ASSAM UNIVERSITY, SILCHAR

NOTICE INVITING TENDERS

Assam University, Silchar, invites SEALED BIDS from reputed manufactures/ authorized distributors/ authorized firms with sound technical capabilities for supply, installation and commissioning of the following items to be procured under following projects, P.I. -Prof. Piyush Pandey, DBT major research scheme, in the Department of Microbiology, Assam University, Silchar.

Project 1: "Rhizosphere Microbiome for Improving Symbiotic Nitrogen Fixation and yield of lentil in North Eastern States of India."

Sl.no	Instruments	Description and specification of the item	Quantity required	Last date of submission of sealed tender
1	**Ultra Sonicator system**	• Operating frequency: 30 kHz • Output: max. 100 W • Output settings: 20 to 100 % • Duty cycle (pulsed operation): 0 to 100 % • Power consumption: 115 W • Setting times: by means of an optional timer • PC-connection: Optional, socket integrated • Operating temperature: + 5 to + 40 ºC • Limits of humidity: 10 to 90 %, non-condensing	One	Given Below

		• Line voltage: 230 V/ 50 Hz, 115 V/ 60 Hz • External dimensions: W x H x D 130 x 180 x 50 mm • Sonotrodes should be made of Titanium and solid type that is without replaceable tip. • Two sonotrodes for samples 2ml to 50 ml and 0.1 ml to 5ml. Cost of the sonotrodes should be mentioned separately. Timer from 0 to 99 mins 59 secs.		

Project 2: "Impact of rhizosphere mediated bioremediation of polyaromatic hydrocarbons on different soil microbiomes, in contaminated surface soil of oil and gas drilling sites in Assam."

Sl.no	Instruments	Description and specification of the item	Quantity required	Last date of submission of sealed tender
1	**GC-MS**	**GC MAINFRAME :** • Gas Chromatograph with Advanced / Electronic /Programmable Flow control technology for Simultaneous Pressure, Temperature and Flow Programming • Large Column Oven with temperature range from Ambient +4^{o}c to 450^{o}c or better • Temperature Accuracy : ±1 % • Graphical user interface with large LCD display • Constant Linear velocity mode/constant pressure/constant flow mode should be available • Auto Ignition facility is desirable • Split ratio programming with battery protected memory • Self-diagnostic function with GLP/GMP support • Fast data transfer, acquisition speed of 250Hz (4ms) or more- should be able to "catch" very sharp peaks • Fast oven cooling speed 450 deg to 50 deg within 4 minutes • System should have the capability to accommodate Narrow Bore (0.1 mm i.d) to Wide bore capillary Columns (0.53mm i.d) columns	One	Given below

		• GC Should be capable of accommodating capillary as well as Packed columns. **INJECTORS :** • Independently temperature controlled injection ports. • Split / Splitless injector for capillary Columns with Septum Purge functions. **Split/splitless Injector:** • Must be able to install 3 independently temperature controlled injector units simultaneously. • Split ratio setting range : 0 to 9000 or higher. • Maximum operating temperature up to 450°C. • Number of temperature programming steps : 7 or higher • Must be able to set total flow range : 0 to 1,200ml/min for He and H_2, and advanced/electronic flow control pressure range up to 970 KPa or higher • Efficient gas saver mode is desirable to reduce gas consumption during standby without affecting performance. **Auto Injector :** • Sample injection method: Liquid sample injection via micro syringe • Number of samples: 12 vials or more • Number of sample injections: minimum 1-99 injections per sample • Cross contamination: Less than 10^{-4} **MS Detector : EI (Electron Ionization):** • Mass Filter : Metal Quadrupole rods with pre rod for filtering • Mass Range : 1.5 to 1000 m/z or higher • Sensitivity EI scan(performance) : 1 Pg OFN, m/z 272 should give S/N ≥ 2000 :1 for the entire mass range • Mass Stability :		

		±0.1 amu / 48hours • Scan Speed : 20,000 u/sec, with minimum measurement interval of 0.01 sec or better • SIM : 64 channels x 128 ions sets/groups or higher • Variable Ionization Voltage : 10 – 200ev • Variable Ionization Current : 5 - 250µA • Ion source Temperature : Variable between 140-300 ^{0}C and should be Independently controlled • Filament : Dual (Automatic Switching during analysis) • Detector : Electron Multiplier with Overdrive lens giving dynamic range of 8x10^6 • Turbo molecular pump differential exhaust system 190 L/sec and 170 L/sec (He) or or Turbo molecular pump with total capacity of 350 L/sec or higher. • Auxiliary pump/Rotary pump: minimum 30 L/min (60 Hz) – 1 no, for initial Vacuum build-up support. • The Ion Source should be Front access type for easy maintenance. • There should be upgradability option to Chemical ionization. • There should be provision for Hydrogen and Nitrogen gas to be used as carrier gas apart from He. • The GCMS system should be capable of demonstrating performance of Instrument Detection Limit (IDL) of ≤ 500 fg for 1 pg OFN at m/z 272 when EI scanning at 20,000 u/sec. **<u>Software for Control of GC as well as GCMS :</u>** • 32 bit/64 bit windows based Software Should Provide Single Point Control of all GC Parameters, Injectors, detectors.		

