

**B. TECH.****THEORY EXAMINATION (SEM-IV) 2016-17  
ELECTRONIC MEASUREMENTS & INSTRUMENTATION****Time : 3 Hours****Max. Marks : 100****Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.****SECTION – A**

1. **Explain the following questions:** **10 x 2 = 20**
- (a) Random Error and Gross Error
  - (b) Accuracy and Precision
  - (c) Dissipation and Quality Factor
  - (d) Rise time and Fall time
  - (e) Instrument calibration
  - (f) True value
  - (g) Johnson and shot noise
  - (h) Multimeter
  - (i) Binder and Twisters
  - (j) Transducers and Inverse Transducers

**SECTION – B**

2. **Attempt any five of the following questions:** **5 x 10 = 50**
- (a) Explain the working of a source follower electronic voltmeter. Describe how the range of this voltmeter can be extended. Explain the use of zero adjustment and calibration resistors.
  - (b) Describe the different modes of operation of Piezo-electric transducers with suitable diagram.
  - (c) Describe Kelvin double bridge in detail.
  - (d) Explain the construction of PMMC instrument. Mathematically prove that the scale of such an instrument is linear.
  - (e) Explain construction and working of X – Y recorder with suitable diagram.
  - (f) Explain the working procedure of Plotter with suitable diagram.
  - (g) How would you convert Ammeter into Voltmeter?
  - (h) Why is delay line used in vertical section of an oscilloscope? Explain it in detail.

**SECTION – C**

- Attempt any two of the following questions:** **2 x 15 = 30**
3. **(a)** How would you measure frequency using CRO?  
**(b)** Explain Pulse Distortion and Attenuator Probe with suitable diagram.
4. **Explain the working principle of the following:**
- (a) Q – meter
  - (b) DC ammeter and Voltmeter
  - (c) Digital frequency meter system
5. **Write short note with suitable example:**
- (a) DSO and its applications
  - (b) Capacitance and Inductance Bridges
  - (c) Dual Trace Oscilloscope and its application