capacity:1 L to 2 L</li> <li>✓ Nominal capacity:7.5 L</li> <li>✓ Working Temperature range for Oil Bath: Ambient +5°C to 240°C with 0.1°C increments</li> <li>✓ Flask Position: 4</li> <li>✓ Applications in distillation, extraction and reflux reactions</li> <li>✓ External dimension: 302×280×410 (W×D×H) ± 5</li> </ul>	1

		<p>% mm</p> <ul style="list-style-type: none"> <li>✓ Power consumption: 1500 W</li> <li>✓ Electrical Requirement: 2.5 A</li> <li>✓ Silicone oil 3 liters</li> <li>✓ Appropriate power supply set for above operation.</li> </ul> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>1. Standard comprehensive warranty and support should be three years without any additional cost to the purchaser form the date of satisfactory commissioning of the instrument.</li> <li>2. Pre-installation requirements should be clearly specified in the quotation.</li> <li>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> <li>4. After Sale, Service should be available promptly</li> <li>5. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</li> <li>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</li> </ol>	
5.	Programmable Furnace	<ul style="list-style-type: none"> <li>✓ Horizontal Rectangular light weight with Triple walled construction.</li> <li>✓ Working Chamber Made of Ceramic with Alumina Muffle.</li> <li>✓ Chamber Made of Mild Steel finished with High Temperature Resistant Aluminum Paint.</li> <li>✓ Heating elements on all three sides of the interior chamber for fast heating and enhanced temperature uniformity.</li> <li>✓ Temperature up to Maximum: 1200°C.</li> <li>✓ Temperature accuracy: ± 2 °C.</li> <li>✓ Temperature Controller: By Microprocessor Based PID Programmable Controller.</li> <li>✓ Max. Heating Rate: 10 °C/min</li> <li>✓ Chamber Dimensions: Cubic (greater than 5 inch)</li> <li>✓ Safety Door Switch</li> </ul> <p>Power supply: (i) 200~240V AC, Single phase,50/60 Hz.</p> <p>(ii) Power cable with plug</p> <p>(iii) Ampere breaker installed (Optional)</p> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>1. Standard comprehensive warranty and support should be two to three years without any additional cost to the purchaser form the date of satisfactory commissioning of the instrument.</li> <li>2. Pre-installation requirements should be clearly specified in the quotation.</li> <li>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> </ol>	1

		<p>4. After Sale, Service should be available promptly</p> <p>5. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</p> <p>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	
6.	Hydraulic Pellet Press	<p>Capacity: 1- 10 ton.</p> <p>Type of press: C-frame press, H-frame press.</p> <p>Warranty: 1 Year</p> <p>Pump type: Hand operated</p> <p>Press construction: Side plate construction.</p> <p>Stroke: 15mm Die set: 13mm</p> <p>Silicone oil: 1.0 liter</p> <p><b>Terms and Conditions:</b></p> <p>1. Standard comprehensive warranty and support should be two years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</p> <p>2. Pre-installation requirements should be clearly specified in the quotation.</p> <p>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</p> <p>4. After Sale, Service should be available promptly</p> <p>5. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</p> <p>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	1
7	Ceramic Combustion Boat. & Alumina crucible	<p>Maximum Temperature: 1000-1500°C Colour: White</p> <p>Maximum Temperature: 1000-1700°C Colour: White (50 ml.)</p>	5 5
8.	Dehumidifiers	<ul style="list-style-type: none"> <li>✓ Dimensions A Inches 12×09×22 ( ± 5% for all side)</li> <li>✓ Moisture Extraction Capacity: 23°C and 60% RH ( 20 lit./day)</li> <li>✓ Water collection tank: 4.0 - 5.5 lit.</li> <li>✓ Noise level: 40-45db or less</li> <li>✓ Easier Mobility with Convenient Wheels (Optional)</li> <li>✓ Running Temperature (°C) 10± 5°C – 45 ± 5-10°C</li> <li>✓ Power supply adaptor 200 to 240 V</li> </ul> <p><b>Terms and Conditions:</b></p> <p>1. Standard comprehensive warranty and support should be two years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</p> <p>2. Pre-installation requirements should be clearly</p>	1

		<p>specified in the quotation.</p> <p>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</p> <p>4. After Sale, Service should be available promptly</p> <p>5. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</p> <p>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	
9.	<p>1. FT-IR</p> <p>2. Demountable liquid cell (32 mm).</p> <p>3. Magnetic Film and Pellet holder</p> <p>4. 32×3 MM KBr disk drilled.</p> <p>5. 32×3 MM KBr disk</p> <p>6. 13 MM pellet die</p>	<ul style="list-style-type: none"> <li>✓ Spectral range: KBr 7000–350 cm<sup>-1</sup>.</li> <li>✓ Spectral resolution &lt; 2 cm<sup>-1</sup>.</li> <li>✓ Wavenumber accuracy 0.05 cm<sup>-1</sup> Measured with NIST 1921</li> <li>✓ Wavenumber reproducibility 0.005 cm<sup>-1</sup> Measured with NIST 1921.</li> <li>✓ Spectral resolution: 1- 2 cm<sup>-1</sup> or less</li> <li>✓ Warranty Five (5) year interferometer, Five (5) year laser, Three (3) year source.</li> <li>✓ Hardware support period Seven (7) years from date of last unit manufacture.</li> <li>✓ Interferometer 25 mm, permanently aligned, Michelson, 45°, mechanical flexure.</li> <li>✓ Interferometer sealed with Automatic Dehumidifier (optional)</li> <li>✓ Sample interface DialPath (30 to 250 μm), Tumbler, Diamond ATR, Diffuse Reflectance, Transmission.</li> <li>✓ MicroLab PC software, Automated IQ/OQ, 21 CFR Part 11 compliant.</li> <li>✓ New brand laptop/PC compatible with software</li> <li>✓ Power 100- 240 V AC, 60/50 Hz</li> </ul> <p><b>Terms and Conditions:</b></p> <p>1. Pre-installation requirements should be clearly specified in the quotation.</p> <p>2. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</p> <p>3. After Sale, Service should be available promptly</p> <p>4. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</p> <p>5. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	1
10.	<p>Research Grade pH/ISE /ORP Meter with CAL</p>	<p>ISE:</p> <ul style="list-style-type: none"> <li>✓ Resolution: 1; 0.1, 0.01; 0.001 concentration</li> <li>✓ Accuracy: ±0.5% (Monovalent ions);</li> <li>✓ Range: 1×10<sup>-6</sup> to 9.99 ×10<sup>10</sup> concentration</li> <li>✓ Calibration: Automatic, up to five-point calibration</li> </ul> <p>Temperature:</p> <ul style="list-style-type: none"> <li>✓ Range: -20°C to 120 °C</li> <li>✓ Resolution: 0.1 °C</li> </ul>	1

		<ul style="list-style-type: none"> <li>✓ Accuracy: ± 0.2°C</li> <li>✓ Temperature probe: Stainless steel temperature probe</li> <li>pH:</li> <li>✓ Resolution: 0.001 pH</li> <li>✓ Accuracy: ±0.002 pH</li> <li>✓ Calibration: Automatic, Up to five point calibration</li> <li>✓ Temperature: - 20°C to 120°C</li> <li>✓ Glass body pH electrode with BNC connector.</li> <li>✓ pH electrode</li> <li>mV</li> <li>✓ Range: ±2000 mV</li> <li>✓ Resolution: 0.1 mV</li> <li>Accuracy: ±0.2 mV</li> <li>Others</li> <li>✓ Input Channel: 2 pH/ORP/ISE</li> <li>✓ PC Connection: USB</li> <li>✓ Display: Color graphic LCD</li> <li>✓ pH 4.01 buffer solution sachet</li> <li>✓ pH 7.01 buffer solution sachet</li> <li>✓ Electrode cleaning solution sachet</li> <li>✓ KCl electrolyte</li> <li>✓ Electrode holder</li> <li>✓ Adapter</li> <li>✓ Capillary dropper pipette</li> <li>✓ Power 100- 240 V AC, 60/50 Hz</li> </ul> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>1. Standard comprehensive warranty and support should be three years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</li> <li>2. Pre-installation requirements should be clearly specified in the quotation.</li> <li>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> <li>4. After Sale, Service should be available promptly</li> <li>5. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</li> <li>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</li> </ol>	
11	PC based PotentiostatCyclic voltammetry	<ul style="list-style-type: none"> <li>✓ Compliance voltage: ± 15 V</li> <li>✓ Compliance current: ± 20 mA</li> <li>✓ Applied potential: 2V</li> <li>✓ Current range: 100 nA/V to 100 mA/V</li> <li>✓ Technique: Cyclic Voltammetry</li> <li>✓ Chronoamperometry,</li> <li>✓ Linear Sweep Anodic Stripping Voltammetry</li> <li>✓ Controlled Potential Electrolysis</li> <li>✓ Power 100- 240 V AC, 60/50 Hz</li> <li>✓ Acquire 101 Software Disc, Version 1.8.4/ any advanced software and version</li> <li>✓ Cell Cable, Approximate Length: 36 in (91 cm)</li> <li>✓ RS-232 Cable, Approximate Length: 6 ft (1.8 m)</li> </ul>	1

