DEPARTMENT OF CHEMISTRY
&
CENTRE OF ADVANCE STUDIES IN CHEMISTRY
PANJAB UNIVERSITY, SECTOR-14,
CHANDIGARH 160014

TENDER DOCUMENT FOR THE PURCHASE OF INSTRUMENTS

Last Date and Time for receipt of Tender:	**21/03/2017, 05:00 p.m.**
Date & Time of opening of Technical bids	**22/03/2017, 3.00p.m. in the Department of Chemistry**
Date & Time of opening of the Price bids:	**To be notified later**
Tender Fee:	**Rs. 1000/-**

Note:

1. Tender fee of Rs.1000/- is to be submitted along with the Tender in the form of demand draft of Rs.1000/- payable at Chandigarh in favour of ' The Registrar, Panjab University' Chandigarh.

2. If date of opening of technical bids is changed, the same will be intimated on University website

General Terms and Conditions

CAS Coordinator, Department Of Chemistry, Panjab University, Sector 14, Chandigarh is interested in the procurement, installation and commissioning of instruments along with its operational training as per the prescribed technical specifications (Annexure A) so as to reach **The Chairman, Department Of Chemistry, Panjab University, Sector-14, Chandigarh 160014, INDIA** as per following schedule:

(a) Last Date and Time for receipt of bids:	**21/03/2017, 5.00 p.m.**
(b) Date & Time of opening of technical bids:	**22/03/2017, 3.00 p.m.**
(c) Date & Time of opening of Price bids:	**Date & time will be intimated.**
(d) Date and Time of demonstration of product:	**Date & time will be intimated.**

SECTION–I

PROCEDURE FOR SUBMISSION OF BIDS

1. There will be **Two bid system** for this Tender: *Technical bid and Financial bid*
2. If a tenderer is submitting a bid for two or more instruments ,separate sets of documents(including EMD and tender fee) as mentioned below will have to be submitted.
3. **Delivery of Tender:**

Tenderers should submit their tenders in these parts:

(a) Technical Bid
(b) Price Bid &
(c) Earnest Money; (each part in separate sealed cover) and
(d) Tender Fee of Rs. 1000/-, in the form of Demand Draft in favour of 'The Registrar, Panjab University', Sector 14, Chandigarh, Payable at Chandigarh.

- **EMD, Technical Bids and Price Bids should be placed in separate sealed covers and superscribed as EMD, Technical Bid, and Price bid respectively for Supply of Instruments (Name of the instrument should be mentioned) Due on 21.03. 2017.** ** Due date as per First (Title) Page of this tender notice.**

- The above said documents viz., Technical bid, Financial bid and EMD covers prepared as above, along-with Tender Fee should be enclosed in a single sealed cover marked as under:

Tender for the supply of …….....

Due on ……..... (last date for submission).

Name & Address of the Tenderer……

The main envelope containing all above covers should be addressed to The Chairman, Department Of Chemistry, Panjab University, Sector 14, Chandigarh, 160014, India

Note: Price should not be indicated in the Technical/Commercial bid otherwise the Tender will be rejected

All the envelopes should bear the name and postal address of the Tenderer and shall bear the address of the office, where tender is submitted. Both the bids shall be kept valid for acceptance for a period of 90 days after opening of the technical bids. The purchaser will not be responsible for any postal delay or any other cause that may lead to delay in the receipt of the documents beyond the stipulated date and time stated in the tender document.

4. Tenders received after the due date will not be accepted. If the last date for submission of Tender falls on any declared holiday in the University, the next working day will be

considered as the last date for the same.

5. The bids prepared by the Tenderer and all correspondence and documents relating to the bids, should be in English language

6. The contract for the supply of the items is non-transferable.

7. Tender/Offer should be type written, otherwise the same will be rejected

8. Each page of the tender document should be signed by the authorized signatory.

9. Each offer should be complete in all respects.

10. Telegraphic/electronic/conditional offers will not be accepted.

SECTION–II

TERMS AND CONDITIONS

1. **Opening of bids:** Technical bids will be opened by the Committee after the closing date and studied. The Tenderers will be invited for presentation and clarifications if needed. Financial bids of the Tenderers complying with the prescribed Technical specifications will be opened by the Committee. Tenderers or their authorized agents may be present if they so desire during opening of the tenders.

