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B. TECH.

THEORY EXAMINATION (SEM–IV) 2016-17

ELECTRONIC MEASURMENTS & 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 he 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 producer 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

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