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BE DEGREE EXAMINATIONS APRIL/MAY 2011

Third Semester

Electrical and Electronics Engineering (R 2004)

EE 9203 Measurement and Instrumentation

Answer ALL Questions

Max marks:100

Time: 3 Hrs

Part-A (10x2=20)

1. Define: Static characteristics of an instrument.
2. What is meant by absolute error of measurement?
3. Why are the ordinary wattmeters not suitable for low power factor circuits?
4. What is a phase sequence indicator?
5. List the applications of DC potentiometers.
6. What are parasitic voltages and how are they eliminated?
7. What is the purpose of a Post Deflection Acceleration (PDA) in a CRT?
8. Differentiate between LED and LCD.
9. What are the classifications of encoder?
10. What is the need of sample and hold circuit in A/D converter?

Part-B (5x16=80)

11. a) (i) Draw the block diagram of functional elements of measuring system and explain the function of each block. [8]
(ii) Discuss the different types of standards of measurements. [8]
12. a. i) Discuss in detail, the working principle of piezoelectric transducers. [8]
ii) Explain in detail, the successive approximation method of A/D converter. [8]

[OR]

- b. i) Describe in detail, the principle of operation of LVDT and its characteristics. [10]
ii) Write a detailed technical note on optical transducers. [6]

13. a) (i) What are the various types of digital voltmeters? With a neat sketch explain the working principle of any one type of a digital voltmeter. [8]
- (ii) With a neat diagram explain the construction and its working principle of electro-dynamometer type wattmeter. Also derive its torque equation. [8]

[OR]

- b) (i) Explain the method of measurements of B.H curve of a ring specimen with a neat diagram. [8]
- (ii) Describe the construction and working principle of digital frequency meter. [8]
14. a) (i) Explain the theory and working principle of Kelvin's double bridge method for measurement of low resistance. Derive the relation for finding unknown resistance. [8]
- (ii) Describe how co-ordinate type potentiometer can be used for calibration of a voltmeter and AC energy meter. [8]

[OR]

- b) (i) Draw a neat sketch of a modern slide-wire DC potentiometer and discuss how the potentiometer is standardized. [8]
- (ii) Discuss briefly how Hay's bridge can be used for the measurement of inductance. [8]
15. a) Give a detailed technical note on the different types of temperature transducers. [16]

[OR]

- b) Explain the following in detail, with neat diagrams.
- Stroboscopic method of speed measurement
 - Humidity measurement
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