		<ul style="list-style-type: none"> <li>✓ Power Cable, Approximate Length: 94 in (239 cm)</li> <li>✓ New brand laptop/PC compatible with software</li> <li>✓ Power cable with plug</li> </ul> <p><b>Terms and Conditions:</b></p> <ol style="list-style-type: none"> <li>1. Standard comprehensive warranty and support should be three years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.</li> <li>2. Pre-installation requirements should be clearly specified in the quotation.</li> <li>3. The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.</li> <li>4. After Sale, Service should be available promptly</li> <li>5. Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.</li> <li>6. The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</li> </ol>	
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### 3. P.G. Department of Geography

Sl. No.	Name of the equipment/ Instrument	Specifications	Quantity
1	Tracing table	23'' X 32''; Warranty: 01 Year	16
2	Plane table survey equipment	Plane table with tripod stand with all the accessories such as – brass plum-bob, brass plumbing fork, brass sprit level (size-6''), brass alidade soze 24'', compass size 6'', Table Size-60 x 75 CM; Warranty: 01 Year	4
3	Prismatic compass with aluminium stand	Ring divided into ½ degree [30 minutes], Prismatic compass diameter - 6 inches made of brass with aluminum ring, and height of ball & socket head, Aluminum stand - 4 feet with canvas cover; Warranty: 01 Year	6
4	Prismatic compass	Liquid prismatic compass mark III A; Diameter 3"; Warranty: 02 Years	6
5	Magnetic trough compass	Aluminum complete body and needle is made by mild steel; size: 7x2x0.5 inch; wooden box; Warranty: 02 Years	8
6	Magnetic compass	50mm; Highly Magnetized, North & South Pole depicted; Warranty: 02 Years	8
7	Digital Auto level & stand	<i>Magnification 32X, SD 1.8 MM FOR 1KM DOUBLE LEVELLING, CIRCULAR VIAL, LAVELLING ACCURACY-+0.6'';</i> Warranty: 03 Years	2
8	Optical Transit Theodolite & Stand	Venire transit theodolite (1 no.), tripod stand (1 no.); Warranty: 03 Years	2
9	Leveling staff	6M made of aluminum, sliding type	4
10	Ranging rod	2M	20
11	Ground pin		20



12	Automatic Weather Station	GSM or Wi-Fi Based Model Monitors 5 parameters (Wind speed Temperature, Relative humidity, Wind Direction, Rain, Solar Radiation); Warranty: 03 Years	1
13	Drone (volumetric Analysis)	Foldable GPS FPV Drone with 1080P HD 4k Camera Live Video for Beginners, RC Quadcopter with GPS Return Home, Gesture Control, Auto Hover & 5G Wifi; Warranty: 03 Years	1
14	Survey tape	50 M	2
15	Rotameter	Scale length – 100 mm; Warranty: 02 Years	16
16	Hand Held GPS	Garmin (USA) Etrex 30; Warranty: 03 Years	8
17	Mirror Stereoscope (with magnifier) & accessories complete set	4X binocular viewer 65 mm diameter, direct viewing 180mm X 200mm; Warranty: 01 Year	8
18	Total Station	Double sided endless drives, Cross hairs with stadia lines, Automatic air-damped system, and 20 <sup>0</sup> -to 40 <sup>0</sup> c operating temperature ranges; Warranty: 03 Years	1
19	Aerial Photographs	9" X 9" - B&W	10
20	Toposheet (Survey of India)	Toposheet number corresponding to Odisha state	50
21	Satellite Imagery (Paper print with CD)	Resourcesat-2; LISS-4, Georeferenced	4
22	Wall Map (Framed) - 4' X 2.5'	World (Political)	2
23	Wall Map (Framed) - 4' X 2.5'	India (Political)	2
24	Wall Map (Framed) - 4' X 2.5'	Odisha (Political)	1
25	3D Raised Relief Models	River in Action (Water Cycle)	1
26	3D Raised Relief Models	Volcanic System	1
27	3D Raised Relief Models	Rocks and Volcanoes	1
28	3D Raised Relief Models	Sea Floor Spreading (Restless Earth)	1
29	Thematic Map of India - Framed (54 X 88 cm)	Climate Map of India	1
30	Thematic Map of India - Framed (54 X 88 cm)	Soil Map of India	1
31	Thematic Map of India - Framed (54 X 88 cm)	Drainage Map of India	1
32	Thematic Map of India - Framed (54 X 88 cm)	Forest Map of India	1
33	Thematic Map of India - Framed (54 X 88 cm)	Urban Map of India	1
34	Earth's Layer Model	BG Globes - EL001	1
35	Hard backing with wooden frame Map (53 X 73 cm)	Ocean Features	1
36	Hard backing with wooden frame Map (53 X 73 cm)	Bathymetry	1
37	Metric Chain	20 mt. with brass handle	4
38	Gunter's Chain	30mt/ 66ft.	4
39	Optical Square	Brass handle; Warranty: 01 Year	8
40	Pocket Sextant	Brass; Warranty: 01 Year	4
41	Scale	100 cm	16

42	Scientific Calculator	Fx 82 Ms; Warranty: 03 Year	16
43	Rotring Isograph Drawing Pen (Germany)	0.2 Mm; Warranty: 01 Year	16
44	Rotring Isograph Drawing Pen (Germany)	0.5Mm; Warranty: 01 Year	16
45	Designing Template (Germany)	0.2Mm and 0.5Mm	16
46	Map Drawer Cabinet	A0; Warranty: 03 Years	1
47	Fortin's barometer	Dimension: 1130 X 100 x 100 mm; Warranty: 02 Years	2
48	Aneroid barometer with thermometer	Dimension: 158 X 50 mm; Warranty: 02 Years	2
49	Planimeter	sliding carriage 28"; Warranty: 01 Year	2
50	Planimeter	sliding carriage 45"; Warranty: 01 Year	2
51	Planimeter	Fixed carriage; Warranty: 01 Year	2
52	Self-recording Rain Gauze	Internal Tank capacity – 22 Lt. or more; Warranty: 03 Years	1
53	Wind Vane	Overall height: 270mm, Fin clearance: 180mm, Body diameter: 50mm	1
54	Digital Anemometer	Display Size: 5cm X 3 cm or more; Warranty: 02 Years	1
55	Magnifying lens	4-inch diameter	4
56	Soil Testing Kit	20 thick-walled test tubes with rubber bungs; 1 tube cleaning brush; 1 bottle of Barium Sulphate (100gm); 1 bottle of Soil indicator (100 gm); 1 bottle of Distilled water (500gm); 1 Spatula; 1 Colour chart, range 4.0 to 8.0 ph in 0.5 ph steps; Organic Carbon; Warranty: 01 Year	4

