

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 131403

Roll No.

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B.Tech.

(SEM. IV) THEORY EXAMINATION 2013-14

**ELECTRONIC INSTRUMENTATION AND
MEASUREMENT**

Time : 3 Hours

Total Marks : 100

Note :- Attempt all questions.

1. Attempt any four of the following : (5×4=20)
 - (a) Distinguish between Accuracy and Precision of an instrument. How is it different from Resolution ?
 - (b) Define the dynamic response of a system and distinguish between steady state and transient response.
 - (c) What are undamped systems and critically damped systems ?
 - (d) Define static error. Distinguish between reproducibility and repeatability.
 - (e) What is a Bridge ? What are the advantages of Bridge Circuit ?
 - (f) State the Balance condition for a bridge circuit in general form, polar form and rectangular form.
2. Attempt any two of the following : (10×2=20)
 - (a) Define "Gross error", "Systematic error", "Absolute error" and "Relative error".
 - (b) Define sensitivity. A particular ammeter requires a change of 2A in its coil to produce a change in deflection of the pointer by 5 mm. Determine its sensitivity and deflection factor.

(c) A 0–10A ammeter has a guaranteed accuracy of 1.5% of full scale reading. The current measured by the instrument is 2.5A. Calculate the limiting values of current and percentage limiting error.

3. Attempt any two of the following : **(10×2=20)**

(a) What is damping in PMMC ? How is the coil in PMMC controlled ? Mention the advantage and disadvantages of PMMC Instruments.

(b) Explain briefly an electrodynamic instrument. Mention the advantages and disadvantages of Electrodynamic instrument.

(c) How are digital voltmeters classified ? What are the operating and performance characteristics of a digital voltmeter ?

4. Attempt any two of the following : **(10×2=20)**

(a) Discuss in brief Series type ohmmeter and Shunt type ohmmeter.

(b) Discuss in brief (i) Function generator (ii) Sweep generator.

(c) Compare Maxwell bridge with Hay's bridge ? List the advantages of using standard capacitor in Maxwell bridge.

5. Attempt any two of the following : **(10×2=20)**

(a) How Schering Bridge is used for the measurement of unknown capacitor ? Derive its balance equation; state its advantages.

(b) What is the function of (i) delay control circuit, (ii) collimating lens, (iii) flood gun and (iv) probes in CRO ?

(c) Discuss in brief the functioning of (i) Q meter (ii) Digital Multimeters.