

"Thapar Institute of Engineering and Technology
(Deemed to be University under section – 3 of UGC Act, 1956)"
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Enquiry No. TIET/CS/AA/SPMS/18008
Dated : April 04,2018

Sub: Request for Quotation(s) for supply of measurement of reverberation time

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 17 April, 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.	To measure reverberation time of sound inside reverberation chamber using DSO, power supply, lockin amplifier, AC amplifier See attached sheet for specifications, and details	See attached specifications for qty

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 30 days against delivery or satisfactory installation at Thapar Institute whichever applicable
10. Guarantee / Warranty Information.

Regards,

Sd/-

Head Commercial

Experiment: To measure the reverberation time of sound inside a reverberation chamber

This experiment will require following equipment.

- 1. Digital oscilloscope-2**
- 2. Triple output power supply-2**
- 3. Lock-in amplifier-1**
- 4. AC amplifier ($\times 1000$)-2**

The specification is attached.



Arbitrary Function Generator Specifications

Sr. No.	Parameter	Specifications
1	No. of Channels	2
2	Type	Arbitrary Function Generator
3	Sampling	300MS/s or better
4	Waveforms	Sine, Square, Pulse, Ramp, Noise, Arbitrary
5	Frequency Range	Sine Wave: 1 μ Hz to 60MHz
		Square, Pulse: 1 μ Hz to 30 MHz
		Ramp: 1 μ Hz to 2MHz
		Arbitrary Waveform: 1 μ Hz to 30 MHz
6	DC Range	-5V to 5V, 50 ohm and -10V to 10V, High Z
7	Amplitude(both Channels)	For High Z: 2 mVpp to 20 Vpp For Low Z: 1 mVpp to 10 Vpp
8	Inbuilt Waveforms	40+
9	Memory	1Mpts
10	Built in Counter	200MHz
11	Display	Colour 3.95 inch LCD or bigger
12	Square Wave Jitter(rms)	<500ps
13	Modulations	AM, FM, PM,FSK, PSK,PWM Burst and sweeping modes
14	Load Impedance	Selectable & Variable
15	Interface & Software	USB Host & USB Device with Arb. waveform Editing Software
16	Warranty	5 Years from OEM and service center should be available in north India



Triple Output Power Supply

Sr. No.	Parameter	Specification
1	No of outputs	3
2	Ratings	Two outputs @ 0-30V/3A and One @ 0-5V/3A
3	Isolation	All three outputs must be isolated from each other and ground
4	Polarity	Bipolar
5	Ripple	Not to exceed 1mvrms and 6mArms
7	Load and Line Regulation	Voltage <0.02%+5mV and Current 0.2%+4mA or better
8	Setting Resolution	Voltage @ 10mV and Current @ 1mA or better
9	Display	Vacuum fluorescent display ; Display voltage and current measurements continuously from all three outputs at same time
10	Tracking And Combination Modes	Tracking Mode: to Maintain the ratio on the two 30V output channels Combination V1 + V2 Series Mode: should Deliver up to 60V Meter reads back combined voltage. Combination I1 + I2 Parallel Mode: should Deliver up to 6A when CH1 and CH2 are wired in parallel. Meter reads back combined current.
11	Memory	Facility to Store frequently used configurations in any of 30 setup memory locations
12	Timer	Facility to Turn off any output after a predetermined test time with each channel's output timer. Output Timer range: 0.1s to 99999.9s.
13	Interface	USB Interface adapter with USB cable to control the supply through PC & Upload data to PC.
14	Warranty	3 Years from OEM and Service centre should be available in North India
15	Safety compliance	Conforms to European Union Low Voltage Directive.
16	EMC compliance	Conforms to European Union EMC Directive.
17	Others	Vendor should be authorized from OEM & Service centre should be available in north India. Manufacturer should have NABL Accredited lab facility in India.

2CH, 100MHz Digital Storage Oscilloscope

Bandwidth	100 MHz
No. Channels	2
Sampling Rate (Each Channel)	2GS/s or better
Record Length	2.5k or better
FFT Function	Dedicated short key for FFT with 2048 points , Zoom on FFT and Simultaneous display of Time and FFT
Display	7 inch WVGA or better
Frequency Counter Function	Dual Channel, 6 digit or better
No. of Direct Measurements	34 or more
Courseware Feature	DSO should have capability of course content storage/integration up to 100MB and direct report generation
Auto set	Enable/Disable function protected with password
Interface	USB Host on front panel , USB device port on back panel for PC connectivity
Accessories	Probes : 2 Nos., Certificate of Calibration, CD: containing product documentation and software for Course Content Generation compatible with DSO
Warranty	5 years from OEM and service centre should be available in North India
Others	Vendor should be authorized from OEM

