Department of Applied Chemistry

Technical specifications of electrochemical work station

1. Electrochemical system with facility to import experimental data files (in a variety of text formats) for comparison and least-squares fitting with simulated data.
2. Technical requirements:

   Max. Compliance voltage: ± 12 Volts or better

   Applied potential: ± 10 volts or more

   Maximum current: ± 100 mA or more

   Lowest current range: 10 nA or lower

   Potential resolution: 20 µV or better

   Current resolution: 0.0015% (or better) of current range

   Potential and current accuracy: ± 0.2%

   Bias current < 1pA

   Input impedance 100 GOhm or more

   Galvanostatic Applied current 50 pA – 50 mA

   Input Impedance of electrometer: >90GΩ // 10 pF
3. Electrochemical Cell:

   It should consist of 50 mL glass cell 2 no., 3mm diameter Glassy Carbon disc working electrode 2 no.,1 Pt wire Counter electrode, 2 Ag/AgCl double junction reference electrode for Aqueous and Non Aqueous samples, Suitable Lids for the cell and purge tube with valve.
4. Electrochemical Software:

   Software should have facility to 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 and Linear sweep voltammetry Scan rate: 1mV/s – 10 V/s; Step height 100µV

   Controlled potential electrolysis, Open circuit potential vs. time, Constant potential amperometry

   Q vs. t1/2 plot (for chronocoulometry), I vs. t-1/2 plot (for chronoamperometry). Double Potential step chronopotentiometry with minimum step time 1ms. Normal pulse voltammetry, Differential pulse voltammetry, Square wave voltammetry with frequency 1 Hz to 1000Hz or more, Linear sweep stripping voltammetry, Differential pulse stripping Voltammetry, Square wave stripping voltammetry, Taffel Plots, Differential Pulse Voltammetry, Square Wave Voltammetry. Electrochemical methods like Chrono-Amperometry, Chrono-Coulometry & Chrono-Potentiometry. Cottrell plot analysis with slope intercept and correlation coefficient reported, Measurement of peak potential and current.

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5. Other Acessories:
   Compatible branded PC, Color Printer with scanner,Online 2 KVA UPS with one hour back up, Nitrogen Cylinder with regulator should be quoted.
6. Kit for the purpose of cleaning the surface of glassy carbon electrode should be provided.
7. Minimum one year compulsory warranty on complete machine should be quoted separately.
8. One year compulsory AMC after expiry of warranty should be quoted separately.
9. On site ~~[illegible]~~, PQ of instrument along with document.
10. Training satisfactory technical and application training to the personnel as and when required within warranty period.
11. Price against each head should be mentioned separately.

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