6E3115

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B. Tech. VIth Semester (Main/Back) Examination, June - 2010
Electrical Engineering
6EE6.2 Power System Instrumentation (Elective)

Time : 3 Hours   Maximum Marks : 80

Min. Passing Marks : 24

Instructions to Candidates:

*Attempt overall **five** questions selecting **one** question from **each unit**. All questions carry **equal marks**. (Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)*

Unit - I

1. a) Define accuracy and precisian with example and differentiate them.   (8)

    b) Define Gaussian error curves and probable error.   (8)

OR

   a) Describe various types of errors and explain the combination of errors.   (8)

   b) A resistance is determined by voltmeter Ammeter method. The voltmeter reads $100\,v$ with a probable error of $\pm 12\,v$ and ammeter reads 10 A with a probable error of $\pm 2A$. Determine the probable error in the computed value of resistance.   (8)

Unit - II

2. a) Explain the construction & principle of working of a linear voltage differential transformer (LVDT). Explain how the magnitude & direction of the displacement of core of an L.V.D.T. detected.   (8)

    b) Describe the method for measurement of temperature with use of RTD's. And describe the advantages and limitations.   (8)

OR

Differentiate between the following with suitable examples :-   (16)

i)   Transducers & Inverse Transducers.

ii) Active & Passive Transducers.

iii) Primary & Secondary Transducers.

iv) Analog & Digital Transducers.

Unit - III

3. a) Draw a block diagram of an a.c. signal conditioning system and the function of each block. **(8)**

   b) Write short notes on shielding & grounding. **(8)**

OR

   a) Explain the working principle of a function generator with block diagram. **(8)**

   b) Explain the sample & hold circuit. **(8)**

Unit - IV

4. a) Describe the constructional details of a single phase induction type energy type meter. **(8)**

   b) Explain the industrial metering and various types of industrial tariffs. **(8)**

OR

   a) Explain the circuit of a multimeter for measurement of a.c. voltages. **(8)**

   b) Describe the active and reactive power in the different plants. **(8)**

Unit - V

5. a) Describe how high currents & voltages are measured with the help of instrument transformer. Draw HR necessary diagrams. **(8)**

   b) Discuss the major sources of errors in current transformer. **(8)**

OR

   a) Describe the working of a capacitive type potential transformer with their transient behaviour. **(8)**

   b) Explain the wilson compensation method for reduction of errors in current transformers. **(8)**