#### 4. P.G. Department of Botany

Sl. No.	Name of the equipment/ Instrument	Specifications	Quantity
1.	REFRIGERATED CENTRIFUGE	Table top compact refrigerated centrifuge with CFC free refrigerant. maximum capacity of around 48 x 1.5/2.0 ml. maximum speed of 15,000 rpm or more with RCF of 25,000 g or more. Ability to spin for a time of 1 sec - min: 59 sec, short and continuous run. The size more than H x W x D: 31.3 x 33.0 x 65.0 cm. Temperature control from -10oC or lower to +40oC certified with MED CERT (DIN EN ISO 13485:2003) and GLC & (ISO 9001) certified, which ensures the extreme care and responsibility for the manufacturing of centrifuges. International standards such as IEC 61010 or the CE conformity. Centrifuging chamber made of stainless steel.	1

		<p>Powered lid locking. Quick and easy operation with the knob. The rotors be changed easily. Store at least 10 programs. Equipped with a pre-cooling function (Fast Cool) and stand-by cooling. Lid locking and holding function. Emergency lid lock release function. Lid dropping protection. Automatic rotor recognition function. Imbalance switch-off function. Motor and chamber overheating protection. 24 place Fixed angle Rotor for 1.5/2.0 ml tubes with speed: 18,000 rpm. Extraordinarily silent. Provision for warranty: 3 years</p>	
2.	<p>VERTICAL ELECTROPHORESIS SYSTEM</p>	<p>Vertical electrophoresis system to cast and run 1–4 mini gels Features: • Should be versatile, easy-to-use for fast, simple setup, facilitating rapid sample optimization, method development, and targeted protein analysis • Should eliminate tedious assembly procedures and should have a patented sealing mechanism that prevents assembly errors during gel casting • Can run one to four precast or handcast mini gels in 15–20 min • Can be used for western blotting with the Transfer-Blot apparatus • Thermoplastic casting gaskets seal tightly to ensure leak-free casting • Casting frames with simple cam closure providing precision alignment on any flat surface • Side-by-side casting stand allowing access to both gels simultaneously and a spring-loaded lever creating a tight seal against the thermoplastic rubber gasket • Able to complete 2-D gels in less than a day • Applications: Polyacrylamide gel electrophoresis and 2-D gel electrophoresis Specifications: • Number of gels: 1–4 • Cell (tank and lid with power cables, electrode assembly): 1 • Companion module (to run up to 4 gels): 1 • Short plates (5 plates per box): 1 box • Gel casting apparatus should be separate from gel running apparatus • Casting stands: Polycarbonate, 2 Nos. • Pin, retaining ring, and spring: Stainless steel • Casting frames: Polysulfone, 4 Nos. • Gaskets: Thermoplastic rubber, 4 Nos. • Electrode Assembly: Glass-filled polybutylene terephthalate • Electrodes: Platinum wire, 0.010 inches diameter • Gasket, electrode inner core: Silicone rubber • Gel releasers: 5 • Gel size (W x L): Precast - 8.6 x 6.8 cm; handcast - 8.3 x 7.3 cm • Glass</p>	1

	<p>plate size: Short plate - 10.1 x 7.3 cm • Spacer plate with permanently bonded gel spacers - 10.1 x 8.2 cm. • Sample Loading Guides: Delrin • Combs: Polycarbonate • 10-well combs: 5 • 1.0 mm spacer plates (5 plates per box): 1 box • Mini Tank and Lid: Polycarbonate • Total buffer volume for 2 gels: 700 ml • Total buffer volume for 4 gels: 1,000 ml • Typical run times for SDS-PAGE: 35–45 min (at 200 V constant) • Dimensions (W x L x H): 12 x 16 x 18 cm • Weight: 1.0 kg • Gel format: Mini • Voltage Limit: 600 V DC and 500 W • 10% Tris Glycine Stain-Free Fast Cast Acrylamide Starter Kit. 2. Transfer - blot cell Features: • Should provide rapid, high-quality blotting of two precast gels or handcast gels. • The cell should accommodate two color-coded gel holder cassettes for simultaneous electrophoretic transfer and is used in the electrophoresis tetra Cell. • Should be able to transfer two 10 x 7.5 cm gels in just 1 hr • Low-intensity overnight transfers should also be possible • Wire electrodes should provide strong electrical fields and efficient protein transfer • Color-coded cassettes and electrodes to ensure proper orientation of the gel during transfer • Should include a cooling unit which is completely contained within the Transfer - blot cell and absorbs heat generated during rapid transfers • Applications: Western blotting and nucleic acid transfer • Maximum gel size (W x L): 10 x 7.5 cm • Buffer requirement: 450 ml • Gel capacity: Two mini precast or handcast gels • Dimensions (W x L x H): 12 x 16 x 18 cm • Weight: 0.8 - 1 kg 3. High-quality Basic Power Supply: Features: • Should offer simple programming, timer control, constant voltage or current output, and the ability to pause and resume a run. • Intended for basic applications such as submerged horizontal and mini vertical gel electrophoresis and should also provide sufficient output to support the Blot Cell. • To prevent damage to electrophoresis cells, the Power Supply should have automatic crossover. When the set limit of the non-constant parameter (either voltage or current, depending on settings) is reached, and the power capability of the unit is not exceeded, the power supply will make the</p>	
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		<p>non-constant parameter the new constant parameter. • Pause mode for editing run parameters, or stopping and resuming the run</p> <ul style="list-style-type: none"> <li>• Power failure detection in timed mode; when power returns run will complete</li> <li>• Automatic detection of rapid changes in resistance, and no load conditions</li> <li>• Compact and stackable</li> <li>• Flip-down legs to change viewing angle</li> <li>• Output specifications: 10–300 V, fully adjustable in 1 V steps 4–400 mA, fully adjustable in 1 mA steps 75 W (maximum).</li> <li>Type of output: Constant voltage or constant current with automatic crossover</li> <li>• Output terminals: 4 pair recessed banana jacks in parallel</li> <li>• Timer control: 1 min–99 hr 59 min, fully adjustable</li> <li>• Pause/resume function: Yes</li> <li>• Display: 3-digit LED</li> <li>• Operating conditions: 0–40°C; 0–95% humidity in absence of condensation</li> <li>• Safety compliance: EN61010</li> <li>• Safety features: No-load detection; rapid resistance change detection, ground leak detection, overload/short circuit detection, overvoltage protection, over-temperature protection</li> <li>• Input protection: Fuse on hot and neutral</li> <li>• Dimensions (W x D x H): 21 x 24.5 x 6.5 (cm)</li> <li>• Weight : 1 – 1.5 (kg). Provision for warranty: 3 years</li> </ul>	
3.	<p>STEREO MICROSCOPE WITH CAMERA ATTACHMENT</p>	<ul style="list-style-type: none"> <li>• Zoom Stereo Microscope Apochromat body with zoom ratio 5:1 with zoom setting for 5 position</li> <li>• Greenough based optical system of resolution 450 lp/mm, Wide field focusable eyepieces 10x with 23 mm field of view, Variable magnification range between 8x to 60x built in &amp; can be extended to higher magnification by using additional auxiliary objectives, Working distance 110mm.</li> <li>• Stand fitted with broad base with black &amp; white stage plate, easy- to – reach controls for focusing zoom changer and illumination with 100% switch between right eye path for 3D viewing,</li> <li>• Ergonomic binocular phototube inclined at 35° with built-in apochromatic objective &amp; eye pieces that cover large area of sample 35.4mm to 4.6 mm. Greenough based optical system of resolution 450 lp/mm</li> <li>• Stand built-in illumination Intensity</li> </ul>	1

