Tender document for supply of scientific instrument to

Department of Marine Science
Bharathidasan University
Tiruchirappalli-24
Tamil Nadu


Tender Document
Bharathidasan University
Tiruchirappalli-620 024
Tamil Nadu
India


# BHARATHIDASAN UNIVERSITY

# TIRUCHIRAPPALLI-620 024

## TENDER NOTIFICATION

**Ref.No.21270/P3/2019**

**Sealed tenders are invited for the supply of scientific instruments<u>Generator, Environmental Chamber and High-End Stereo Zoom Microscope (Zoom Ratio more than 16:1) with camera attachment and PC.</u>Detailed tender documents with specifications, terms and conditions etc., can be had from websites (<u>www.bdu.ac.in</u>).**

**The last date for receipt of the tenders in this office is 28/04/2022.03.00 PM**

**REGISTRAR**

# Tender Summary

| | |
|---|---|
| Tender No | 21270/P3/2019 |
| mount of EMD (Rs) | 1 % of quoted value |
| Cost of the tender document<br>(downloadable one- For each instrument) | Rs.5000/-(D.D in favour of<br>Bharathidasan University,<br>Tiruchirappalii-24, Tamil Nadu, India) |
| Bid Submission | 28.04.2022 (03:00 PM) |
| Bid outer cover opening | 28.04.2022 (04:00 PM) |
| Bid opening (Technical) | Will be decided on the day of opening |
| Bid opening (Commercial) | Will be decided on the day of opening |

**REGISTRAR**

# Table of Contents

## INTRODUCTION

Bharathidasan University is established in February 1982, and was named after the great revolutionary Tamil Poet, **Bharathidasan** (1891-1964). The motto of the University **"We will create a brave new World"** has been framed from Bharathidasan's poetic words **"புதியதோர் உலகம் செய்வோம்"**. The University endeavours to be true to such a vision by creating in the region a brave new world of academic innovation for social change.

The university is unique in its being "composite" in character. Besides the disciplines of liberal Arts and Sciences, it has school of Bio-medical sciences, Institute of Management, Department of Education Technology, among others. In all, it has 16 Schools and 47 Departments and Centers**.**

There are 147 colleges affiliated to the university including 123 Arts and Science colleges and 3 colleges from Fine Arts. Among them 8 government and 11 government aided colleges have autonomous status. Among the affiliated colleges, more than 50% are offering PG programmes and 25 % are offering M.Phil/Ph.D. programmes. A good number of them are nationally recognized for quality education. The programmes offered through affiliated colleges are so diversified that they number more than 250. The student strength in affiliated colleges is over 1.50 lakhs

## 2. INVITATION FOR BIDS

1. This invitation to the tenderer is for the supply of **Generator, Environmental Chamber and High-End Stereo Zoom Microscope (Zoom Ratio more than 16:1) with camera attachment and PC** to Department of Marine Science Bharathidasan University, Tiruchirappalli - 620 024.
2. Tenderers are advised to study the tender document carefully. Submission of tender shall be deemed to have been carried out after careful study and examination of the tender document with full understanding of its implications
3. Sealed offers prepared in accordance with the procedures enumerated in instruction to Tenderers (3) clause I should be submitted to the office of **The Registrar, Bharathidasan University, Tiruchirappalli** not later than the time laid down, at the address given in the schedule for invitation to tender under clause 6
4. All bids must be accompanied by an Earnest Money Deposit (EMD) of 1% of the quoted value of all the instruments, and Demand Draft (DD) of Rs. 5000/- towards documents cost (Download

one) in favour of **Bharathidasan University, Tiruchirappali**-24, Tamil Nadu. (Separated DD for Document Cost and EMD & Separated Bids for each instrument)

5. This tender document is not transferable
6. Schedule for invitation to tender

| | |
|---|---|
| Last date for submission of Bid Documents | **28.04.2022 (03:00 PM)** |
| Date till which the Bid is valid | 180 days from the date of submission |
| Venue of Submission of Bid of documents | Office of The Registrar<br>Bharathidasan University<br>Tiruchirappalli-620 024<br>Tamil Nadu |

**7.** Tender through E-mail/Fax will not be considered. **Tender form without the commercial bid will not be considered**

Note: The University shall not be responsible for any postal delay about non receipt/ non delivery of documents

## 3. INSTRUCTION TO TENDERERS

## A. INTRODUCTION

### (i). BID SUBMISSION PROCEDURE

Two cover systems are to be followed for this tender

a) Technical Bid in a separate cover
b) Commercial Bid in a separate cover

Technical and commercial Bid by the tenders should be placed in two separate envelops super-scribed with separate bid titles as follows;

a) Technical Bid (2 copies) **with EMD amount and document cost.**
b) Commercial Bid (2 copies)

Tenders without the commercial bid will be rejected

**Tender should be submitted separately for each instrument.**

The tenderers have to qualify for the commercial bid.

