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PERIYAR UNIVERSITY

(Reaccredited with 'A' Grade by the NAAC)

PERIYAR PALKALAI NAGAR
SALEM – 636 011.

RE-TENDER NOTICE

Advt. No. PU/R/RUSA Fund/Equipment Purchase-3/139-2018 Date: 26-04-2018

Sealed tenders will be received by the Registrar, Periyar University, Periyar Palkalai Nagar, Salem – 636011 up to 2.00 P.M. on **28-05-2018** for the **Purchase of Gas Chromatography-Mass Spectrometer (GC-MS) Equipment for Periyar University** from reputed firms. The intended tenderers should show their credentials and get concurrence of the Registrar before purchase of tender schedules. Tender schedules can be had from the undersigned from **27-04-2018** to **25-05-2018** between 11.00 A.M. and 4.00 P.M. on payment of demand draft drawn in any nationalized bank in favour of **"The Registrar, Periyar University, payable at Salem"** as detailed below. Tender should reach this office on or before 2.00 P.M. on **28-05-2018**.

Tenders to be opened on **28-05-2018** at 3.00 P.M. in our office

The EMD in the form of demand draft should be drawn in any Nationalized bank in favour of the Registrar, Periyar University, payable at Salem.

Sl.No	Description	Qty.	Cost of tender documents (Including GST 12%)	EMD Rs	Time of completion of supply
1.	Gas Chromatography-Mass Spectrometer (GC-MS)	01	Rs. 10,080/- (Cost-Rs. 9,000/- + GST 1,080/-)	EMD at 1% of the Instrument Value	1 Month

(Specifications are Overleaf)

REGISTRAR

Specifications for GC-MS

General Features of GC

- Fully automated with programmable pneumatic control (PPC) (digital control) for injector, detector and purge gas. .
- Instrument should be compatible to computer and software should be Window 7 or latest.
- Basic system with PPC control for carrier/detector zone gases.
- PPC should provide optimum performance with all types of columns and detectors
- All parameters should be stored as a part of method for better analysis reproducibility
- System must have touch screen user interface for easy instrument operation

Gas Flow control

- Must come standard with programmable pneumatic control
- Digital Pneumatic Control for setting column flow with pressure, flow and linear velocity.

Inlet configuration and usability

- Injectors should be controlled by EPC/PPC/AFC.
- Removable glass liner for trapping non-volatile residues.

Capillary Injector

- Operating Temperature range 50 °C to 450 °C in 1 °C increments
- PPC pneumatics include automatic control of split vent by split flow or split ratio

Programmable split/splitless capillary injector

- Temperature-programmable inlet
- Operating Temperature range 50 °C to 500 °C in 1 °C increments
- Heating rate of 1 °C/min to 200 °C/min or ballistic
- Two-ramps temperature program
- Large-volume injection of up to 150 µL
- PPC pneumatics include automatic control of split vent by split flow or split ratio

GC Oven Characteristics

- Volume: approximately 10 Litres or more for easy fixing and removing different types/dimension of columns without compromising rate of heating or cooling of oven.
- All temperature and time functions should be micro-processor controlled and displayed on the screen, column over-heat protection, should be settable up to 450 °C, set point resolution must be at least 1 °C and cool down time from 450 °C to 50 °C is less than 2.0 min or better
- The oven should have excellent temperature control and fast cool down system.
- Oven must accommodate upto two 60m × 0.53 mm id capillary columns.
- Maximum achievable temperature ramp rate should be 140 °C/min or more
- Temperature ramps should be 9 or more.
- Time settings: It should be 1 min increments for values 0 to 999 minutes or wider

Autosampler

- Inbuilt autosampler with sample vial capacity 108, plus one priority
- Vial size - 2ml
- Waste and wash vial size - 4 ml
- Sampling volume - Capable to inject from 0.1 µl to 50 µl
- Sample pre-rinse - Prepares the autosampler syringe in advance of the GC becoming ready

Detector

Mass Spectrometer (MS):

- Must have EI (Electronic ionization) standard and CI (Chemical Ionization) upgradable facility
- Mass number range: m/z 1.0 to 1200 amu
- Scan rate upto 12,500 amu/sec or better
- EI Sensitivity must 800:1 (RMS) or more for 1 pg octafluoronapthalene (OFN)

MS must have at least unit mass resolution.

- MS must have a linear dynamic range of at least 105.
- Ion source can be easily removable and upon reinstallation must make all electrical connections automatically (i.e., not require manually connecting wires) and produce positive pressure which automatically seals the vacuum chambers. Source operating

temperature must be settable from 50 °C to 350 °C

- Filament should be of best quality.
- Ion Source and Filament Must be serviceable without exposing the quadrupole assembly and detector from the vacuum chamber.
- GC Transfer line must have independent temperature control over the temp range 50 °C to 350 °C
- Quadrupole must be metallic robust enough to allow cleaning of any contaminates; thin films are not acceptable.
- Pumping system must come standard with at least 255 L/sec (nitrogen) air-cooled turbomolecular pump with the option for liquid cooling

Flame Ionization Detector

- Operating temperature: 100 °C to 450 °C in 1 °C
- Minimum detectable quantity: < 3 x10–12 g C/sec Octane
- Linearity: > 107
- Makeup gas: Not required

Electron Capture Detector

- Operating temperature: 100 °C to 450 °C in 1 °C increments
- Source: 15 mCi 63Ni
- Temperature protect: 470 °C by software
- Minimum detectable quantity < 0.05 pg Perchloroethylene
- Linearity: > 104

Software

- Software performing data analyses at least as per DIN/ISO/US-EPA, calibration, blank correction, data import, export, handling and reporting, quality control protocols, computer based training

- License copy of Software should be supplied along with pre-loaded on PC and GCMS system.

	• NIST Library with original CD and documents should be quoted in option.
Power Supply	• 220 VAC ±10%, 47 to 53 Hz.
Head Space	• Head-space with Pressure Balance Technology (Preferred) • Automated Head-Space Sampler with Intuitive Touch Screen graphical user interface for easy control of the system with minimum 40 vials capacity • Sampler should have priority vial facility for emergency analysis. • Standard vial size 22 ml • Sample and transfer line temperature -- settable to 35°C to 210°C in 1°C increments. • Headspace should have minimum 12 vials overlapping capacity in thermosetting. • Headspace should have automatic leak check, power saving and gas saving facility.
Warranty	Two-year use guarantee should be provided.
Computer	Suitable Desktop LED Monitor, Laser Color printer to work with the offered instrument.
UPS/AC	UPS (5.0 KV) for un-interrupted data collection of up to one hour. 1.5 Ton A/C – 1 No
Gas Cylinders	Required cylinders such He, N2, Zero air, H2 each should be 1 no, and suitable regulators and purification panels should be provided.
Capillary columns	Suitable capillary columns has to be provided to work with FID, ECD and MS detectors (Pesticides, FAME, organic solvents and other general purpose columns should be provided) Totally atleast 4 no of columns should be quoted.