

TENDER INVITATION NOTICE

**Department of Chemistry
University of Kerala
Kariavattom campus, Thiruvananthapuram**

Last date of submission of Quotation-28/12/2023

Quotation No: DC/ST/28/Che/23-24 dt. 14-12 -2023

Sealed Competitive Quotations are invited for the supply, installation, testing and commissioning of the following equipment at the Department of Chemistry, University of Kerala, Kariavattom, Thiruvananthapuram. The specifications required are given below:

1. UV Visible spectrometer (Quantity:1 No)

Required specifications:

- Light Path Design: Double Beam
- Wavelength Range : 190-1100nm
- Wavelength Accuracy : $\pm 0.3 - \pm 0.5$ nm
- Wavelength Repeatability : ± 0.2 nm
- Photometric Accuracy : $\pm 0.3\%$ T
- Photometric Repeatability : $\pm 0.2\%$ T
- Photometric Range : -0.3-3A,0-200% T,0-9999C
- Stability : ± 0.001 A/h @ 500nm
- Baseline Flatness : ± 0.001 A/h
- Stray Light : ≤ 0.05 % T@220nm,360nm
- Data Output : USB
- Printer Port : Parallel Port
- Display : LCD
- Cuvette: 10 numbers
- Cell Holder : 10 mm 4 position cuvette holder
- Lamps: D2 Lamp & Tungsten Halogen Lamp (W Lamp
- Cell Holder : Sample & Reference Cuvette Holder (10mm
- each)
- Bandwidth : 1nm
- Computer and printer attached (windows11)

2. Fume hood

Required specifications:

- The fume hood with cupboard should be made with high-quality water proof materials
 - The table should be completely acid/base resistant
 - Fume hood should contain chemical/acid/base resistant sink, a water tap, gas/air cock, power points, and lights
 - Vertical sliding front glass cover
 - Working table size should be 150 x 70 x 85 cm or higher
 - TEFC motor
 - The fume hood top should be granite.
 - Suction capacity: inlet 400 CFM and outlet 350 CFM
 - With cupboard
- Specific terms and condition 2 years warranty

3. Water bath shaker

Required specifications:

- Tray material : Stainless Steel with SS cover
- Temp. Range up to 95 °C
- Digital Temperature Indicator cum Controller with Accuracy $\pm 1^{\circ}\text{C}$
- Shaking speed 20 - 200 / 10-100 stroke per min. (without load)
- Continuous operation limit, maximum upto 12 hours
- To be supplied with accessories such as clamps

Specific terms and condition 2 years warranty

4. Water distillation unit

Required specifications:

- All Glass, with Quartz Heater, 'O' Ring
- Condenser Fixing arrangement,
- Made from Heat Resistant, Low
- Expansion Borosilicate Glass

- Distilled water Capacity:3-5 Litres
 - Collection rate: minimum 1.0 Litre/hour
 - Power:220V,50 Hz, AC Mains Single phase.
 - LED Indication for Power,Heater 1 &2,Inlet Water
 - Auto cut off feature on reaching maximum capacity.
 - Safety mechanism with auto cutoff heaters to avoid dry heating in low water level condition of individual steam generators.
 - Over pressure release safety valve.
- Specific condition 2 years warranty

5.Water Distillation Unit (Wall Mounted)

Required specifications:

- Product Type- Manesty type
 - Dist. Water output capacity- 2-4 Ltr/Hr
 - Material- Stainless steel
 - Heater load- 3kw
 - Voltage- 220-250V
 - Pyrogen free
 - Wall mounting clamp
 - Supplied with cord and plug
 - ISI marked heaters
 - Safety features- low water cut-off probe, mains/ heating indicators
- Specific conditions two years of warranty

6.Vaccum pump

Required specifications:

- Portable,
- Vacuum Pump with oil, with Moisture trap
- Excellent suitability for HPLC & Filtration applications.
- Supplied complete with Vacuum Gauge
- Manifold with four stop cock PTFE inner key
- Motor capacity =1.0 to 2 HP

Specific condition Warranty for one year

7. Oil Bath

Required specifications:

- Capacity:1 Litre
- Dimensions (Dia x Depth): 165 x 90 mm (Approx.)
- Bath Material SS304, Single walled without insulation,
- Heater material used in Bath-SS316 with Bakelite Handles.
- Temperature range Ambient +5 to 200°C by separate temperature control unit with $\pm 1.0^{\circ}\text{C}$
- Accuracy controlled by microprocessor-based PID Controller using a PT-100 sensor.