Please note that the price should be mentioned only in the commercial bid.

Item wise pricing should be given in the commercial bid as per format specified.

All the documents, *viz*., technical bid and commercial bid prepared as above are to be kept in two sealed covers super-scribed with tender number, due date, name of the instrument, and "Do not open before **28th April 2022 at 4.00 P.M**." should be specified.

The cover thus prepared should also indicate clearly the name and address of the tenderer.

P.s.: In case, fine tuning of technical specifications are required, the university reserves the right to ask for revised commercial bid. In the absence of revised commercial bid, the original shall be held valid.

**(ii). COST OF TENDER**

The tender shall bear all costs associated with the preparation and submission of bid, including cost of presentation for the purpose of clarification of the bid.

If so desired by the University and University will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

**(iii).** The tenderer is expressed to examine all instructions, forms, terms, and specifications in the tender document. Failure to furnish all information required in the tender document or submission of a bid not substantially responsive to the tender document in every respect will be at the tenders risk and may results in the rejection of the bid.

**(iv). Clarification of Tender Document**

A prospective tenderer requiring any clarification of the tender document may notify the university in writing at the University's mailing address. The University will respond in writing to any request for clarification of the tender document, received. Email or written copies of the university response (including an explanation of the query but without identifying the source of inquiry) will be given to all prospective Tenderers who have received the Tender Documents.

**(v). Amendment of tender document.**

At any time, the university may for any reason, whether at its own initiative or in response to a clarification requested by a prospective tenderer, modify the tender document by an amendment.

The amendment will be notified in writing or by fax or email or capable to all prospective tenderers who have received the tender documents and will be binding on them.

In order to afford prospective tenderers reasonable time in which to take the amendment into account in preparing their bids, the university may, at its discretion, extend the last date for the receipt of bids.

**B. PREPARATION OF BIDS**

**1. Language of Bids:** The Bids prepared by the tenderer and all correspondence and documents relating to the bids exchanged by the tenderer and the university, shall be written in English.

**2. Documents comprising the Bids:** The Bids prepared by the Tenderers shall comprise of following components:

**a). Annexure A:**

| S. No | Eligibility criteria | Requisite document |
|---|---|---|
| 1. | The tenderer must have reputed dealing in scientific instruments for the last five years | Qualifying data duly filled in as per relevant proforma provided in the bid proposal that the tenderer is eligible to bid and is qualified to proforma the contract, if its bid is accepted (proforma). |
| 2. | The tenderer company must have a valid latest income tax certificate | Copy of latest valid income tax clearance certificate/PAN certificate. |
| 3. | EMD of 1% of quoted value | DD in favour of **Bharathidasan University, Tiruchirappallli-24, Tamil Nadu.** |
| 4. | Cost of the Tenderer document **(for each instrument)** | **Rs. 5,000/-** DD in favour of **Bharathidasan University, Tiruchirappalli-24, Tamil Nadu.** |
| 5. | The Tenderer must submit proposal sheet as per terms of the tender document certifying that they accept all terms and conditions of the tender document | Bid proposal sheet duly filled in, signed and complete in all aspects (proforma-I) |
| 6. | Is the tenderer a public/ private limited company having its corporate / head office in Tamil Nadu and a local direct office in Tiruchirappalli? | Address, contact person, phone/fax/email of all directors along with PAN/IEC/VAT/TAN/TIN service, tax details. Registration no., along with date of registration is to be provided. |
| 7. | Are they authorized for the equipment quoted by the manufacturer? | Letter of authorization from the manufacturer. |

**b). Technical bid shall consist of following**

1. Technical details
2. Name & designation of the person responding to the tender
3. Name, designation of person for contact

**c). Commercial bid consisting of the following**

1. Commercial deviations

2. Commercial bid

**i).** Bid prices duly filled, signed and complete as per the price schedule on the prescribed quotation Proforma (proforma -IV). The tender shall indicate the firm prices, the terms of reference of which are given in the technical specifications. Two soft copies of deviations in the specified format given in Proforma-IV.

**ii).** Commercial Deviations from the terms and conditions and specifications as specified in the bidding documents (proforma-V). Two soft copies of deviations in the specified format given in proforma-V. The university reserves the right to carry out the capability assessment of the tenderers and is not bound to place order on the lowest bidder. The university's decision shall be final in this regard.

## 4. TERMS AND CONDITIONS OF THE TENDER

### 4.1. Delay in the vendor's performance & penalty

**4.1. a.** Delivery of the goods and performance of services shall be made by the vendor in accordance with the time schedule specified by purchaser in this schedule of requirement.

**4.1. b.** an unexcused delay by the vendor in the performance of its delivery obligation shall render him liable to any or all of the following penalties: imposition of liquidated damage and termination of this order for default.

