

**SOPHISTICATED ANALYTICAL INSTRUMENTATION FACILITY**  
**PANJAB UNIVERSITY, CHANDIGARH – 160014**  
**UNDER POSTAL CERTIFICATE**

Sir,

Please quote your lowest rate in DUPLICATE for the following items, along with the detailed information and leaflets etc., if any. Your Quotation should reach the undersigned on or before 04.12.2014

**Item:- Dimethyl Sulfoxide DMSO d6 atom % D 10 gm**

The quotation should be typed or written clearly avoiding over-writing.

1. The rates quoted should be F.O.R. Chandigarh.
2. The rates of insurance, excise duty, sales tax should be mentioned clearly. Original receipts for insurance charges are required along with the bill of payment.
3. SPECIAL DISCOUNT for educational institutions/Universities teaching department may be mentioned.
4. The quotation giving our reference number and due date of quotation should be sent in a sealed cover affixing necessary postage stamps, otherwise, it will not be possible for us to consider your quotation.
5. No advance payment will be made. Bill/s will be passed for payment by the university office after verification of the material.

Yours faithfully,

*Director*

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**Tel.:**0172-2534046, 2534047, 2541065 **Fax:** 0172-2541409 **E.Mail:**rsic@pu.ac.in

**Website:**<http://rsic.puchd.ac.in>

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**Item:- AG SOL SAMP HOLDER ID 4 MM SET OF 100 (Part No. 24005400)**

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Please quote your lowest rate in DUPLICATE for the following items, along with the detailed information and leaflets etc., if any. Your Quotation should reach the undersigned on or before 04.12.2014

**Item:- Specifications for Four Probe set-up attached**

The quotation should be typed or written clearly avoiding over-writing.

11. The rates quoted should be F.O.R. Chandigarh.
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## Details of Equipment

### Four Probe Method setup for Determination of resistivity at Different Temperatures and measuring band gap along with spin coater

#### 1. Probes Arrangement

four individually spring loaded probes. collinear and equally spaced. mounted in a Teflon bush, Mechanism to keep the probes at equal distance. The probe arrangement is mounted in a suitable stand, which also hold the sample plate and RTD sensor.

#### 2. PID Controlled Oven

Temperature controlled oven suitable for Four Probe Set-up. With following specifications

Temperature Range	Ambient to 200° C
Resolution	0.1° C
Short Range Stability	± 0.2° C
Long Range Stability	± 0.5° C
Measurement Accuracy	± 0.5° C (typical)
Oven	Should be specially designed for Four Probe Set-Up
Sensor	RTD
Display	3½ digit, 7 segment LED with auto polarity and decimal indication

#### 3. Constant Current Source for (Four Probe Set-up)

Open Circuit Voltage	12 V
Current Range	0-20mA & 0-200mA continuously variable
Resolution	10µ A at 0-20mA range
Accuracy	± 0.25% of the reading ±1 digit
Display	3½ digit, 7 segment LED with auto polarity and decimal indication
Load Regulation	0.03% for 0 to full load
Line Regulation	0.05% for 10% changes

#### 4. Low Current Source (Four Probe Set-up)

Open Circuit Voltage	15V (min.)
Current Range	0-2µA, 0-20µA, 0-200µA, 0-2µA
Resolution	100nA at 0-100µA range
Accuracy	± 0.25% of the reading ± 1 digit
Display	3½ digit, 7 segment LCD with autopolarity and decimal indication
Load Regulation	0.05% for 0 to full load
Power	Preferably with 9V batteries or ultra clean power supply

5. **D.C. Micro voltmeter, (Four Probe Set-up)**

Range	1mV, 10mV, 100mV, 1V & 10V with 100% over-ranging.
Resolution	1 $\mu$ V
Accuracy	$\pm 0.2\%$ $\pm 1$ digit
Stability	Within $\pm 1$ digit
Input Impedance	>1000 Mohm (10Mohm on 10V range)
Display	3½ digit, 7 segment LED with auto polarity and decimal indication
Power Supply	220V $\pm 10\%$ , 50Hz

6. **Microprocessor based Spin coater capable of making thin films to be studied in four probe method.**

Bowl	8 inches Teflon coated SS
Speed	250 to 10,000 rpm
Time	1 to 999 seconds
Acceleration	300 to 8000 rpm per sec
Speed stability	Less than 0.1% variation
Vacuum pump	more than 100 LPM capacity
Display	Digital display of timer and 5 digits in RPM
Power	220/230 VAC/ 50 Hzs
Heater	Heating accessory with variable temperature upto 120 deg C

7. Fused silica/ quartz slides ( clear in UV region ) 25mmx75mmx1mm - 100nos.

Full setup should be quoted by vendor. Any part of equipment quoted separately ( except no.7) will not be considered due to compatibility issues. Vendor will setup and demonstrate equipment.

**Director,**  
CIL, Panjab University  
Chandigarh