Specific condition :warranty of 1 year

8. Conductivity meter (Quantity -Four nos)

Required specifications:

- Type : Manual
- Readout : 4 digit LED display
- Measuring Mode : Conductivity (0.01 μS to 200mS), Temperature, TDS
- Accuracy : Conductivity $\pm 1\% \pm 1$ last 1 Digit
- Power required : 230 V AC $\pm 10\%$, 50 Hz, 2 VA
- Dimension : 80 mm (H) x 235 mm (W) x 155 mm (L) (Approx.)
- Standard cond.: Conductance of 1.000 m mho
- Accessories : Platinized platinum Conductivity cell with Cell constant 1, Temperature Probe
- Electrode Stand, Clamp, Screwdriver and Dust Proof Cover

Specific condition :warranty of one year

9. Digital Potentiometer (Quantity-Five nos)

Required specifications:

- Type : Manual
- Readout : 4 digit LED display
- Measuring Mode : 0 to $\pm 1999\text{mV}$
- Accuracy : 0.001 V (1 mV)
- Power required : 230 V AC $\pm 10\%$, 50 Hz, 2 VA
- Dimension : 80 mm (H) x 235 mm (W) x 155 mm (L) (Approx.)
- Standard cell : 1018 mV inbuilt

- Accessories : Platinum electrode (25 mm² plate), Reference electrode – Calomel electrode
- Electrode Stand, Clamp, Screwdriver and Dust Proof Cover

Specific condition warranty for one year

10. Melting point apparatus (Quantity 1No)

Required specifications:

- Digital Melting Point Apparatus with resolution 0.1 °C to measure melting point/ boiling point of solid and liquid samples.
 - Temperature range up to 300°C with 4- digit LED display
- Specific condition one year warranty

11. Digital pH meter (Quantity 2Nos)

Required specifications:

- Micro controller based
- up to 5 point calibration for pH
- pH Range : 0 – 14
- 0.001 pH Resolution
- mV Range : 0 - ±1999.9
- 0.1 mV Resolution
- Temperature compensation : Auto / Manual
- Readout : 2 Line 20 character alphanumeric LCD
- Data storage : 80 Readings
- Printer interface for 80 Column D.M. Printer

Specific condition one year warranty

12. Electrochemiluminescence Analyser

Required specifications:

- PC Controlled system
- Dedicated Software
- PMT/CMOS Modules
- Light proof chamber
- Auxiliary Components
- Potentiostat
- Data acquisition system

Specific condition one year warranty

13. 100mW, 980nm Alignment Laser Diode (quantity -1 no)

Required specifications:

- Output Power (mW):100
- Operating temperature(°C): -10-50
- Wavelength tolerance: ± 5
- Modulation Frequency (kHz):0 – 10
- Color: infrared
- Wavelength (nm):980.00
- Beam Diameter (mm):2 × 4 typical
- Length (mm):36.00
- Operating Voltage (V): 5
- Beam divergence (mrad):<6.0
- Laser class (CDRH): IIIb
- Focus Adjustable
- TTL Modulation up to 10kHz

14. 100mW, 808 nm Alignment Laser Diode (quantity -1 no)

Required specifications:

- Output Power (mW):100
- Operating temperature(°C): -10-50
- Wavelength tolerance: ± 5
- Modulation Frequency (kHz):0 – 10
- Color: infrared
- Wavelength (nm):980.00
- Beam Diameter (mm):2 × 4 typical
- Length (mm):36.00
- Operating Voltage (V): 5
- Beam divergence (mrad):<6.0
- Laser class (CDRH): IIIb
- Focus Adjustable
- TTL Modulation up to 10kHz

15. Spin coater

- Required specifications:
- **Stage 1:** 500-2,500 rpm, 2-18 Seconds 2-Stage Spinning
- **Stage 2:** 1,000 - 8,000 rpm, 3-60 Seconds

- **Power:** 115 VAC, 60 Hz, 1 Amp 220 VAC, 50 Hz, 1 Amp
- **Vacuum:** 2.1 CFM
- **Speed Stability:** <1%

16. Dehumidifier

- Extraction capacity : 13-15 litres / Day
- 2.5 litres tank capacity or more
- Indicative coverage area : Recommended upto 1500-2500 cu.ft.
- Semi-Permanent Built-in Ionizer
- Power consumption, Power supply 220V-240V/50Hz - 213 watts
- Air Flow - 165m³/hr / 97cfm
- Noise level (approx.) : silent or <44 dB
- Digital display
- Light weight : easy to lift and carry around
- Compressor - Reciprocating
- Refrigerant - R-134a
- Running Temperature - 5°C – 35°C
- Auto restart : resumes operation once power comes on
- Auto resume : pre-set humidity levels maintained on power resumption
- Warranty : 12 months
- Catalogue of the quoted instrument and images are required.