		<p>controlled LED incident, transmitted illumination and special vertical illumination through objective</p> <ul style="list-style-type: none"> <li>• Transmitted light application: Stand with Integrated LED trans-illumination base with working area 160x 195 mm &amp; column for brightfield and dark field. Built-in LED trans-illumination unit with rotatable and slidable mirror for brightfield, darkfield and oblique transillumination-Incident light application : Highly focusable high power cooled LED for vertical illumination as well as single channel LED double spot illumination for reflected light application. .</li> </ul> <p>Long lasting cooled white LED light for transmitted &amp; incident light application of life span approximately 25000 Hrs. &amp; Color temperature 5600K for best contrast enhancement &amp; color reproduction. Optics are anti-fungus treated &amp; certified upto three years from the principal (certificate enclosed). Optics are anti-fungus treated&amp; certified upto three years from the principal (certificate enclosed).</p> <p>Photography system: Resolution upto 5.0 Megapixels or higher, frame Rate : 47 fps, pixel size: 2.2x2.2μ, exposure :100 μs – 2 s</p> <p>Imaging software for image acquisition,capturing, live image preview, white balance adjustment, interactive measurement, angel,cantour.</p> <p>Suitable Desktop Computer/Laptop Hp/Dell/Lenovo with 20” LED Monitor, win 10 professional 64 bit o/s, 4GB HDD &amp; 1 TB to be supplied along with system to ran quoted microscopy camera and software. Provision for warranty: 3 years</p>	
4.	Trinocular Microscope with Imaging	<p>Microscope with Phase: complete with built-in LED illumination with universal SMPS power supply for mains supply 100V~240V, quadruple ball bearing inward nosepiece, co-axial coarse and fine focusing control, high resolution Infinity corrected Super Plan Phase contrast Achromatic Objectives Ph10x, Ph20x, Ph40x (spring), Ph100x oil(spring),360deg rotatable inclined Siedentopf Binocular observation tube and trinocular port for attaching a camera, fungus</p>	1

		<p>resistant coated optics tropical conditions, wide field paired eyepiece WH10x (F.N.20), right hand control co-axial low drive mechanical TESTS Standard set consists of : High efficiency 480nm &amp; 535nm LED illuminators, filter slider with Blue filter cube consisting of excitation band pass filter 480nm &amp; long pass emission filter 510nm and Green filter cube consisting of excitation band pass filter 535nm &amp; long pass emission filter 575nm complete.</p> <p>Features: Plan infinity Optics, Excellent Field Flatness, F.N.20, Siedentopf Head, hard coated stage with double slide holder, Easily replaceable lamp, Inward facing nosepiece, upper focus limit stopper to prevent accidental damage to objectives, Universal Power supply ensures constant voltage &amp; International standard Quality manufacture. Magnus MagCam MU 2.3 MP Camera (with 0.5x). Provision for warranty: 3 years</p>	
5.	TRANS-ILLUMINATOR	<p>UV Wavelength (nm) (nm)-312, Type of illuminator-Benchtopy Type, Intensity control - High/Medium/Low Yes, Cooling system by fan air cooling Warranty (years), List of accessories to be supplied FUSE, POWER CABLE Input Voltage,V (V) 220, Selection of Intensity Variable Intensity Weight of equipment,kg (kg) 3.5, UV safety screen Yes</p> <p>No. of UV Tubes (Nos) 6, Application RangeTo view DNA/RNA migration on the agarose gel in microbiology laboratory, avelength type Single</p> <p>UV Tube wattage (W)8. Provision for warranty: 3 years</p>	1
6.	Vortex Shaker	<p>Compact and rugged construction, the SPINIX™ VortexShaker has a heavy metal base and rubber feet which prevents movement during operation. Continuous and touch mode available with variable speed control3000 RPM maximum speed. Provision for warranty: 3 years</p>	1
7.	Variable Volume Pipette	<p>Model- 1 each of T2, T10, T20, T100, T200, T1000. Provision for warranty: 3 years</p>	1
8.	Potometer Apparatus	<p>Colour: white transparent, Ean: 6973164893785, Material: Borosilicate glass, Part Number: ABG464, Size: photometer.</p>	2

		Provision for warranty: 3 years	
9.	Microwave	Human Interface Input- Buttons Capacity- 23 litres Dimensions- 34x49x28 Centimeters Voltage- 230 Volts Wattage- 1150 Watts Provision for warranty: 3 years	1
10.	Refrigerator	265 L Frost Free Double Door Refrigerator. 6TH SENSE® DeepFreeze Technology MicroBlock™ Technology Fresh Flow Air Tower with Flexi Vents. Provision for warranty: 3 years	1
11.	Digital Magnetic Stirrer Hot Plate	Top Plate Size- 18x18 cm Top Plate Material- Ceramic Optional Accessories SS Support Rod Boss Head Clamp Clamping Rod Provision for warranty: 3 years	1
12	Vertical Autoclave	Dimensions: 12" Dia X 22" Height. Power Source: 220/240 volts A/C, 50 Hz Electrical Supply, Working Pressure: 15 to 20 psi, Working Temperature: 121° C to 125° C, Controller: Auto set 15 psi to 121° C. Equipped with pressure gauge 2.5", Double safety valve 18 pounds (excess pressure release valve/safety valve, Stop cock 15 pounds (continuous bleeding stop cock/pressure regulating device), Lid made of Aluminium casting with S.S.Plating, Center Handle Made of Bakelite, Stop cock 15 pounds (continuous bleeding stop cock/pressure regulating device), steam release valve, six wings nut shaped knobs, rubber gasket, Aluminium Casting handles, Stainless steel body, vacuum release knob, epoxy coated legs. Provision for warranty: 3 years	1
13.	Hot Air Oven	Capacity 250 Litre. Temp range: +5°C to 200°C. Control accuracy: ±0.5°C. Uniformity: ± 2.0 at 100.0°C, Minimum 3 No. of Shelves with height adjustable in 25mm steps. Glass window in-built into the door for easy viewing of samples. Automatic cut off of heater & blower when door opened. Digital PID temperature controller with timer,	1



		alarms and auto tuning. Aero dynamic internal design for achieving horizontal air circulation. Solid and plain bottom without electricals. Outer body made of G.I Epoxy Coated Inner body made of Stainless steel with clear bottom CE certified. Warranty period (minimum 1 year) to be mentioned. AMC charges to be indicated. Provision for warranty: 3 years	
14.	DISTILLATION UNIT WITH POWER SUPPLY	Distillation water output capacity: 2.5 lts/hr, Minimum cooling water requirement 2lt/min, total power consumed: 4.4 kw, voltage: 230-250V, biological activity: pyrogen free, boiler: quartz, condenser: quartz, HSN code: 84194090, product code: 3365042. Provision for warranty: 3 years	1
15.	COMPOUND MICROSCOPE	Monocular die-cast body, inclinable up to a horizontal position. By coarse & fine focusing knobs. Built-in Sub stage Condenser with iris diaphragm. Plano-concave mirror in adjustable fork mount. Provision for warranty: 3 years	2
16.	WATER BATH	Material: stainless steel, voltage: 230 V, temperature range: 50 to 800 degree C, controller type: digital, capacity: 10litres, inner size: 11"×7"×6", 14"×10"×6". Provision for warranty: 3 years	1

### 5. P.G. Department of Bioscience & Biotechnology

Sl. No.	Name of the Equipment/ Instrument	Make/ Model	Specifications	Quantity
1.	Ultra-Low Temperature Freezer (-86C)	ESCO Scientific/ Lexicon II with Silver Controller Model: UUS-363A-1-SS	Capacity: 363L; Temperature Range: -50 to -86C; Ambient Temperature Range: 15 to 32C; External Dimensions: 28" x 34.8" x 78" (W x D x H); Internal Dimensions: 17.7" x 24.4" x 51.1" (W x D x H); Compressor: 2 x 1 HP; Condenser: Enhanced finned tube, forced air cooler condenser; Refrigerant type: Environmentally-friendly HFC refrigerant; Temperature controller: Digital type; Number of outer/inner door: 1/3; Shelves: Material: SS304, adjustable, 4 shelves; Max. shelf load: 50 kg; Microprocessor	01