		• Software should have Security, Audit trail, System check, Software integrity and system Suitability test should be included as standard functions. • Flexible report Format i.e for Method, chromatogram, Mass Spectrum, Peak table, Quantitation result, calibration curve, Status Log , texts, graphics. • It should provide automated tuning & File management functions with Library Search facility. • There should be User friendly post run analysis facility with flagging. • Complete Software control of vacuum system with Auto Start-up / Shut-down and vacuum protection against Power Failures. **Syringes & Columns :** • 10 µl GC Syringe - 1 no • Rtx- 5 MS or equivalent capillary column 30mx0.25mm, 0.25µ – 1 No • Rtx-1 or equivalent capillary column 30mx0.25mm, 0.25µ – 1 No **Direct Sample Injection facility to MS (optional):** Suppliers should quote necessary accessory for directly injecting sample to the MS ion source at programmable high temperature up to 500°C without the need of injecting sample through GC from the same manufacturer of GCMS **Essential utility kit including essential spares for Trouble Free maintenance for minimum of 1 year should be supplied.** **Installation Accessories :** • Branded Computer with LaserJet Printer – 1 set • 5KVA Online UPS with 1 Hour Battery backup for GCMS system – 1 No • Filled Helium Gas Cylinders • Double Stage Gas Regulators for all the above Cylinder • Gas Panel for GCMS should include Molecular sieve, Moisture & Oxygen traps with necessary tubing's, Nuts & Ferrules.		

2	**Cooling Centrifuge**	• System should have max RCF of 20,913 x g • System should have max RPM of 14000 RPM • Acceleration time: 10s • Deacceleration time : 10s • Soft ramp function for adjustable for rotor acceleration and braking slowly • Timer should be of 30 s –99 min with continuous run function continuous • Noise level should be <55 dB • Wide temperature range from -9°C to + 40°C, which is modifiable during the run operation. • System should able to store 35 user define procedure. • System should able to switch display between rcf and rpm speed setting • Should have Short Spin Function • Should have At Set RPM" function - time count starts after reaching the set rpm • Should have Fast Temp function - to start a temperature control run directly • Should have Fast Temp pro function - to start a temperature control run with defined start time • System should have ECO Shut off Function to reduce energy • Should have Built in condensation drain to eliminate water condensation • System should have automatic rotor recognition and imbalance detection for maximum operational safety • System should have Quick lock technology for quickly opening and closing the rotor lid • System should have standby cooling function to hold temperature when centrifuge is not in use. • System should have dynamic Compressor Control (DCC) technology for optimized cooling performance • System should be supplied with fixed angle rotor 6 X 85 ml with adapter for 15 ml conical tubes 6 nos, and adapter for 50 ml conical tubes 6nos , max speed of 11,000 rpm and Max RCF of 15,500 X g. • System should be supplied with aerosol tight 30 X 1.5/2.0 ml rotor with max RPM of 14000 and RCF of 20800 along with 0.2 ml adapter 30 nos • Should have Power supply: 230 V / 50-60 Hz • Should have Dimension (WxDxH) : 64x55x34 cm	One	Given below