2. **Rejection of bids:** The Committee reserves the right to reject any or all offers without assigning any reason.

3. **EMD:** The Tender bid must accompany an EMD of minimum 2% of total value. The EMD should be made by means of an A/c payee DD in favor of '*CAS-Coordinator, Department of Chemistry, Panjab University, Chandigarh'* payable at Chandigarh. No interest is payable on EMD.

4. **Refund of EMD:** The EMD will be returned to unsuccessful Tenderer only after the tenders are finalized. In case of successful tenderer, it will be retained till the successful and complete installation of the equipment.

5. **CIF value and comparison of Financial bids:** CIF value upto Chemistry Department, Panjab University, Chandigarh should be quoted and will be considered for comparison of bids. Bids quoted in foreign currency will be converted into Indian Currency at the exchange rate applicable on the day of opening of the financial bids for comparison purposes.

6. **Warranty Period:** The warranty period should be for a *minimum of 5 years (with spares)* from the date of installation with satisfactory performance as per specifications.This has to be provided by the tenderer at no extra cost whatsoever. Any deviation from this requirement will make the tender invalid and the same will be outrightly rejected.

7. **PBG:** Tenderer selected for supply of equipment will have to provide Performance Bank Guarantee (PBG) on any *scheduled bank situated in India, equivalent to 10 percent of the cost of the equipment* which should be valid until the expiry of the Warranty period. The PBG will be provided by the Company along with the letter of acceptance of the order by the Principals. LC will be opened in favour of the Principals only after obtaining the PBG.

8. **Terms of Payment:** LC will be opened for the 100% value of the equipment, 90% of the amount will be released after the shipment and remaining 10% after the successful installation of the equipment.

9. **Delivery period** : Delivery should be made within *120 days* of opening of the LC

10. **Delayed delivery:** If the delivery is not made within the due date for any reason, the Committee will have the right to impose penalty as under::
    i) First extension for one month or part thereof @2% of the cost of instrument
    ii) Second extension for an additional month or part thereof @ 3% of the cost of instrument

11. **Non delivery beyond extended period:** If the Tenderer fails to execute the order within the second extension mentioned above or mutually agreed time frame, the order will be cancelled and EMD forfeited by the Dept. He will also be liable for all damages imposed by Chemistry Department for non supply of equipment including the liability to pay the difference between the price accepted by him and those ultimately paid by the Chemistry Department for the equipment, Such damages will be assessed by the Committee for the purchase of instruments.

12. Increased statutory levies and duties above the rate quoted in the offer will not be an excuse for the Tenderer to delay the supply beyond the date specified in the tender.

13. **Validity of rates:** Rates quoted should be valid for at least *4 months* from the closing date of the tenders.

14. **Consistent pricing**: The rates quoted for the Equipments by the supplier shall in no case exceed the lowest price at which the supplier of this Equipments of identical description made to any other person/organization/Institution during the above said period and should attach an undertaking in this regard

15. **Installation requirements**: The Supplier will clearly mention installation requirements on our part in the *Technical bid.*

16. **Installation time**: The company must install the equipment *within a period of two months* from the date of delivery of the equipment at Chemistry Department, Chandigarh.

17. **Free Installation:** The equipment and software should be installed and tested to the specifications *free of cost*.

18. **Supporting Equipment**: The Tenderer will provide all requisite supporting equipments like isolation transformer, step down transformer, vibration free platform *if needed*. We need a complete installed system.

19. **Licensed Software and its upgradation:** *Two user licenses* for analysis software (if any) should be provided. The certified/licensed software and programs should be the part of the supplies. There should be *free up gradation of software upto 5years*

20. **Factory Acceptance Data:** Proposed acceptance criteria for the equipment should be provided by the supplier. in order to compare the performance against the quoted specifications. *Manufacturer's test certificate along with test conditions and results* is to

be supplied along with the equipment.