		<p>controlled digital system with adjustable temperature set point; Key lock provided with every unit to prevent unauthorized access; Robust adjustable, lockable heavy duty swivel castor wheels; More alarms available to alert users of any abnormality found during operation (i.e. hot condenser, power failure, low battery, door open); Antimicrobial coating; Low noise of approx. 56DbA; Heater recycling technology allows recycling of the heat generated by the system. This reduces power consumption and prolongs life of freezer.</p> <p>Equipped with RS-485 for PC interface and compatible with Esco Voyager software for remote monitoring, datalogging and programming</p> <p>Equipped with 12V DC backup battery for power failure, alarm and display of the controller</p> <p><b>Other terms and conditions:</b>  Standard comprehensive warranty and support should be three years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.  Details of Annual Maintenance Contract (AMC) after standard warranty should be quoted.  Pre-installation requirements should be clearly specified in the quotation.  The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.  After Sale, Service should be available promptly  Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.  The spare parts/wear &amp; tear</p>	
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			consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.	
2.	Ice Flaker	Labman Scientific Instruments/ LMIF-30	<p>30 kg ice per 24 hrs. / 5 kg storage capacity; Input power: 180W; Dimensions: 300 x 493 x 547 (L x W x H in mm); Gross weight: 36 kg; Fully automatic microprocessor control; Stainless Steel Construction; Continuous Ice Flakes Output; CFC free Compressor; Low water level detection; Overload protection; Noiseless operation; Compact design and low maintenance cost</p> <p><b>Other terms and conditions:</b>  Standard comprehensive warranty and support should be three years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.  Details of Annual Maintenance Contract (AMC) after standard warranty should be quoted.  Pre-installation requirements should be clearly specified in the quotation.  The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.  After Sale, Service should be available promptly  Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.  The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	01
3.	pH Meter	Labman Scientific	Range: -2.00 to 16.00 pH; pH resolution: 0.01; Accuracy: $\pm 0.01$	01

		Instruments (Wensar)/ LMPH-10	pH; Calibration points: upto 3 points; pH buffer options: USA (pH4.01/7.00/10.01) or NIST (pH4.01/6.86/9.18); mV Range: $\pm$ 1999 mV; Resolution: 1 mV; Range: 0 to 105C; Resolution: 0.1C; Temperature Compensation: 0-100C, Manual/Automatic; Hold function: Available; Auto off function: Available; Connector: BNC; Display: LCD (135 x 75 mm); Power Requirements: DC9V, using AC adapters, 220VAC/50Hz; Dimensions: 210 x 205 x 75 mm (L x W x H); Weight: 1.5 kg; Optimum for Research and Education	
4.	UV Transilluminator	Genei/ TCM-1	20 x 20 cm for detection of more than 50 ng of DNA; Wavelength: 312 nm fixed; No. of tubes: 06; Wattage: 8 Watts; UV Protection Shield: Yes; Most sturdy and hardy college model	01
5.	Weighing Balance	Labman Scientific Instruments (Wensar)/ PGB-220	Calibration: Automatic External; Capacity: 200 g; Pan size: 90 mm; Display: LCD with back-light; Operating Temperature: 10-40C; Readability: 0.001 g (1 mg); Linearity: $\pm$ 0.002 g; Response time: 3-4 s; Frequency: 50-60 Hz; Voltage: AC220V; Dimensions: 360 x 260 x 355 mm; Weight: 3.5 kg; Most sturdy and robust precision model for colleges/universities	01
6.	Lab Water purification system	Ion Exchange Indion Lab-Q Ultra EDI	ASTM Type 1 Water Dimension: WxDxH (mm): 450x250x500 Weight: 13kg Power Requirement: 230VAC $\pm$ 10% Power consumption: 80 Watts Flow rate: 1-1.5l/min Conductivity: 0.054 $\mu$ S/cm Resistivity: 18.2m $\Omega$ .cm0 Total Organic content: <5ppb Endotoxin level: <0.25Eu/ml Particle > 0.22 $\mu$ m: <1/ml	01

			<p>Bacteria: &lt;1cfu/ml</p> <p><b>Other terms and conditions:</b>  Standard comprehensive warranty and support should be three years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.  Details of Annual Maintenance Contract (AMC) after standard warranty should be quoted.  Pre-installation requirements should be clearly specified in the quotation.  The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.  After Sale, Service should be available promptly  Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.  The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	
7.	Autoclave (Portable Automatic)	Equitron  7407PAD	<p>Capacity: 16L  Working Chamber Dimension: Ø 300x230 mm (12x9 inch)  Loading Type: Top  Dressing drum: Ø 270x220 mm (11x9 inch)  Heater Power: 1.8kW  Presets: 121°C/20min  Max Operating Parameter: 15psi/ 103.4 kPA  Duty Cycle: 4 cycles in eight hour shift with a 30-minute cooling period  External Dimension: 495x460x475mm  Packing Dimension: 530x530x550mm</p>	01

			<p>Gross weight/volume: 14kg/0.15m<sup>3</sup></p> <p><b>Other terms and conditions:</b>  Standard comprehensive warranty and support should be three years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.  Details of Annual Maintenance Contract (AMC) after standard warranty should be quoted.  Pre-installation requirements should be clearly specified in the quotation.  The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.  After Sale, Service should be available promptly  Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.  The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	
8.	Gradient Thermal Cycler	Bio-Rad T100 Thermal Cycler	<p>sample capacity of 96x0.2ml tubes, 0.2ml tube strips or universal or standard 1x96-well plate of 8x12 format with six or more Peltier heating and cooling.</p> <p>System which are not capable of taking plates will not be considered true gradient capability with Dynamic ramping technology, other technologies apart from gradient will not be considered.</p> <p>dynamic ramping with identical hold times for all the 8 rows of gradient.</p> <p>temperature differential range of 1-25°C across the rows.</p> <p>intuitive 5.7" (14.5 cm) touch</p>	01

			<p>screen interface which can displays graphics in high resolution for easy programming.</p> <p>The touch screen should be responsive for both gloved and ungloved fingers.</p> <p>Should be capable of running reaction volumes from 1-100ul.</p> <p>maximum ramp rate of 4 degC/second.</p> <p>temperature range of 4-100 deg C</p> <p>gradient range of 30-100 deg C</p> <p>temperature accuracy and uniformity of <math>\pm 0.5</math> deg C</p> <p>memory of &gt;500 programs with further expansion through a USB Flash drive for transfer of files.</p> <p>Should have block and calculated temperature control modes.</p> <p>The software should be capable of exporting Run logs and system error logs</p> <p>Should have quick boot up time of not more than 1 min.</p> <p>Should be quiet in operation.</p> <p>System should have built in library of standard protocols for long PCR, fast PCR, reverse transcription PCR etc.</p> <p>Should have the feature of “Instant Incubation” to keep samples at constant temp for ligation and restriction digests.</p> <p>Should have power save mode.</p> <p>Should be compatible with all kind of plastic consumables and reagents especially reusable sealing Mats.</p> <p>The vendor supplying the Instrument should also have the capability of supplying cDNA Synthesis Kit, Hot Start Taq Polymerase, plastic ware, and horizontal electrophoresis system with power pack from the same Principal Company</p>	
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			<p><b>Other terms and conditions:</b>  Standard comprehensive warranty and support should be three years without any additional cost to the purchaser from the date of satisfactory commissioning of the instrument.  Details of Annual Maintenance Contract (AMC) after standard warranty should be quoted.  Pre-installation requirements should be clearly specified in the quotation.  The supplier shall do installation, commissioning and impart training on operation and maintenance of system without any additional cost to the purchaser.  After Sale, Service should be available promptly  Additional features/accessories if any that can potentially increase the productivity and safety of the instrument should be quoted as optional items.  The spare parts/wear &amp; tear consumables, if any, required for trouble free operation of equipment to be quoted separately giving the full nomenclature, rate, quantity and shelf life of each item.</p>	
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#### 6. P.G. Department of Zoology

