



THAPAR INSTITUTE
OF ENGINEERING & TECHNOLOGY
(Deemed to be University)

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Enquiry No. TIET/CS/AA/CED/18341

Dated : October 03 -2018

Sub: Request for Quotation(s) for supply of Electrochemical work Station

Dear Sir

We shall be grateful if you kindly let us have your lowest quotations for the following materials/equipment. THE QUOTATIONS SHOULD REACH THE UNDERSIGNED LATEST BY 16 October 2018 through courier or e-mail (quotation sent by mail from distant locations needs also to be validated through courier/ regd post as hard copy) accompanied by appropriate illustrative literature/catalogues/pamphlets/technical details and specifications as the case may be.

On the quotation envelope/ subject the Enquiry Number & Date should be mentioned on the top of the Envelope/mail subject, quotation received after due date will not be considered and it must split and submitted in technical bid and commercial bid separately with technical bid to have list of references for same equipment/material supplied.

Sr. No.	Item Name	Qty.
1.	Electrochemical work Station Specifications as per attached sheet	01set

The offer sent by you must furnish the following mandatory details / enclosures in price bid:

1. Name, Make & specifications of each item.
2. Cost of the item with MRP.
3. Educational discount if any.
4. Validity of quotation should be at least 60 Days.
5. GST extra.
6. Delivery FOR Thapar Institute of Engineering & Technology, Patiala/ CIP Delhi for import products kindly mention HSS code of each product and attach copy of BOE of item last cleared in support
7. Insurance, Freight & other charges if any.
8. Minimum Delivery Period.
9. Payment terms. Net 60 days against delivery or satisfactory installation at Thapar Institute whichever applicable
10. Guarantee / Warranty Information.

Regards,

Sd/-

Head Commercial

MULTICHANNEL ELECTROCHEMICAL WORKSTATION

Multichannel System for upto 10 potentiostat ,galvanostat or more .System may be supplied in 2 or more chasis

Each channel should have following specifications.

NUMBER of Channels required: 2

Electrochemical Workstation

Specifications:

Compliance voltage: ± 12 V or better at ± 500 mA or more
Maximum Output Current: ± 500 mA

Maximum Output Current: ± 500 mA or better at ± 12 V or more

Output Voltage Range: ± 10 V or more

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

Potentiostat Rise/fall Time: 500 ns or better

Interface: USB interface for connection with PC

The system should be upgradeable with accessories 10 A current booster ,Electrochemical Quartz Crystal Microbalance ,Rotating Ring disc electrode ,Spectrophotometer etc

Crystal Microbalance ,Rotating Ring disc electrode ,Spectrophotometer etc

Hardware for EIS measurements: Qty 1

Hardware and software for EIS measurements in potentiostatic and galvanostatic control, over frequency range of 10 μ Hz to 1 MHz. It should be possible to perform EIS measurements over entire frequency range from 10 μ Hz to 1 MHz upto 500 mA current. Data

entire frequency range from 10 μ Hz to 1 MHz upto 500 mA currents. Data presentation: Nyquist, Bode, Admittance, Dielectric, Mott-Schottky, Data analysis: Fit and Simulation, Find circle, Element subtraction

Bode, Admittance, Dielectric, Mott-Schottky, Data analysis: Fit and Simulation, Find circle, Element subtraction

Electrometer for Auxiliary Signal Measurement: Qty 1 no
Hardware for measurement of auxiliary signals

Hardware for measurement of pH, temperature in parallel with an electrochemical measurement

Electrochemistry Cell:

It should consist of the following:

10 mL to 80 ml Glass cell 1 no, disc working electrodes with active area diameter 3 mm of GC, 1no, Pt wire Counter electrode 1 no, Ag/AgCl reference electrode double junction type for use in Aqueous and Non-Aqueous media 1 no

and Non-Aqueous media 1 no

Electrochemical Software:

Software should have facility to record additional signal viz EQCM, bi-potentiostat etc. Import/export ASCII. Ready-to-use Vis & Generic interface.

It should have facility to display up to 4 plots simultaneously. The following 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, Tafel Plots, Differential Pulse Voltammetry, Square Wave Voltammetry.

Tafel Plots, Differential Pulse Voltammetry, Square Wave Voltammetry. Electrochemical methods like Chrono-Amperometry, Chrono-Coulometry & Chrono-Potentiometry. The software upgradation should be free of cost

should be free of cost

Computer & Printer:

Compatible branded PC with i5 configuration ,Printer,2 KVA Online UPS with one hour back up should be quoted.

should be quoted.

1. **QUESTION**
 In a group, there are 100 people. 60 of them are men and 40 are women. What is the probability that a randomly selected person is a man?

2. **ANSWER**
 The probability of selecting a man is $\frac{60}{100} = 0.6$.

3. **QUESTION**
 A bag contains 5 red balls and 3 blue balls. What is the probability of drawing a red ball?

4. **ANSWER**
 The probability of drawing a red ball is $\frac{5}{8}$.

5. **QUESTION**
 A box contains 10 pens. 4 are blue, 3 are green, and 3 are red. What is the probability of selecting a blue pen?

6. **ANSWER**
 The probability of selecting a blue pen is $\frac{4}{10} = 0.4$.

7. **QUESTION**
 A deck of 52 cards is shuffled. What is the probability of drawing an ace?

8. **ANSWER**
 The probability of drawing an ace is $\frac{4}{52} = \frac{1}{13}$.

9. **QUESTION**
 A bag contains 10 balls. 3 are white, 2 are black, and 5 are red. What is the probability of drawing a white ball?

10. **ANSWER**
 The probability of drawing a white ball is $\frac{3}{10}$.

11. **QUESTION**
 A box contains 100 light bulbs. 10 are defective. What is the probability of selecting a defective bulb?

12. **ANSWER**
 The probability of selecting a defective bulb is $\frac{10}{100} = 0.1$.

13. **QUESTION**
 A bag contains 50 marbles. 20 are yellow, 15 are green, and 15 are blue. What is the probability of drawing a yellow marble?

14. **ANSWER**
 The probability of drawing a yellow marble is $\frac{20}{50} = 0.4$.

15. **QUESTION**
 A box contains 1000 light bulbs. 50 are defective. What is the probability of selecting a defective bulb?

16. **ANSWER**
 The probability of selecting a defective bulb is $\frac{50}{1000} = 0.05$.

17. **QUESTION**
 A bag contains 100 balls. 40 are red, 30 are blue, and 30 are green. What is the probability of drawing a red ball?

18. **ANSWER**
 The probability of drawing a red ball is $\frac{40}{100} = 0.4$.

19. **QUESTION**
 A box contains 1000 light bulbs. 100 are defective. What is the probability of selecting a defective bulb?

20. **ANSWER**
 The probability of selecting a defective bulb is $\frac{100}{1000} = 0.1$.