21. Tenderers are advised to study all technical aspects and terms & conditions of the tender documents. Submission of tender shall be deemed to have been done after careful study and examination of the Tender Document with understanding of its implications.

22. **Only Manufacturers or Authorized dealers to bid**: The offering firm should clearly mention whether they are the manufacturer or authorized agent/dealer of the manufacturer. In case of agent for overseas manufacturer, a letter of authorization from the manufacturer should be submitted along with the offer. The Tenderer can also enclose the rates on the letterhead of the manufacturer if he has been authorized to do so by the manufacturer.

23. **Descriptive literature**: A set of specifications, description and illustrated literature of the equipment and related peripherals *should accompany the Techno-Commercial bid*.

24. **User and Service Manuals:** A set of User's manuals and Service manuals of the main instrument, attachments and related equipment should be supplied with the equipment

25. **Equipment must be new**: The Tenderer must ensure that the equipment being offered is a new one and not refurbished or repairedone.

26. **Defective Equipment:** If any of the equipment supplied by the Tenderer is found to be substandard ,refurbished, unmerchantable or not in accordance with the description /specification or otherwise faulty, the committee will have the right to reject the equipment or its part. The prices of such equipment shall be refunded by the Tenderer with 18% interest if such payments for such equipment has already been made to him.

27. All damaged or unapproved goods shall be returned at suppliers cost and risk and the incidental expenses incurred thereon shall be recovered from the supplier. Defective part in equipment, if found before installation and/or during warranty period, shall be replaced within 45 days on receipt of the intimation from this office at the cost and risk of supplier including all other charges.

28. **Damage during transit:** In case of any mishappening/damage to equipment and supplies during the carriage of supplies from the origin of equipment to the installation site, the supplier has to replace it with new equipment/supplies immediately at his own risk and costs. Supplier will settle his claim with the insurance company as per his convenience. The Chemistry Department will not be liable to any type of losses in any form.

29. **Legal jurisdiction:** Any dispute in this regard of any term of the offer and on the supply of equipment is subject to *Chandigarh jurisdiction* only.

30. **Training** Two weeks training should be provided free of charge at the premises of Chemistry Department out of which one week should be on equipment usage & software and one week on maintenance.

31. **Availability of Spares:** The Tenderer must assure the availability of spares for servicing of equipment *for at least 10 years*. Supplier should give an undertaking that spares parts will be supplied within the specified periods as and when ordered.

32. **Chemistry Department Infrastructure**: Chemistry Department will provide required air conditioned space, *single phase power supply* with required electricity outlets.

33. **Clearance:** The tenderer will do all types of clearance work and bear all the expenses involved to deliver the equipment at the site of installation. Department will only provide documentary support including Customs Duty Exemption certificate. Principals/Tenderer will themselves have to procure any requisite permission from the Govt. of country of origin of equipment.

34. **Bank Charges:** Bank charges for opening 'Letter of Credit' in India will be borne by the Panjab University and Bank charges abroad will be borne by the suppliers.

35. **Similar Models installed:** The Tenderer must mention in the *Technical bid* the similar model of equipment installed in India *during the last two years* and the *addresses of contact persons at these places.*

36. **Application Specialist:** The Tenderer should mention in the *Technical bid* the availability and *names* of *Application Specialist* and *Service Engineers* in the nearest regional office.

37. Response Time: The Tenderer should mention in the *Technical bid* the response time for attending to a complaint about the equipment**.**

38. **Change of Indian Representatives:** The original manufacturer/Principals should give an undertaking that the aforementioned warranty and availability of spares clauses will be valid even in the case of change of their representatives in India.

