<div align="center">

Indian Institute of Technology Delhi
Department of Physics

</div>

Ref: IITD/BPHY/MC/2013/02   **Date : Dec 19, 2013**

Quotations are invited for the following items with minimum specifications given below. Technical and commercial bids must be submitted in **separate** sealed envelopes subscribed with Technical Bid or Commercial Bid as appropriate. Both bids should be enclosed in an envelope subscribed, "Quotation for DSP lock in Amplifier and 4 ½ digit digital multimeter".

Quotation should reach Dr. Mukesh Chander , Physics Department, IIT Delhi, hauz Khas New Delhi 110016 latest **by 5.00 PM on Jan 6, 2014.**

Specifications : 1: DSP Lock in Amplifier with 4 ½ digit display:

1. Internal oscillator frequency range: 1mHz to 100kHz with $> 1\%$ accuracy in amplitude
2. It should be capable of measuring amplitude as well as phase shift of the output from a reference signal
3. Operation range should at least include internal oscillator's frequency range as specified above
4. It should be compatible with single ended and differential voltages and should have adjustable dynamic reserve (> 80 dB) and signal filters,
5. Auto gain, phase ,reverse and offset facility
6. Voltage noise < 10 nV/(Hz)$^{1/2}$ and current noise < 1pA/(Hz)$^{1/2}$ at 1 kHz
7. 0.01 degree phase resolution
8. Signal input impedance > 10 Mohm
9. Voltage sensitivity < 100 nV and current sensitivity < 1 pA
10. Output in the form of DC voltages with digital display panel unit
11. Option to use either external or internal source as reference should be there
12. RS232 and GPIB options for interfacing with PC and it should be compatible with LABView interfacing
13. All accessories, cables, connectors, India-compatible power cords, rack mount facility, carrying handle kit etc. needed for complete and satisfactory operation of lock in amplifier and its connection to preamplifier

Item 2: 4 ½ digit Digital multimeter with PC interface facility:

1. Digital Multimeter should be four and half digit (4 1/2)
2. Resistance : 1ohm to 300 M Ω
3. DC Voltage: 0.1mV- 1000V
4. AC Voltage: 0.1mV – 750 V (True RMS)
5. DC Current: 1 micro A to 5A
6. AC Current: 1microA to 5A (true rms)
7. Capacitance: 1pF to 100 μF
8. Frequency range: 1Hz to 200KHz
9. It should have RS232 option for interfacing with PC

TERMS & CONDITIONS COVERING SUBMISSION OF QUOTATIONS

1. DELIVERY

The rates quoted must be **F.O.B.**

2. TERMS OF PAYMENT

Payment terms with necessary details should be provided with the offer.

3. INSTITUTE'S RIGHTS

Institute reserves the rights of acceptance or rejection of any or all quotations without assigning any reason(s). The discretion for increasing the quantities demanded also vests with the Institute.

4.VALIDITY OF QUOTATIONS

Quotations will be considered **valid for 3 months** from the date of receipt unless otherwise stated.

5. CORRESPONDENCE

No correspondence regarding acceptance/rejection of a quotation will be entertained.

6.SUBMISSION OF QUOTATIONS

Quotations may be sent through either by post through a sealed envelope containing **separate sealed envelopes of Technical and Commercial Bids** while mentioning the **N.I.Q. REFERENCE AND DUE DATE FOR OPENING** as the subject**.**

7. REJECTION

Quotation not conforming to the set procedure as above will be rejected.

8. DISCOUNT

Special discount/rebate wherever admissible, keeping in view that the supplies are to be made for Educational purpose in respect of Public Institution of National importance, may please be indicated.

9.AUTHORISED SALES AGENCY SHIP

In case the quotation is being submitted by authorized agent of the principal manufacturing company, the **AUTHORISED SALES AGENCYSHIP** certificate from the PRINCIPALS should be furnished along with the quotation.

10. OTHERS

(a) Necessary information may also be provided in respect of Warranty
• Delivery period
• Penalty clause for delay in delivery
(b) In case the quoted item is **proprietary** in nature, the necessary document indicating so may be submitted along with the quotation.