

End Semester Examinations - 2015-16 Even Semester - May 2016

14EI2003 Electrical Measurements

Set B

Time : 3 hrs
Total Marks: 100

1. a. What are the basic blocks of a generalized Instrumentation System? Draw the various blocks and explain their functions. (12)
- b. Define and explain the following static characteristics of instruments. (8)
- (i) Accuracy
 - (ii) Resolution
 - (iii) Sensitivity and
 - (iv) Linearity.

OR

2. a. Discuss about the different types Measurements in Instrumentation. (10)
- b. Explain the types of possible Errors in instruments. (6)
- c. An ammeter reads 8.3A and the true value of the current is 8.5A. Determine the Absolute Error, Relative Percentage Error and Percentage Accuracy. (4)
3. a. With a help of a neat sketch, describe the construction and working of PMMC instrument. What are its advantages and limitations? (16)
- b. A 2mA meter with an internal resistance of $100\ \Omega$ is to be converted to 0 – 150 mA ammeter. Calculate the value of the Shunt Resistance required. (4)

OR

4. a. Describe the working and construction details of a Moving Iron Instrument. Discuss its advantages and disadvantages. (15)
- b. A 11000: 110, potential transformer is used along with a voltmeter reading 87.5 V. Estimate the value of Line Voltage. (5)
5. a. Discuss the principle of operation and construction of Single-Phase Induction Type Energy Meter with neat diagram. Discuss its advantages and disadvantages. (14)
- b. Derive the torque equation for Power Factor Meter. (6)

OR

6. a. Describe the construction, working principle, merits and demerits of Instrument Transformer. (16)
- b. Define Calibration. (4)
7. Draw and explain the circuit of Kelvin double bridge. Deduce the balance condition. (20)
- OR**
8. a. With a neat Phasor Diagram obtain the balance equation of Desauty's Bridge (12)
- b. Draw the diagram for Schering's Bridge. (5)
- c. Define Q-factor. (3)

9. Write short notes on:

i) X - Y recorder (10)

ii) Magnetic Tape Recorder. (10)

Wishing you All the Best