3	**Autoclave**	Operating temperature range(Sterilizing):105 ~ 135°C(0.019 ~ 0.212MPa) Operating temperature range(Heating): 45 ~ 104°C(0 ~ 0.015MPa) Operating temperature range(Warming): 45 ~ 95°C Time Display: Digital Temperature Display: Digital Maximum operating pressure: 0.25MPa Pressure gauge (Display Range): 0 ~ 0.4MPa Pressure gauge (Display): Analog Display range (Sterilizing, Heating): 0:00 - 9:59, 0 - 99hours, 0 - 999min. (0:00 - 9:59,10 - 99hours changeable) Display range (Warming): Variable: 0 - 99hours Chamber dimensions: φ370 x 774mm Chamber capacity: Effective internal volume:85L Dimensions (mm): 470W x 528D x 1003Hmm (With protruding:625D) Weight: 72kg Heat source: 3kW electric heater Power consumption (calorific value): 3.0kW (2580cal/h) **Safety device:** • Water level sensor, • Current leakage breaker, • Lid interlock, • Over-heat prevention, • Over-pressure prevention, • Open temperature sensor detection, • Safety valve **Environmental Conditions:** When operating the autoclave, observe the environmental conditions given below: ❖ Ambient temperature: 10 to 35°C ❖ Atmospheric pressure: 860 to 1060hPa ❖ Relative humidity: 30 to 85% ❖ Maximum gradient: 2	One	
4	**Power Backup**	• Rating:10KVA/10000VA • DC Volt:192V • Input Phase: Three • Input Voltage:375V • Input Power Factor: 0.99 • Input Frequency: 45Hz – 55Hz • Output Phase: Single • Output Voltage: 230 +1% • Full Load Current: Rated at 0.9 p.f. • Nominal Frequency: 50Hz+0.05 Hz • Output Power Factor: 0.9 • Over Load Capacity:125% for 10 minutes & 150% for 1 Minute • Static Voltage Regulation:+6% for 50% step load change • Dynamic Voltage Regulation: +1% of Nominal for all variations change • Total Harmonic Distortion: <3% • Inverter Efficiency: >93% on full load • Crest Factor-: 3:1 • Isolation Transformer: Galvanic Isolation Transformer at	One	

		input • Protection Charger: Input circuit breaker, charger over voltage Charger over current limit. • Battery: Battery low cut off/ Current limit, HRC Fuse in battery path, battery over charger trip. • Inverter: Output over voltage/ Over load trip Current limit, short circuit. • Display Indications: Mains ON, UPS ON, UPS Trip, UP OV/UV, Battery Low trip, • Display: LCD Display for checking Input & Output Parameters • BATTERY-Sealed Maintenance Free Battery, VAH required: 12480 for 2 hrs backup. • Environment Operating temperature Range: 0 deg C to 55 deg C • Storage Temperature Range: -20 deg C to 60 deg C • Relative Humidity: 95% non condensing • Max. operating altitude without derating: 3000 meters • Certification: ISO 9001, ISO 14001, ISO 18001,CE Certification.		

Closing date and time for submission of tenders: 07/09/2017

Date and time for opening of tenders: 08/09/2017

Venue for opening of tenders: Department of Microbiology, Assam University, Silchar

Terms and conditions

1. The tenders complete in all respects should be addressed to Prof. Piyush Pandey, PI, DBT, Major Research Project-" Impact of rhizosphere mediated bioremediation of polyaromatic hydrocarbons on different soil microbiomes, in contaminated surface soil of oil and gas drilling sites in Assam", Department of Microbiology, Assam University, Silchar-788011, Assam.

2. The tenders for equipments must submit the bid(s) in two bid-system (Technical and Financial) packed in separate envelopes with clear mention of same.

3. Tenders by e-mail, Fax, Telex, Telegram will not be accepted. Tenders must be submitted in sealed envelope only clearly indicating "TENDER FOR ITEMS FOR DBT-Major Research Project/Microbiology-2013".

4. In case of any modifications in specifications/terms and conditions/ any clarification to the bid document, it will be hosted in the university website only and the bidders are requested to log to our website from time to time and no separate corrigendum will be issued in this regard.

5. The rate should be exclusive of taxes and **applicable tax** should be **clearly** indicated.

6. The rates should be quoted along with supporting documents of specifications, technical features, list of users and authorized dealership documents (if applicable). A valid and updated original equipment

manufacturer (OEM) authorization form to be submitted to the tendering authority, if authorized distributors/suppliers/firms are participating.
7. Details of availability of after sale support will have to be furnished.
8. The University is exempted from paying customs and excise duty.
9. Propriety items should be quoted with sole manufacturer/ Dealership certificate. Without dealership or manufacturer's certificate no bids will be accepted.
10. No advance payment will be made.
11. Items of foreign origin should have insurance up to installation site.
12. If any item/equipment delivered in damaged condition, the equipment should be replaced with new one immediately.
13. In case of equipment of foreign origin, the Indian agent should submit one undertaking in nonjudicial stamp paper, stating that if any equipment delivered in damaged conditions they will be liable to replace the same with a new one (applicable only when order is placed).
14. The University reserves the right to accept or reject any or all the bids after recording proper justification for same.
15. The items to be received and installed at dept. of Microbiology, Assam University ,Silchar,

Sd/-

Prof. Piyush Pandey (PI)
Department of Microbiology
Assam University, Silchar
Pin-788011, INDIA

Copy to:
1. Copy to secretary to VC, AUS for VC's kind information.
2. The Head, Department of Microbiology, AUS
3. The registrar, AUS
4. THE Finance Officer, AUS
5. Internet Audit Officer, AUS
6. Convenor, Sponsored Research Project Cell, AUS
7. File for record