(Annexure A)
Specifications for instruments

1. VIBRATING SAMPLE MAGNETOMETER

Specification:

COMPLETE SETUP FOR TAKING MEASUREMENTS OF MAGNETIC MOMENT AND MH LOOP AT ROOM TEMPERATURE AND MAGNETORESISTANCE
System should include
1. Electromagnet
2. Its bipolar power supply
3. Water chiller if cooling is needed for operation
4. Vibrator assembly along with its mounting on electromagnet.
5. Guassmeter with probe mounting fixture and calibration zig.
6. Complete electronics required for the operation along with computer, printer etc.
7. Software for operation of the instrument, analysis and printing the results.
8. Enough no. of sample holders for solid, powder, liquid and samples for room temperature.
9. Consumables and spares(mechanical as well as electronic) for 5 years of operation.
10. Magnetoresistance measurement setup.
11. Any other item(s) missed for making the VSM fully operational.

SPECIFICATIONS

1. Magnetic field for room temp. measurements: 2.5 Tesla or more
2. Dynamic range: 0.1 micro emu to 1000 emu
3. Accuracy : +/- 1%
4. Repeatability: +/- 0.5 % at room temperature
5. Drift: 0.05% over 24 hours
6. Noise: 0.1 micro emu (please specify the time constant)

Optional accessories for the above VSM (may be purchased)

1. Variable temperature measurements (77K to 1000K)
   Should include all the required components, such as Oven, Cryostat, temperature controller, sample rods, sample holders, spares etc.
2. Magnetization vector measurement
   Should include all necessary items and spares.
3. Torque measurement
   Should include all necessary items and spares.

2. ELECTROCHEMICAL WORKSTATION

Specification:

Multichannel System for upto 10potentiostatgalvanostat in one single chassis. It should be possible to control all the channels through one PC or upto two PCs.

Each channel should have following specifications. Price for each should be quoted separately.

No of Channels: 3 No.

Electrochemical Workstation
Specifications:

Compliance voltage:	± 18 V or better at ± 350 mA or more
Maximum Output Current:	± 350 mA or better at ± 18 V or more
Output Voltage Range:	± 10 V or more

Current Ranges: smallest current range: ± 10 nA to current range 100 mA in mulitple ranges or more

Measured current resolution:	40 fA on 10 nA full scale range or better
Potentiostat Rise/fall Time:	300 ns or lower or better
Interface:	USB interface for connection with PC
Input bias current:	< 1 pA
Input Impedance of electrometer:	>90GΩ // 10 pF

Hardware for EIS measurements: Qty 1
Hardware and software for EIS measurements in potentiostatic and galvanostatic control, over frequency range of 10 μHz to 1 MHz. It should be possible to perform EIS measurements over entire frequency range from 10 μHz to 1 MHz upto 350 mA currents. Signal generator frequency range 10 μHz - 20 MHz, Frequency range in 10 μHz - 1 MHz combination with potentiostatgalvanostat. Frequency resolution 0.003%, Input range ± 10 V. Data presentation: Nyquist, Bode, Admittance, Dielectric, Mott-Schottky, Data analysis: Fit and Simulation, Find circle, Element subtraction.

Electrochemistry Cell:
It should consist of the following:
10 mL to 80 ml Glass cell 3no, 20 mL to 80 ml Glass cell 3no , Disc working electrodes with active area diameter 3 mm of GC, Pt & AU each 3no, Pt wire, Ag/AgCl reference electrode double junction type for use in Aqueous and Non-Aqueous media 2 no , Suitable Lid for the cell and purge tube with valve 3 no.

Current Booster:
Current booster to enhance the maximum current of the system. Specifications: Max Compliance Voltage: ±18 Volts, Maximum Output Potential: ±10 Volts, Maximum Current: ±9 Amp or more, Accuracy: ±0.5%, Operation Mode: Potentiostatic and Galvanostatic.

Electrochemical Software:
Software should have facility to record additional signal viz EQCM, bi-potentiostat etc. Import/export ASCII. Ready-to-use Vis & Generic interface for .Net applications should be included. It should have facility to display up to 4 plots simultaneously. The software should support following basic electrochemical measurements: Cyclic Voltammetry, Sampled DC Voltammetry. Taffel Plots, Differential Pulse Voltammetry, Square Wave Voltammetry. Electrochemical methods like Chrono-Amperometry, Chrono-Coulometry& Chrono-Potentiometry.