Sl. No.	Name of the equipment	Make/ Model	Specification	Quantity
1.	pH METER	SYSTRONICSR/ SYSTRONICS 361	Type-Microcontroller Based, Display-LED / LCD / Touch Screen, 3 digits, Calibration-up to 3 points with auto buffer, pH Range (pH) 0.00 to 14.00, Accuracy (pH)-- 0.05, Power Requirements-230 V +- 10, 50 Hz AC, Modes, pH, mV, relative mV (RmV) or ORP with Temperature, Parallel temperature indication, Temperature Compensation Type-Automatic, Temperature Accuracy (Degree C)+- 0.3, Temperature Compensation Range (Degree C)-0 to 100, Resolution (pH)0.01, Operating Humidity: RH in (%)-85, Operating Temperature (Degree C) 45	1
2.	LABORATORY BALANCE	WENSAR/ PGB200	Type of Laboratory Balance-Analytical, Sensitivity (mg)-1 mg, Maximum Capacity of weighing (grams)-200 g, Shape of PAN Circular, Conformity to Indian Standard, IS:9440 latest Yes, BIS Marked No, Pan shall be as per	1



			Standard of Weights and Measures General Rules,1987, Printer and PC Connectivity Piece counting Features, Totaling, Check Weighing.	
3.	TRANS-ILLUMINATOR	HI MEDIA/HiMedia & LA1068	UV Wavelength (nm) (nm)-312, Type of Illuminator-Benchtop Type, Intensity control - High/Medium/Low, cooling system by fan air cooling Warranty (3 years), List of accessories to be supplied FUSE, POWER CABLE Input Voltage, V (V) 220, Selection of Intensity Variable Intensity Weight of equipment, kg (kg) 3.5, UV safety screen No. of UV Tubes (Nos)6, Application Range To view DNA/RNA migration on the agarose gel in microbiology laboratory, wavelength type Single UV Tube wattage (W)8.	1
4.	REFRIGERATED CENTRIFUGE	REMI/CPR 24 Plus	Type of Motor Brushless(without carbons), Type of lid lock Both Manual and electronic, No of acceleration and deceleration profiles in built for rotor speed while automatic braking-Acceleration and Deceleration Profile-9/10, Configuration of Rotor supplied with centrifuge machine swing out and angle rotor, Size of rotor supplied with centrifuge in ml "24x1.5ml(for angle rotor) RPM 16000", Warranty period for equipment & Rotor (on site and comprehensive warranty) in years 3, Condensed Water Drainage System, The Equipment shall be installed and demonstrated before Acceptance, Servo Controller Voltage Stabilizer supplied with Item, Servo stabilizer ratings in KVA-2, Warranty of stabilizer in years 3.	1
5.	TABLE TOP-REFRIGERATED MINI CENTRIFUGE WITH LCD DISPLAY	THERMO FISHER SCIENTIFIC/my SPIN™ 12 Mini Centrifuge	Type of Motor0-With Carbon Brushless, Type of lid lock-Both Manual and electronic, No of acceleration and deceleration profiles in built for rotor speed while automatic braking "Programmable from 50 to 200 Seconds in Interval of 5 Seconds", Configuration of Rotor supplied with centrifuge machine Angle rotor, Size of rotor supplied with centrifuge in ml "24x1.5ml(for angle rotor) RPM 16000", Warranty in years 3.	1
6	VERTICAL ELECTROPHORESIS SYSTEM	BIO-RAD/Bio-RadR-1658003 & 1645050	Dimensions of Glass Plates in cm x cm-10x10, Dimensions of Gel in cm x cm-8x8.5 Thickness of comb (mm) 1, Thickness of spacers (mm) 1.5, Construction of Unit (Moulded/Fabricated) Single Moulded, Upgradable Option Casting Module Included, System should be provided with at least three sets of output terminals to deliver constant voltage or current , Output range voltage: 10-300v; current: 4-400ma; power: 75 watts or better, Led display for voltage, current, power and time, Safety feature Overload/short circuit detection; over voltage protection, Comprehensive Warranty in years 3, Number of installations of the Machine machines in Central /State/PSU Govt. Hospitals( Note: Seller should supply a performance certificate of the device to the buyer if demanded after placement of order) More than 3.	1
7	HORIZONTAL ELECTROPHORESIS SYSTEM	BIO-RADR/ Bio-RadR-1704486	Length of the Gel tray (cm)-7, Width of the Gel tray (cm)-7, Number of well combs-12, Thickness of comb (mm) 1, Maximum Sample Capacity 15	1

			Construction of Unit (Moulded/Fabricated) Single Moulded, Type of Electrodes (Fixed/Removable) Removable, Maximum buffer volume (ml) 200 Provision of gel casting gates for sealing the tray, Easy replacement of electrode assemblies and lid removal to avoid buffer spillage Provision of UV transparent gel trays with florescent ruler, Comprehensive Warranty in years 3	
8	LAMINAR AIRFLOW SYSTEM	LABYCARE/SK HLA394C	Conformity to Certifications CE European, Conformity to Manufacturing Standards ISO 9001 & ISO 13485, Type of configuration Freestanding, benchtop, Material used for the work bench Powder coated MS, Material used for the front door Acrylic transparent, Material used for the Side Panels Acrylic Availability of motorized sliding door , LCD display for velocity, time & lamp on/off , UV Hour meter, UV Germicidal lamp, DOP HEPA filter testing, Digital Pressure Gauge with Alarm Availability of display, Warranty3 year.	1
9	STEREO MICROSCOPE WITH CAMERA ATTACHMENT	ZEISS/ZEISS Model Stemi 508	Objective lenses Type Apochromatic, Objective lenses Magnification 0.6X Numerical Aperture of Objective 0.125, Zoom Ratio 8:1Stage Type Manual mechanical stage with transmitted light bases and incident light, Zoom/Magnification operation Manual, Filters Daylight filter Type of lamp for Illumination LED, Display Through System (System/Laptop etc), Type of External System (For System not provided), Camera type Still + video Camera, Image sensor CMOS, Effective Pixel/Resolution Monochrome(MP), Effective Pixel/Resolution Colour(MP) 5 Video recording, Warranty on camera 24 Month, Accessories (Inclusive in the Scope of Supply) Lenses, Cable, Adapters, Extra Eyepiece Warranty of complete Microscope system(in months) 12 month+1year Must include AMC of 3 years. Desktop and laser printer must be supplied.	1
10.	Trinocular Microscope with Imaging	Olympus	MAGNUS BIOLOGICAL MICROSCOPE WITH PHASE AND FLUORESCENCE AND CAMERA Microscope with Phase: complete with built-in LED illumination with universal SMPS power supply for mains supply 100V~240V, quadruple ball bearing inward nosepiece, co-axial coarse and fine focusing control, high resolution Infinity corrected Super Plan Phase Contrast Achromatic Objectives Ph10x, Ph20x, Ph40x (spring), Ph100x oil(spring), 360deg rotatable inclined Siedentop Binocular observation tube and trinocular port for attaching a camera, fungus resistant coated optics tropical conditions, wide field paired eyepiece WH10x (F.N.20), right hand control co-axial low drive mechanical TESTS Standard set consists of: High efficiency 480nm & 535nm LED illuminators, filter slider with Blue filter cube consisting of excitation band pass filter 480nm & long pass emission filter 510n and Green filter cube consisting of excitation band pass filter 535nm & long pass emission filter 575nm complete. Features: Plan infinity Optics, Excellent	1

			<p>Field Flatness, F.N.20, Siedentop Head, hard coated stage with double slide holder, easily replaceable lamp, Inward facing nosepiece, upper focus limit stopper to prevent accidental damage to Objectives, Universal Power supply ensures constant voltage &amp; International standard Quality manufacture. Magnus MagCam MU 2.3 MP Camera (with 0.5x C - Mount Adapter): Specifications: 2.3 Mega Pixel CMOS Camera with Sony Exmor sensor having sensor size of 1/1.9", Resolution: 1920 X 1200, suitable for Fluorescence &amp; Brighi Field Imaging, pixel size 3.75 X 3.75 um, Binning 1X1, 2X2 with USB 3 port for faster data transfer, comes with a software for point to Point measurement, auto white balance, auto exposure option, basic setting: Gain, Gamma, Contrast, Auto white balance, optical Port: C-Mount compatible with Windows 7/8 (32/ 64 bit). Packing includes: 2.3 MP Camera, USB 3 cable, calibration slide Accessories (Inclusive in the Scope of Supply) Lenses, Cable, Adapters, Extra Eyepiece Warranty of complete Microscope system (in months) 12 month+1year Must include AMC of 3 years. Desktop and laser printer must be supplied.</p>	
11.	Vortex Shaker	REMI	<p>Compact and rugged construction, the SPINIX™ Vortex Shaker has a heavy metal base and rubber feet which prevents movement during operation. Continuous and touch mode available with variable speed control 3000 RPM maximum speed.</p>	1