### 4.2. Professional practice

The tenderer shall adhere to professional scientific/engineering and consulting standards recognized by international professional bodies and shall observe sound management, technical and scientific/engineering practices. It shall employ appropriate advanced technology and safe effective equipment, machinery, material and methods.

The tenderer shall always act in respect of any matter relating to this contract, as faithful advisors to the university and shall, at all times, support and safeguard the University's legitimate interests in any dealings with the third party.

**4.3. Use of contract documents and information**

**4.3. a.** The Tenderer shall not, without the University's prior written consent, disclose the contract or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of university in connection there with to any person other than a person shall be made in confidence and shall extend only as far as may be necessary for purposes of such performance.

**4.3. b.** The Tenderer shall not without the purchaser's prior written consent, make use of any document of information.

**4.3. c.** Any document other than the contract itself shall remain the property of the University and shall be returned (in all copies) to the University on completion of the tenderer's performance under the contract if so, required by the University.

**4.4. Earnest Money & Security Deposit**

Vendor shall deposit Earnest money along with tender document in the form of Demand Draft/Banker's Cheque in favor of **The Registrar, Bharathidasan University, Tiruchirappalli**. Tenders without earnest money will be rejected.

**4.5. Schedule of Payment**

**4.5. a.** Payment will be made only after the installation of the items and after issue of certificate by the Committee.

**4.5. b.** VAT/Sales Tax, Services Tax and Octroi shall be paid on actual, as applicable.

**4.5. c.** Tenderer should specify the TAN/PAN/TAN/TIN.

**4.6. Warranty period and maintenance services**

The Vendor will be responsible for the comprehensive maintenance (free of charge) during the warranty period of scientific instruments mentioned in the technical specifications in detail after the installing at BHARATHIDASAN UNIVESITY

**4.7. Prices**

The prices quoted for the Items/Services shall be firm throughout the period of contract &this contract will be valid up to the date of final payment to the supplier and shall not be subject to any upward modification whatsoever. The rates should be quoted for sites. The commercial bids must be on the prescribed format as given in this document. The University exempted from paying Customs Duty.

**4.8. Taxes and duties**

The tenderer shall be entirely responsible for all taxes, duties, license fees, octroi, etc. Incurred until delivery of the ordered Goods to the purchaser. However, VAT/ Sales Tax, Surcharge, Professional/ Service Tax, octroi in response of the transaction between the purchaser and the Tenderer shall be payable extra by the purchaser if so, stipulated in the notification award.

**4.9. Insurance**

The tenderer shall be responsible for all the Goods supplied under the contract and these shall be fully insured against loss or damage incidental to manufacture or acquisitions, transportation, storage, delivery, and installation, commissioning and running.

**4.10. Renderer's personnel**

The tenderer shall employ and provide such qualified and experienced personnel as are required to perform the services under the contract.

**4.11. Confidentiality**

The tenderer shall not, either during the term disclose any proprietary or confidential information relating to the services, contract or the University's business or operations without the prior written consent of the University.

**4.12. Force majeure**

Notwithstanding the provisions of the tender, the Tenderer shall not be liable for forfeiture of its performance security, liquidated, damages or termination for default, if and to the extent that it's delay in performance or other failure to perform its obligations under the contract is the result of an event of Force Majeure.

**4.12. a.** For purposes of this clause, Force Majeure means an event beyond the control of the Tenderer and not involving the tender and not involving the tender fault or negligence and not foreseeable. Such events may include, but are not restricted to act of the university, either in its sovereign or control capacity, wars or revolution, fires, floods, epidemics, quarantine restrictions and freight embargoes.

**4.12. b**. If a Force Majeure situation arises, the tenderer shall promptly notify the university in writing of such conditions and the cause thereof, unless otherwise directed by the university in writing, the tenderer shall continue to perform its obligations under this order as far as reasonably practical and shall seek all reasonable alternative means for performance not prevented by the force Majeure event, the university may terminate its order by giving a written notice of minimum 30 days to the tenderer, if as a result of force Majeure, the Tenderer being unable to perform a material portion of the services for a period of more than 60 days

**4.13.** The university reserves the right to accept or reject any Tender in whole or in part without assigning any reason therefore

**4.14.** The university is under no obligation to accept the lowest Tender

**4.15. Other conditions**

**4.15. a.** All disputes, differences, claims and demands arising under or pursuant to or touching the contract shall be referred to the sole arbitrator of the **Registrar, Bharathidasan University**. The award of the sole arbitrator shall be final and binding on both the parties under the provisions of the arbitration Act, 1940 or by statutory modification reenactment thereof for the time being in force. Such arbitration shall be held at Tiruchirappalli.

**4.15. b.** In all matters and disputes arising there under, the appropriate courts at Tiruchirappalli shall have jurisdiction to entertain and try them.

## 5. Equipment's specification

### 5.1. ENVIRONMENTAL CHAMBER (WALK IN)

**Specification: Should be Include all below required Specifications in the Total Cost**

**CONSTRUCTION: - 10 FEET** X **10 FEET**

Double walled prefabricated modular panels with PUF insulation, easy to assemble at site Standard model with inner of Stainless Steel (304 Grade) and outer Powder coated steel sheet.