Computer & Printer:
Compatible branded PC with i5 configuration,Colour Printer with scanner ,Online UPS with one hour back up should be quoted.

3. Water Purifications System.

Specification:

Type II & Type I grade of water

STAGE-1

Pre-treatment system:

Three stage pre-treatment system with 10, 5 & 1 micron depth filters removal of suspended particles .

STAGE-2

Second stage system should have purification process; primary purification by a pre-treatment, secondary purification through RO membrane, final purification step should involve a deionization technology. System should be microprocessor controlled with continuous water purity monitoring. System should have photo-oxidation technology with UV lamp. System should have unique integral recirculation, ensured optimum water quality at point of dispense.

Product Water Quality :

Resistivity	:	5 to >15 mΩ at 25 deg. C M Ω -cm
TOC	:	<30 ppb
Bacteria	:	<1 cfu/ml
Production Rate	:	7 liters or better / hr at 25 deg. C.
pH	:	Effectively neutral.

System should have 25 liters HDPE reservoir or more with level sensors and switches from Original Manufacturer.The water purification system should display the water level in %age and graphical manner to know the water level in the reservoir.

STAGE -3

Third Stage system should have facility to remove Ionic and organic impurities by the polishing purification pack. Product water resistivity is measured before dispense and indicate when the purification pack needs to be replaced.
System should have auto volume dispense up to 2 liter per minute.
System should have on-line monitoring for Resistivity or Conductivity and TOC and same should be displayed on screen.
System should have height adjustable dispenses point which glides easily up and down to accommodate any size of container.

Output Details:

- **Inorganic : 18.2M Ω -cm @ 25°C**
- **TOC : <5 ppb**
- **Bacteria : < 0.1 CFU/ml**
- **Bacteria endotoxin: :<0.001EU/ml**
- **Flow Rate : 2 Ltr./min.**
- **Particles: :Ultrafilteration**

Others –
5 years warranty for the system..
Additional complete set of filters and consumables and list should be mentioned in the bid
The quoted system should meet ASTM Type I, ISO 3696, NCCLS Type I and USP & EP specification.
The system to be supplied with validation documents like IQ, OQ and PQ for system validation

4. Technical specification for Ice Flaker machine.

Specification:

Production in 24 h, up to	155 kg		
Bin capacity, up to	55 kg		
Cooling system	Air Cooled		
Refrigerant	R404A		
Standard voltage	220-240 V~ 50 Hz		
Electrical consumption	650 W		
Fuse	10A		
Water consumption	A 1 - W 6,4		
Sizes [WxDxH]	738 x 690 x 1020 mm		
Weight [net/gross]	94Kg		
Finishing	18/8 stainless steel, scotch brite		
INSTALLATION CONDITIONS			
Installation	Indoor		
Ambient temperature	+10 / +43 °C		
Water temperature	+3 / +32 °C		
Voltage	± 10%		
Water inlet pressure	1bar (14psi) / 6bar (84psi)		
CONNECTIONS			
	L	H	ø
Water inlet	104	247	3/4
Water outlet	53	240	24
	mm		

5. SPECIFICATIONS FOR HIGH PERFORMANCE BET SURFACE AREA ANALYSER

Specification:

1. The system should be equipped with 3 analysis ports. Each port should have pressure sensors enabling up to 3 simultaneous sample measurements. At least one port should be equipped with 0.1 Torr sensor for accurate microporus measurement.

2. Apart from the 3 measurement ports, the system should have a dedicated port for the measurement of saturation vapor pressure.

3. The system should have facility to take care of dead volume issue either by correction method or by suitable method to maintain the liquid nitrogen level

4. The system should be in a position to utilize wide variety of adsorptive gases like Nitrogen, Argon,Krypton, Hydrogen, Oxygen, CO2, CO, NH3, CH4 etc.

5. The offered model should be capable of measuring specific surface area of 0.01 m2 g-1 and larger with N2 and 0.0005 m2/g and above with Kr.