### 7. P.G. Department of Geology

Sl. No.	Name of the equipment/ Instrument	Specifications	Quantity
1	Hardness box	With all 9 minerals	32
2	Streak Plate	Streak Plate	50
3	Sample tray	Plastic Size 6''×6'' with Space for writing Sample Description	500
4	MEGASCOPIC SAMPLES (MINERALS)	<p><b>SILICATE MINERALS</b></p> <p>Quartz</p> <ol style="list-style-type: none"> <li>1. Amethyst</li> <li>2. Rose quartz</li> <li>3. Smoky quartz</li> <li>4. Milky quartz</li> <li>5. Chalcedony</li> <li>6. Agate</li> <li>7. Jasper</li> </ol>	01 each

		<ol style="list-style-type: none"> <li>8. Chert</li> <li>9. Orthoclase</li> <li>10. Microcline</li> <li>11. Plagioclase</li> <li>12. Beryl</li> <li>13. Chrysotile</li> <li>14. Talc</li> <li>15. Pyrophyllite</li> <li>16. Muscovite</li> <li>17. Biotite</li> <li>18. Pyroxene</li> <li>19. Diopside</li> <li>20. Augite</li> <li>21. Hornblende</li> <li>22. Tourmaline</li> <li>23. Garnet</li> <li>24. Olivine</li> <li>25. Kyanite</li> <li>26. Sphene</li> <li>27. Zircon</li> <li>28. Staurolite</li> </ol> <p><b>NON SILICATE MINERALS</b></p> <ol style="list-style-type: none"> <li>1. Galena</li> <li>2. Halite</li> <li>3. Calcite</li> <li>4. Dolomite</li> <li>5. Fluorite</li> <li>6. Graphite</li> <li>7. Corundum</li> <li>8. Magnesite</li> <li>9. Gypsum</li> <li>10. Apatite</li> <li>11. Barite</li> <li>12. Asbestos</li> <li>13. Ochres</li> <li>14. Steatite</li> </ol>	
5	MEGASCOPIC ROCK SAMPLE	<p><b>IGNEOUS ROCK</b></p> <ol style="list-style-type: none"> <li>1. Granite</li> <li>2. Granodiorite</li> <li>3. Basalt</li> <li>4. Diorite</li> <li>5. Peridotite</li> <li>6. Pink granite</li> <li>7. Dolerite</li> <li>8. Dunite</li> <li>9. Pegmatite</li> <li>10. Lamprophyre</li> <li>11. Pumice</li> <li>12. Syenite</li> </ol>	01 each

13. Obsidian
14. Pink granite
15. Vesicular basalt
16. Porphyry basalt
17. Biotite granite
18. Hornblend granite
19. Tephrite
20. Spilite
21. Andesite
22. Diorite
23. Pegmatite
24. Augite granite
25. Quartzsyenite

**SEDEMENTARY ROCK**

26. Conglomerate
27. Breccia
28. Sandstone
29. Limestone
30. Mudstone
31. Shale
32. Flagstone
33. Dolomite
34. Coal
35. Marl
36. Oospariite
37. Micrite
38. Chert
39. Diatomite
40. Evaporates
41. Phosporites
42. ferruginous sandstone
43. oligomictic conglomerate

**METAMORPHIC ROCK**

1. Schist
2. Gneiss
3. Phyllite
4. Quartzite
5. Marble
6. Slate
7. Granulite
8. Khondalite
9. Charnokite
10. Mylonite
11. Eclogite
12. Gondite
13. Green stone
14. Soapstone
15. Leptynite
16. Migmatite

		<ul style="list-style-type: none"> <li>17. Hornfels</li> <li>18. Augen gneiss</li> <li>19. Chlorite schist</li> <li>20. Granite gneiss</li> <li>21. Hornblend gneiss</li> <li>22. Hornblende schist</li> <li>23. Hypersthene granulite</li> <li>24. Amphibolites</li> <li>25. Greenstone</li> <li>26. serpentinite</li> <li>27. Pyroxene marble</li> </ul>	
6	ORE MEGASCOPIC SAMPLE	<p><b>COPPER</b></p> <ul style="list-style-type: none"> <li>1. Chalcopyrite</li> <li>2. Bornite</li> <li>3. Chalcocite</li> <li>4. Malachite</li> <li>5. Azurite</li> <li>6. Cuprite</li> <li>7. Chrysocolla</li> <li>8. Enargite</li> </ul> <p><b>Iron</b></p> <ul style="list-style-type: none"> <li>1. Hematite</li> <li>2. Goethite</li> <li>3. Magnetite</li> <li>4. Siderite</li> <li>5. Banded iron formation</li> <li>6. BHJ</li> <li>7. BHQ</li> </ul> <p><b>MANGANESE ORES</b></p> <ul style="list-style-type: none"> <li>1. Pyrolusite</li> <li>2. Psilomelane</li> <li>3. Manganite</li> <li>4. Rhodonite</li> <li>5. Rhodochrosite</li> </ul> <p><b>Chromite</b></p> <ul style="list-style-type: none"> <li>1. Chromite with serpentine</li> <li>2. Chromite</li> <li>3. Chromite with asbestos</li> <li>4. Dissinated chromite</li> <li>5. Galena</li> <li>6. Graphite</li> <li>7. Franklinite</li> <li>8. Ilemenite</li> <li>9. Rutile</li> <li>10. Realgar</li> <li>11. Bauxite</li> <li>12. Zincite</li> <li>13. Cinnabar</li> <li>14. Smithsonite</li> </ul>	01 each

		<ol style="list-style-type: none"> <li>15. Cerrusite</li> <li>16. Silver ores</li> <li>17. Cassiterite</li> </ol>	
7	<p>POLISHED SECTION OF ORE MINERALS</p> <p>TEXTURES OF ORE MINERAL</p>	<ol style="list-style-type: none"> <li>1. Exsolution texture of sphalerite</li> <li>2. Orbicular texture of olivine</li> <li>3. Spherioidal clots of chromite</li> <li>4. Comb texture</li> <li>5. Cockade texture</li> <li>6. Colloform texture of goethite</li> <li>7. Foam texture</li> <li>8. Illemnite</li> <li>9. Hematite</li> <li>10. Bornite</li> <li>11. Arsenopyrite</li> <li>12. BHJ</li> <li>13. BHQ</li> <li>14. PYRITE</li> <li>15. GALENA</li> <li>16. GOETHITE</li> <li>17. BAUXITE</li> <li>18. CHROMITE</li> <li>19. AZURITE</li> </ol>	02 each
8	<p>THIN SECTION OF MINERALS</p>	<ol style="list-style-type: none"> <li>1. Quartz</li> <li>2. Sanidine</li> <li>3. Orthoclase</li> <li>4. Microcline Albite</li> <li>5. Anorthite</li> <li>6. Olivine</li> <li>7. Diopside</li> <li>8. Augite</li> <li>9. Kyanite</li> <li>10. Calcite</li> <li>11. Dolomite</li> <li>12. Gypsum</li> <li>13. Beryl</li> <li>14. Tourmaline</li> <li>15. Pyroxene</li> </ol>	02 each
9	<p>THIN SECTION OF ROCKS</p>	<ol style="list-style-type: none"> <li>1. Granite</li> <li>2. Granodiorite</li> <li>3. Basalt</li> <li>4. Diorite</li> <li>5. Peridotite</li> <li>6. Pink granite</li> <li>7. Dolerite</li> <li>8. Dunite</li> <li>9. Pegmatite</li> <li>10. Vesicular basalt</li> </ol>	02 each