**Cooling system (Refrigeration):** Air cooled condenser with ozone free CFC free refrigerant. Semi sealed dual compressor mounted with vibration free bushes. Grooved type evaporator coil with anti-corrosive fins. Refrigeration system with split type condensing unit located outside lab helps to emit hot air beyond working area Humidity by steam injection. Boiler and water reservoir made of SS with heater and low water level cut off Forced Air Circulation by heavy duty motor SS racks and trays SS 304 wall table.

**Heating system:** Easily removable U-shaped SS air heaters bank with blower air circulation system. There should be no direct radiation from the heaters on to the test specimen.

**Door:** Front opening single door fitted with heavy duty SS hinges with air tight locking arrangement for door closing. High temperature double lined silicon gasket without any corner joints. Viewing window & lamp: viewing window with LED illumination.

Suitable lighting to view specimen under test. Defog heaters with control for cold & humidity conditions, hermetically sealed Cascade refrigeration system, Environment friendly non-CFC refrigerant R-404a and R-23.

**CONTROLLING PARAMETER and Facility Required**

**The walk-in environmental chamber should have followed measuring Parameter**

1 GHz Quad core processor with Linux OS from the Programmable color LCD controller custom keypad with joystick like mouse will be provided attached with the display chassis controller shall be provided Wi-Fi for LAN connective.

**Display: 7-Inch LCD** display Sensor Inputs incorporated with controlling device

**PT 100 Sensors** (For Temperature Measurement and Controlling) Capacitive

**Humidity sensor** (For Humidity measuring and controlling)

**$CO_2$ Sensor** (For $CO_2$ Level Measurements)

**pH Sensor** (For pH Measurement)

**Salinity sensor** (For Salinity measurements)

Multiple user program profiles should be stored in the controller itself and must low for edit/ modification of all parameters like No. of cycles, temp. Change rates, dwell time etc. These modifications shall be performed on- or off-line with Hard disk backup on PC. Real time trend graph for temperature set value, temperature process value, humidity set value and humidity process value etc. Graphical representation of the working of the chamber with live status of all the components, including the current temperature / humidity process values, compressor suction / discharge pressures and return gas temperature etc.

Multi-level security of user, admin and factory level users with individual password protection.

**Mode of Logging:**
USB data storage

Special Features: Notification Alarm- on mobile

Access the chamber on Wi-Fi

Data logging and result saving direct to PC

**Illumination:**
Chamber shall be provided adjustable illumination up to 10,000 Lux controlling and Lux readout incorporated with main display Temperature Range: -10°C to 60°C, Accuracy: + 0.5°C, Uniformity: ± 1°C

**Humidity range:** 20% RH to 95% RH, Accuracy: ± 2% RH, Uniformity: ± 3%RH

**Temperature Range**: -10°C to 60°C, Accuracy: ± 0.2°C, Uniformity: ± 1°C

**$CO_2$ Range:** Measurement range: 400 ppm – 10,000 ppm Accuracy: ± 30 ppm + 3 % of reading

**pH Range:** pH Range 0 to 14 pH (Min.) resolution 0.001 pH Accuracy ± 0.002 Ph

**Salinity Range**: Salinity 0.0 to 70.0 ppt (g/L) resolution 0.1 ppt (g/L) Accuracy ± 1 ppt for 0.0 to 40.0 ppt; ± 2 ppt for readings over 40.0 ppt

**Additional Facility should be quoted along with above instruments**

**Water Purification Systems Facility**

**Built in Platform Orbital Shaking Facility**

**SS Trolly for Cultures Transport Facility**

**Culture Storage Facility with Induvial Cabin with Rack**

**Complete set up with Room false celling, Floor Mat, Lighting for Enviro Room**

**Culture Room cooling facility with temperature control**

**Sterilization Facility (121°C or 15 Psi) Capacity 100 Liters**

**Vacuum Cleaner Both WET & DRY for cleaning facility**

Auto switch over to standby sensor in case of Controlling Sensor failure Capacitance type Humidity sensor enables direct display of RH and temperature Audio visual alarm for temperature, humidity variations and utility failures Output for remote alarm in lab and at security gate Safety includes shut off of humidity and air heaters in case of temperature overshoots or undershoots beyond specified limits with alarms Facility to open the door from inside in case of door locked with emergency bell having switch inside chamber Low water level alarm and power cut off of boiler tank heater Overload cut off relay for compressor Time delay for compressor switch on Standby refrigeration system available for uninterrupted functioning Standby humidity system available for uninterrupted functioning mobile alert in case of temperature and humidity deviations beyond specified Limits, Magnetic door lock system with biometrics for door access.