6. The system should also have facility to measure pore size distribution in the range of 0.35 - 500 nm (diameter)

7. The vendor should quote for the system configuration with 1000 Torr, 10 Torr and 0.1 Torr pressure sensors

8. The System should be supplied with a Turbo Molecular pump and a rotary pump dedicated for the analysis

9. The Dewar vessel should have a minimum capacity of 2 Litre or more with a holding time of 60 hours or better.

10. The offer should include suitable sample preparation device with a facility to use heat and vacuum degassing with a maximum temperature of up to 450 deg C or above. The unit should have facility to do simultaneous sample preparation of up to 6 or more samples. Suitable vacuum pump dedicated for the sample preparation device should also be offered

11. The standard system should be supplied with suitable windows based software for system control, data collection and analysis.

12. The standard scope of supply should include performance verification standards and comprehensive list of consumables for trouble free operation.

13. The system should be supplied with suitable Compatible branded PC ,Printer and Online UPS with one hour back up for operation.

14. The vendor should also offer the following items.
    a. Adsorptive gas (N_2) with > 99.999% purity , CO2 ,Argon
    b. Helium Gas with > 99.99% purity
    c. Liquid Nitrogen Cryo container of 10 Litre capacity.
    d. Suitable pressure regulators for the above gases.
    e. 5 years warranty on complete system
    f. 2 Additional set of consumables except gases

6. Technical specifications for cryostat.

Specification:

Category:	Immersion Coolers
Working temperature range (°C):	-90 ... +30
Temperature stability (°C):	±1
Temperature Display:	LED
Cooling capacity:	≈ 350w at +20°C; 280w at -10°C; 170w at -40°C; 100w
Ambient temperature:	5...40 °C
Cooling of compressor:	Air
Immersion probe:	≈ 5.6 x 14.0 (H x Ø) cm
Temperature Sensor:	Stainless Steel (External)
Connection tube (L):	≈150 cm
Voltage:	230 V / 50-60 Hz

7. LIQUID CHROMATOGRAPHY SYSTEM.

Specification:

SOLVENT DELIVERY SYSTEM		
	Mode of operation	Quaternary Gradient
	Settable flow range	0.01 to 10 ml/min or better
	Flow Accuracy	+/- 1.0% or better
	Max. Operating pressure	5,000psi or better
	Flow Precision	≤ 0.1% RSD or better
	Delay Volume	<900uL or better
AUTOSAMPLER with Cooler		
	Injection Volume Range	0.1 to 50µl with 1µL increment or better
	Injection Reproducibility	RSD<0.5% or better
	Sample Capacity	100 samples or better
	Carry Over	<0.005 % (50 ppm) with needle wash
	Temp. range with Chiller	4 °C to 40 °C in 1 ° increments

COLUMN COMPARTMENT		
	Capability	Should able to accommodate at least two 3.00mm ID HPLC columns
	Temp. range	5*C above Ambient to 60*C or better
PHOTODIODE DETECTOR		
	Wavelength Range	190-800 nm or better
	Wavelength accuracy	+/- 1nm or better
	No. of Photo diodes	512 Photo diodes or better with digital, optical (3D mode) and Peak Purity Software
	Noise Level	0.6x10-5 AU at 254nm or better
	Data Acquisition	Up to 80 Hz or better
	Light source	Deuterium lamp, along with lamp warranty of minimum 2000hrs or more.
	Flow cell	10 mm path length , with approx 13 micro liter cell volume
OPERATING SOFTWARE		
	Features	The software should be original, authenticated and versatility for multitasking without multiple software packages: Customizable data reports. At least four original copies should be provided with life time free updates.
WARRANTY		
	Warranty Period	Total five years from the date of installation;
OPTIONAL FLUORESCENCE DETECTOR		
1.	Light source	Xenon Flash Lamp with lifetime of 4000 hrs or better
2.	Excitation monochromator	Settable 200 nm - 1200 nm or better
3.	Emission monochromator	Settable 200 nm - 1200 nm or better
4.	Data Acquisition	Up to 70 Hz or better