		<ul style="list-style-type: none"> <li>11. Porphyry basalt</li> <li>12. Ophitic texture</li> <li>13. Mymeketic texture</li> <li>14. Intergranular texture</li> <li>15. Graphic texture</li> <li>16. Trachytic texture</li> <li>17. Corona texture</li> <li>18. Sandstone</li> <li>19. Lime stone</li> <li>20. Dolomite</li> <li>21. Conglomerate</li> <li>22. Augite granite</li> <li>23. Gneiss</li> <li>24. SCHIST</li> <li>25. Phyllite</li> <li>26. Quartzite</li> <li>27. Marble</li> <li>28. Slate</li> <li>29. Granulite</li> <li>30. Khondalite</li> <li>31. Charnokite</li> <li>32. Mylonite</li> <li>33. Eclogite</li> <li>34. Breccia</li> </ul>	
10	INVERTEBRATE FOSSILS	<p>Brachiopoda</p> <ul style="list-style-type: none"> <li>1. Lingual</li> <li>2. Spirifer</li> <li>3. Rhyncholla</li> <li>4. Terebratula</li> <li>5. Productous</li> <li>6. Atrypa</li> <li>7. Orthis</li> <li>8. Pentamerus</li> </ul> <p>LAMILIBRACHIA</p> <ul style="list-style-type: none"> <li>1. Arca</li> <li>2. Cardita</li> <li>3. Gryphea</li> <li>4. Ostrea</li> <li>5. Pecten</li> <li>6. Trigonia</li> <li>7. Unio</li> <li>8. Venus</li> <li>9. Spondylus</li> </ul> <p>GASTROPODA</p> <ul style="list-style-type: none"> <li>1. Turbo</li> <li>2. Trochus</li> <li>3. Natica</li> <li>4. Cerithium</li> <li>5. Murex</li> </ul>	01 each



		6. Fusius 7. Physa 8. Planoribs 9. Patella 10. Voluta <b>CEPHALOPODA</b> 1. Nautilus 2. Goniatite 3. Ceratite 4. Ammonodea 5. Orthoceras 6. Ammonoidea 7. Phylloceras 8. Stephanoceras 9. Baculite 10. Belemnites <b>TRILOBITA</b> 1. Agnotus 2. Olenus 3. Paradoxides 4. Phacops 5. Trinucleus 6. Phillipsia	
11	Hand Fossils Specimen	1. Ptilloohyllum 2. Petrified wood 3. Gangamopteris 4. Schizoneura 5. Glossopteris 6. Vertibraria and 7. Fossil coral 8. Shark tooth	01 each
12	Global Positioning System (GPS)	Screen Size: 5.6 cm, Type: Wireless, Display Resolution: 128 x 160 pixels, Battery Life: 25 Hours, Display Type: Transflective, Monochrome, Water Rating IPX7, Waypoints: 1000, Routes 50, Track Log:10,000 points, 100 saved tracks Warranty 1 year minimum	2
13	DSLR Camera	18-55mm Lens VR Lens+70-300mm VR Lens, Megapixel & Sensor Type: 24.2 MEGAPIXEL CMOS SENSOR, Auto Focus Points: 11 POINT AUTO FOCUS POINTS, ISO Range: ISO 100-25600, Connectivity: WIFI/BLUETOOTH, Processor: EXPEED 4 image processor, Warranty 1 year minimum	2

14	Trinocular Petrological microscope	Polarising Microscope for Incident light and Transmitted light illumination, Fine Focus switchable between 1µm and 4µm, Adjustable stage height, inclined trinocular observation tube, Beam splitting for simultaneous observation and documentation, Eye piece wide field 10X/22 mm, Hi Power LED with intensity control facility for both Incident and Transmitted. white LED illumination for both Incident and Transmitted. Polarising condenser, Seperate Polarizer for Transmitted as well as Reflected Light axis. Switchable Bertrand Lens for Conoscopy / Orthoscopy applications, λ- plate, λ /4 compensator, Switchable Bertrand Lens for Conoscopy / Orthoscopy applications, 360° rotatable stage, Digital Color camera for microscopy with software control with computer system, Warranty 2 years	1
15	Double Distilled Water Plant	Distillation water capacity (ltr/hr):4 ltr/hr, Electrical requirements 230 Volts 10 / 50 Hz,Single phase, pH value: 6.9-7.0, Conductivity (µS/cm): <1.0, Numbers of Built in Quartz heaters (nos): 2, Distillation units Type: horizontal, Distillate Temperature (0C): 67, Biological Activity: Pyrogen free, Built in Quartz heater capacity (KW): 3.5, Double stage glass (quartz) distillation units, Cooling Water consumption (ltr/hr) 40 to 170, Warranty 1 year	1
16	Weighing Machine	Electronic Precision Pan Balance, Rated Load/ Capacity(kg): 500 gm, Resolution(gms): 1 mg, Display lcd, Speed of measurement: 6 second, Internal calibration: Yes, Power Supply: Single Phase, Battery Backup, Warranty in Years: 2, Pan/ Platform Size: 100 mm dia	1
17	Water Analyser Kit	<p>Light Source White light tungsten lamp</p> <p>Measurement of scattered light 30 degree scatter nephelometer</p> <p>Lowest Measurement Value for Turbidity (in FNU or NTU )0</p> <p>Highest Measurement Value for Turbidity (in FNU or NTU )100</p> <p>Sensor/Probe Type Resistance Temperature (RTD) Detector</p> <p>Lowest Measurement Value for Temperature (°C) 0</p> <p>Highest Measurement Value for Temperature (°C) 100</p> <p>Sensor /Probe Type NA</p> <p>Lowest Measurement Value for Pressure (in mmHg ) NA</p> <p>Highest Measurement Value for Pressure (in mmHg ) NA</p>	1

		<p>Measurement Method NA</p> <p>Depth Measurement Range (in meters) NA</p> <p>Length of Cable connecting peobe (inclusive in the scope of supply) 0 meter</p> <p>Temperature correction Manual</p> <p>Salinity Correction Manual</p> <p>Barometric Pressure correction Manual</p> <p>Minimum Operating Temperature 0 degree Celsius</p> <p>Maximum Operating Temperature 60 degree Celsius</p> <p>Operating Humidity, Rh at 40 deg C 85 percent</p>	
18	Flame Photometer	<p>Filters: Each unit of Flame Photometer to be supplied with filters for Sodium and Potassium, in addition the offered unit to be supplied with filters for: Sodium, Potassium, Accuracy (+/-, in %), 2, Flame photometer shall be supplied with built in oil free air compressor with Built-in Air Filter with pressure regulator &amp; gauge to deliver stable and moisture / oil free air supply: Digital interface along with Aspiration rate (ml/min), 6, Sensitivity (Sodium/ Potassium/Lithium : 1ppm and for Calcium: 15 ppm): software required for sharing sample data in digital form with computer: Detector: Photodiode, Ignition System: Auto ignition, Warranty 2 years minimum</p>	1
19	Conductivity Meter	<p>Maximum of measuring Range for conductivity (mS/cm)3000, Number of Ranges (Nos.) 4, Resolution (<math>\mu</math>S/cm)0.001, Type of Temperature CompensationAutomatic/Manual, Warranty 2 years</p>	1
20	Vibratory Sieve Shaker	<p>Measuring range* 25 <math>\mu</math>m - 125 mm, sieving motion throwing motion with angular momentum - 3D movement, Max. batch / feed capacity 25 kg, Max. number of fractions 13 / 9 (min. 3) *, Max. mass of sieve stack 50 kg, Time display digital, Suitable sieve diameters 400 mm / 450 mm, Warranty 1 year</p>	1
21	Thin Section Machine	<p>Voltage/Frequency: 115VAC @ 60Hz, 220VAC @ 50Hz, 1 phase, Motor Power: 1/3 Hp [250W], Wheel Diameter: 8in [203mm], Precision Grinding <math>\pm</math> 5<math>\mu</math>m, Wheel Speed: 38-1450-160: 220rpm; 38-1450-250: 2100rpm, Compliance: CE, Warranty 2 years</p>	1