**Safety and Warning futures**

Temperature and humidity HI Low Warning Sounds Safety Features: Miniature circuit breakers for heating system. High temperature digital safety controller with audio warning signal. Water level float switch for cut-off. Water level indicator provided to know the water level in the reservoir. Status Tower Lamp. Over temperature safety temperature fuse.

Pressure gauges for monitoring purpose. Oil return device in refrigeration system to prevent oil flow in lines. Overload relay (3 Ph) for chamber motor & compressor. Over temperature safety

Temperature fuse.

**Accessories (to be supplied with the chamber)**

Plant for Continuous Supply of DM water at inlet pressure of 1-2 kg/cm² (DM water specification: pH value – 5 - 8, Conductivity - < 1 μs/cm)

**Temperature Cycle**

Equipment shall be capable to test the sample as per temperature cycle given Ramp and Soak time Equipment shall be capable auto Restart after power failure Auto-restart after any period of power resumption with start- up time to full production within 15 minutes thereafter

Operating Voltage: 3 - Phase 440V / 50Hz

**Servo Controlled Voltage Stabilizer**

With **3-phase** Input and 3-phase output, indoor type, suitable for unbalanced loads and unbalanced input Conditions. Independent voltage sensing and regulation in each phase. Stabilizer

| | | |
|---|---|---|
| Capacity Rating | : | **10 KVA** Input Regulation |
| Voltage | : | **310V - 480V** Input Operating |
| Voltage | : | 275V - 504V |
| Nominal Output Voltage | : | **420 ± 1%** |
| Input/output Config | : | Input 3 Phase 4 -wire |
| Type of | : | **Air Cooled** |
| Type of Servo Control | : | Microcontroller Based True |

**Warranty: -**

Should be Include **Five -Years Compressive Warranty**

(Warranty must be Include replacement of all Spares, Consumables, Filters, Accessories, Complete Cleaning, and Complete Maintenance etc. from the date of Installation)

**Comprehensive Maintenance Contract: -**

(CMC) should be include **Two -Years** after completion of stipulated warranty period. Complete maintenance should be done **once in every three months** and should be Include replacement of all Spares, Accessories, complete Cleaning, and complete Maintenance, etc

**Supply and availability of spares** (a) Firm must have capability for uninterrupted supply of spares, accessories for a period of 10 years (120 months) from the date of acceptance to avoid any operational problem due to obsolesce or / any other reasons (b) Firm should ensure the availability of spare parts for at Least 10 years

**Service facility and down-time call attendance** Supplier should clearly mention about their office /service set up in our region Tamil Nadu for prompt service support. The manufacturer and / or their Indian representative must have qualified and factory trained service engineer in our Region Tamil Nadu to be able to attend to service at Bharathidasan University (BDU), Trichy within 72 hours on submitting a complaint.

**Pre – Installation / Electrical Wiring Requirement** Necessary pre-installation advice should be sent immediately, after the placement of the order and also the Required Inner Electrical wiring for Instruments Operations Should be Include in your Quotation.

**Installation, commissioning and application training** Complete installation and on-site training for group of technical staff / students for operating the instrument / system should be provided till user gets the 100% confidence to run walk in enviro

## 5.2. HIGH END STEREO ZOOM MICROSCOPE (ZOOM RATIO MORE THAN 16:1) WITH PHOTO CAPTURING AND IMAGE ANALYSIS FACILITY.

**Specification:**

**Optics:** Apochromatically corrected parallel stereo optics system with Maximum Possible Resolution **1000 LP/mm** with objective plan APO S 2.3 X

**Zoom Range:** at least **20:1** or better with selectable Electronic Motorized Zoom Magnifications

**Eyepiece:** Plan grade **10X wider field** of eyepiece with minimum of **23 mm FOV**

**Magnification range: up to 345 @ 10X** eyepiece

**Objective lenses:** Objective Achromat **0.63 X FWD 107** mm

**Trinocular Photo Tube:** with 100 /100 switchover of the right channel to interface 60 N & interpupillary distance adjustment.

**Double iris diaphragm:** To increase depth of field to view three dimensional objects.

**Real time digital display & screen controls:** For magnifications, resolution, depth of field and object field of view of the system.

**Large and sturdy base:** stand base with 3x M8 threaded holes, insert plate 450 and b/w plate D=120 mm; compatible with profile column 490/800 mm or T column 350mm and with transmitted light unit 450 or 450 mot or VisiLED transmitted light; stage d=84mm needs adapter

**Ring light Illumination** Ring Illuminator K LED segment able - 48 LEDs in 2 rows, tilted FWD 50...300 mm, mount d=66 mm - Separate controls for segmentation and rotation - 4 modes: Full, half, quarter circle, 2 facing quarter circles - Manual turning in 90°C steps or continuous rotation controller K LED

**Cold Light Illimitation System**:

Light source with two self-sustaining gooseneck-type guides, equipped with 2 X 3 Watt white 6500 K Power LED. Optionally available 365 nm UV-LED or 395 nm or 420 nm Violet-LED self-sustaining gooseneck - type guides.