17. Hot Air Oven (Quantity 2 Nos)

- Hot Air Oven Memmert Type (With 3 side heating element) Outer body made of M.S sheet, powder coated Inner Chamber choice of Aluminium / Stainless steel
- Temp: range Ambient + 50 to 250 °C , Accuracy : + 1 °C at higher Temp.
- Temp: controlled by: Hydraulic Thermostat / Digital Electronic
- Temp: controller cum indicator.
- Insulation : Glass wool 63 mm. thick.
- Internal Dimensions L x W x H in cm : 60 x 60 x 60
- No. Of shelves : 2
- Capacity : 100-150 Lit

18. Magnetic Stirrer with hot plate (quantity – 1 no)

- Capacity - 10 Litres
- Set up plate material- Ceramic Coated SS
- Heater Temperature - Ambient to 300 °C
- Variable Speed - upto 2000 RPM
- Set-up plate dimensions (mm) - 140 mm
- Protection Class IP 21
- Probe to accurately measure temperature of medium
- Specific condition two years of warranty

19. Water bath (quantity – 4 no)

- Temperature range: Ambient temperature to 99° C with control accuracy of $\pm 1^{\circ}$ C.
- Temperature control: by a microprocessor
- Bath size: 50 x 30 x 20 cm or higher
- Bath volume: 20 litres or higher
- Bath cover, heater cover, and beaker holders should be supplied
- Water pump with suitable connectors to outside hose should be an additional facility

20. Electric Bunsen burner (quantity – 10 nos)

- Electrically operated S.S. Housing,
- Rapid heating for any type of crucible.
- Temp: up to 600° C with Energy regulator

Specific condition one year warranty

21. Magnetic stirrer (quantity – 5 nos)

Requirement

- Capacity: 2 Litre
- Fabricated with thick M.S. Sheet, duly powder coated.

- Driven by AC shaded pole motor,
- used with good quality Alnico permanent magnet for rotator and one Teflon coated magnetic paddle,
- Magnetic stirrer with electronic Speed regulator

22.Refrigerator for laboratory purpose

Technical Specifications

- Upto 12 hours of cooling retention even during power cuts
- Total capacity – 330 L
- Freezer capacity- 95 L & Cooler capacity – 235 L
- No. of doors- 2
- Refrigerant type – R134a
- Type- Top freezer
- Energy Efficiency- from 3 to 5 stars
- Annual Energy Consumption- Below 244 Kilowatt Hours
- High Freezer Capacity
- Installation Type- Freestanding
- Special Features- Inverter, Stabilizer Free Operation, Door Lock
- Voltage- 220-240 Volts
- Defrost System- Frost Free
- Indoor dimensions (W*D*H) – 620*630*1645 mm or better

Specific conditions: least 2-year warranty, Included Components- Ice Tray, Key, User manual, Warranty card

Terms and Conditions:

1. Quotes should be inclusive of cost, freight, taxes etc. and should be delivered at the Department of Chemistry, University of Kerala, Kariavattom
2. Pre-installation requirements should be correctly mentioned and a user list should be provided.
3. Incomplete & conditional quotations and quotations received after the due date will be summarily rejected without assigning any reasons thereof.
4. Quotation submitted shall remain valid for the current financial year.
5. The undersigned reserves the right to reject or accept the quotation without assigning any reason.
6. **Validity:** The Bid will be valid for 120 days from its date of opening. Further extension can be done by mutual consent.
7. **Installation and Commissioning:** The items shall be installed and commissioned at Department of Chemistry, University of Kerala, Kariavattom Campus. All incidental expenses should be borne by the supplier.
8. **Payment:** The University will release the payment only after inspecting the equipment and satisfy that the supply is as per the requirements. The payment will be made after successful completion of the supply and producing invoice in duplicate.
9. **Warranty/Guarantee:** The supplier shall guarantee to repair/replace the items or its part –if found defective within the warranty **period of 02 years**. The entire expenditure for repair/ replace of the item in this regard shall be borne by the supplier.
10. **Service facility:** Supplier should mention their details of service setup and manpower in Trivandrum who are responsible for after sales service.

11. In case of the dispute arises, the decision of University authority shall be final and binding on bidders.
12. General rules relating to the purchase of materials/equipment will also be applicable to this tender.
13. Those firms who are interested to quote more than one instrument should send individual quotations for each item separately.
14. Catalogue of the quoted instrument and images are **mandatory**.
15. Those who are interested should send their bid in a sealed cover superscribed with “**Quotation for Ref. No: (.....)**
Equipment Name: (.....)” and addressed to **Dr Suneesh C V, HOD, Department of Chemistry, University of Kerala, Kariavattom Campus, 695581, Kerala.**

Kindly submit lowest quotes on or before 28.12.2023, 4. 30 PM.

Sd/-

Dr. Suneesh C. V.
Assistant Professor & Head

