

**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