Each self-sustaining Gooseneck-type LED guide is equipped with a 3-lens focusing head and has a length of 56 cm.

**Complete Mechanical Stage set up with Accessories**
**Fluorescence Attachments: Complete fluorescence attachment with below LED tubes**

LED modules 530 nm, - filter sets (EX BP 510-560, BS FT 580, EM LP 590), with antiglare screen with support.

LED modules 470 nm, - filter sets (EX BP 470/40, BS FT 495, EM BP 525/50), antiglare screen with support.

**Optionally, there should be possibility of interchanging the LED tubes as below:**

LED modules 590 nm, - filter sets (EX BP 587/25, BS FT 605, EM BP 647/70) BFP/DAPI - LED modules 385 nm - filter sets (EX BP 390/40, BS FT 420, EM BP 450/40)

**Simple Polarization Attachment should be including**

Should have a provision to upgrade to **Coded (Readable through PC) Multiple Objective turrets to hold 3 objective lenses**.

System should have a provision to upgrade fluorescence attachment and transmitted light illumination and also for attaching mechanical stage accessory.

**High Resolution Scientific Digital Camera:** Scientific grade high sensitivity digital camera with USB 3 & USB 2 cables to enable direct fast interfacing with PC.

**Live image resolution:** Minimum 5.0 million pixels on PC monitor & 12-bit color depth. Selectable frame transfer rate with Max. Resolution ≥35 frames/sec. or better. Pixel size 3.45 x 3.45 µm. Chip size equivalent to 2/3". Dynamic Range >4500: 1. Integration Time: 0.1 ms to 4 sec. or better. Temperature stability @ 25ºC for ambient temperatures between 18ºC and 30ºC. Full well capacity: ≥ Approx. 10,000 e. Live R-G-B Spectral Intensity display or optimum control of camera.

**Image Analysis software:** For image Grabbing, processing & analysis with Automatic Calibration & Liner Measurements, Image Stitching, Extended Focus Correction, and Standard Reporting. Provision must be there for up-gradation in future with additional modules.

**Microscope, Camera & Software: All should be from same manufacturer**

**Additional Accessories Attachments / Facility should be Include**

**Computer System**: Core i5 with, 9$^{th}$ Gen 4GB, 1TB, 20" monitor, keyboard, mouse, win 10 & MS office with **Color Printer** for Image analysis.

Servo controlled Voltage Stabilizer : **2 KVA Servo** controlled voltage stabilizer

| | |
|---|---|
| **Separate Weighing Facility** | : Electronic Weighing Balance min 1mg for analysis |
| **Separate Sterilization Facility** | : Separate Vertical Sterilization Unit Capacity 30-40 liters for sterilization |
| **Distill Water Unit Facility** | : 2 to 3 liter /Hour |
| **Microscope Work Table** | : 6X3 feet Work table with Granite Top with **Electrical Power** Points 15A Socket with MCB 6. Nos. |
| **Comprehensive Warranty** | : Should be Include **5 -Years** from the date of Installation. (Including Eyepiece, Objectives, Optical parts and Filters) |
| **Comprehensive MC (CMC)** | : Should be Include **2 -Years** after Warranty Period |

## 5.3. 125 KVA LIQUID COOLED DIESEL GENERATING SET for Laboratory back up

### A). DIESEL ENGINE: -

Diesel engine with Inline four cylinders, electric start, compression ignition, 4 stroke, liquid cooled technology, developing **155** hp @ 1500 RPM or more confirming to IS 10002, ISO-3046, BS 5514 standard. Diesel Engine will comply with present CPCB-II norms. The diesel engine will comprise of following: -

- Dry type air cleaner
- Exhaust Silencer suitable for canopy
- Expansion bellow
- Lube Oil cooler
- Lube oil filter
- Fuel Filters
- Radiator with pusher type fan and mounting
- In-line mono block fuel injection pump
- Mechanical governor and fuel feed pump
- Flywheel with starter ring and bell housing suitable for close coupling
- 12 Volt electric starter motor
- Battery charging alternator
- Microprocessor based Controller mounted on the Controller Panel.
- Protection System for
  - Low lube oil pressure
  - High water temperature

### B). ALTERNATOR: -

**125 KVA / 100 Kw** Alternator, suitable for continuous operation rated at 1500 rpm 415 V, 0.8 PF, 50 Hz, 3Ph. in SPDP enclosure, self- excited & self- regulated, Brush less, floor mounted with Ball or

Bearings on end shields. The alternator conforms to IS: 4722, BS EN 60034-1 & will be suitable for tropical condition.

**C). BASE FRAME: -**

Suitable to couple above Engine & Alternator made from steel sheet metal.

**D). FUEL TANK**: -

Minimum 200 Liters Capacity, with Inlet & Outlet arrangement, air vent & drain plug arrangement, inbuilt in the canopy

**E). BATTERIES: -**

100 Ah, 12 Volts Battery with one set of connecting leads of 35 sq mm Size Copper Cable.

**F). STANDARD Genset CONTROLLER UNIT WITH CONTROL PANEL**

Genset controller unit with totally enclosed, steel construction canopy in build control panel having following safeties and display parameters:

| Engine Display parameters | Mechanical Safeties (along with Display) | Gen-set Display Parameters | Electrical Safeties (along with Display) |
|---|---|---|---|
| 1) Oil Pressure | 1) Under/Over speed | 1) Phase/Line Voltage | 1) Genset Under/Over voltage |
| 2) Engine coolant Temperature | 2) Low Lube oil pressure | 2) Line current | 2) Under/Over Battery voltage |
| 3) Fuel Status | 3) High engine coolant temperature | 3) Frequency | 3) Under/Over frequency |
| 4) Engine speed | 4) Charge Alternator fail | 4) Average Voltage | 4) Phase Failure |
| 5) Engine run Hours | 5) Start/Stop fail | 5) Average Current | 5) Phase sequence reverse |
| 6) Total starts | | 6) Phase kW & Total kW | 6) Over Current |
| 7) Battery condition monitoring | | 7) kWH / PF | 7) 7) Over kW |
| | | 8) kVA / kVAr | 8) Mains Monitoring |

- 3 Pole MCB
- Control Fuse Base with Link (Glass Fuse)
- Power Terminal & Control Terminal Start & Stop Relay

**G). Status Indicator**

A multicolour Genset status indicator on the canopy, which will help user understand the Genset running status from a distance in just a glance.

**H). Genset health meter (Android Application)**

Genset are to be enabled with remote monitoring system, which enables users to remotely monitor the important parameters of the Genset, in case of any critical parameter alert is generated by ECU, KOEL remote monitoring system alerts the user immediately.

**I). TECHNICAL SPECIFICATION OF ACOUSTIC ENCLOSURE CONSTRUCTION**

Following are some technical features of Acoustic Enclosure: -

**1.** The enclosure is modular in construction
**2.** Specially designed Residential Silencer kept inside canopy (up to 62.5 Kva).
**3.** Aesthetically Designed internally bolted (up to 62.5 Kva) canopy for enhanced product life.
**4.** Base frame is made of Sheet metal.
**5.** Durable industrial locking system is provided on doors.
**6.** Doors are gasket with high quality EDPN material.
**7.** Ease of access and serviceability

**CORROSION RESISTANCE**: -

To make the enclosure weather proof: -

1. All sheet metal parts/components are hot dipped in nine tanks process, pretreated and passivated.
2. Sheet metal components are painted with P.P base paint.
3. Base frame is epoxy coated.
4. Zinc passivated hardware is used to avoid rusting

**ACOUSTIC INSULATION:**
1. Sound proofing of the enclosure done with quality Foam confirming to IS: 8183.
2. Insulation confirms to UL94 - HF1 class for flammability.
3. Acoustic form shall be fire retarded and fire resistant.
4. Attenuates are provided to control sound at entry and exit to and from the container.
5. Specially designed Residential Silencer is provided.

**VENTILATION AND AIR CIRCULATION**:
Exhaust pipe is thoroughly insulated by covering it with glass wool and further cladded in Enclosure.

**ELECTRICAL:**

Neutral earth connecting points at termination block / neutral bus at control panel & Body earthing points at Alternator leg and acoustic enclosure base frame.

**SOUND LEVEL**

The Gensets being offered comply to a sound level of **≤ 75 dbA** (12-point average) at a distance of 1-meter in free-field conditions conforming to CPCB Norms.

**COMPREHENSIVE WARRANTY:**

The Comprehensive warranty **should be 60** Months from commissioning.

**COMPREHENSIVE MC: 24 Months after comprehensive warranty**

**Additional Requirements should be including**

**1.** Complete base floor set up with shelter for above generator (Including Floor, Roof, Shed, Fencing and complete Civil Work should be included in the Total Cost.

**2.** Complete required Electrical Wiring from Main Source, Board, Panel and Electrical attachments and required Accessories should be including in the Total cost.

**6. Bid Proposal Proforma**

**Proforma-1**

**BID PROPOSAL SHEET**

Tenderers Proposal Reference No. & Date:

Tenderers Name & Address :

Persons to be contacted :

Designation :

Telephone No. Email ID: Fax No;

**To**

**The Registrar**
**Bharathidasan University**
**Tiruchirappalli-24**
**Tamil Nadu.**

**Dear Sir,**

**Subject**: Proposal for supply of scientific instruments-Reg.

**1.** We the undersigned Tenderers have read and examined in details the specifications and all bidding documents in respect of supply of system do hereby purpose to provide Hardware & Technical services as specified in the bidding documents

**2. Price and validity**

**2.1.** All the prices mentioned in our proposal are in accordance with the terms as specified in bidding documents. All the prices and other terms and conditions of this proposal are valid for a period of 90 calendar days from the date of opening of the bids.

**2.2.** We do hereby confirm that our bid prices include all taxes including Income Tax & Professional Tax.

**2.3.** We have studied the clauses relating to Indian Income Tax hereby declare that if any Income Tax, Surcharge on Income Tax and any other Corporate Tax is altered under the law, we shall pay the same.

**3. EARNEST MONEY & COST OF THE TENDER DOCUMENTS**

We have enclosed the earnest money (1% of the quoted value) and cost of the tender documents (Rs.5000/-) in the form of Bank Draft/ cheque of ----------It is liable to be forfeited in accordance with the provision of tender document.

**3.1. DEVIATIONS**

We declare that all the services shall be performed strictly in accordance with the technical specification and other tender document expect the deviations as mentioned in the technical deviation Proforma (Proforma-IV). Further we agree that additional conditions, if any, found in the proposal documents, other than those stated in deviations Proforma, shall not be given effect to

**3.2. BID PRICING**

We further declare that the prices stated in our proposal are in accordance with your terms & conditions in the bidding document

**3.3. QUALIFYING DATA**

We confirm having submitted in qualifying data as required by you in your tender document. In case you require any further information/documentary proof in this regard before evaluation of our bid, we agree to furnish the same in time to your satisfaction.

4. We hereby declare that our proposal is made in good faith, without collusion or fraud and the information contained in the proposal is true and correct to the best of our knowledge & belief.

Thanking you, Yours faithfully,

(Signature)

Date:
Designation:
Business Address:
Name:
Place:
Seal

**Performa-II**

**PARTICULARS OF TENDERERS**

**TENDERER'S PARTICULAR FOR TENDER NO.**

1. Name of the tender:
2. Address of the tender:
3. Year of Establishment:
4. Name of the affiliated firm 9 (if any):
5. Tender's proposal number and date:
6. Name and address of the officer
   to whom all references shall be
   made regarding this tender:
7. Annual turnover of the firm for the
   Last year and name of the Dept./
   Institution where the supply of
   Scientific instrument(s) has already been
   Provided (separate List of Institution/
   Universities may be furnished):
8. Contact person/ Address/ Telephone No
   Of the office who will be responsible for
   Executing this project:
9. Earnest Money Deposited and cost of
   the tender document DD NO/Bank details:

Telex:

Telephone:

Fax No:

As of this date the information furnished in all parts of this form is accurate and true to the best of my knowledge

**Witness**

| | | | |
|---|---|---|---|
| Signature | : | Signature | : |
| Name | : | Name | : |
| Designation | : | Designation | : |
| Address | : | Address | : |
| Company | : | Company | : |
| Date | : | Date | : |

Company seal (With name and destination of the person signing the Tender)

**Proforma-III**

**TECHNICAL DEVIATIONS**

Dear Sir,

**Subject:** Technical Deviations

Following are the technical deviations and variations from the expectations to the specifications. These deviations and variations are exhaustive. Expect these deviations and variations, the entire equipment shall be provided as per your specifications and document. A soft copy of the format should be submitted duly filled in, on the CD. In case of any variation between the soft and hard copy versions, the BHARATHIDASAN UNIVERSITY will consider the hard copy version.

| S. No | Clause. no | Page No | Statement of Deviations and variations |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Date:

Signature

Name:

Seal:

Place:

**Proforma-V**

**COMMERCIAL DEVIATIONS**

Dear Sir,

**Subject:** Commercial Deviations

Following are the commercial deviations & variations from the exceptions to the specification of hardware. These deviations and variations are exhaustive. Except these deviations and variations shall be provided as per your specification and documents

| S. No | Clause. no | Page No | Statement of Deviations and variations |
|---|---|---|---|
| | | | |
| | | | |
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| | | | |
| | | | |
| | | | |

Date: Signature:

Place: Name:

Seal:

**ANNEXURE A: COMMERCIAL COMPLIANCE STATEMENT FILL UP LEGIBLY**

| S. No | Eligibility Criteria | Yes/No | Documents attached |
|---|---|---|---|
| 1. | Is the Tenderer having repute dealing in scientific instruments for the last five years? | | |
| 2. | Does the Tenderer have valid latest income tax certificate? | | |
| 3. | EMD - 1% of quoted value | | |
| 4. | Cost of tender documents (Rs.5000/-) for each instrument | | |
| 5. | Has the tenderer submitted proposal sheet as per terms of the tender document certifying that they accept all terms and conditions of the tender documents? | | |
| 6. | Are they authorized for the equipment quoted by the manufacture? | | |
| 7. | Is the Tenderer a public/Private limited company having its corporate/Head Office in Tamil Nadu and a local direct office in Tiruchirappalli | | |