

ANNA UNIVERSITY OF TECHNOLOGY, COIMBATORE  
B.E. / B.TECH. DEGREE EXAMINATIONS : NOV / DEC 2011  
REGULATIONS : 2008  
THIRD SEMESTER : EEE  
080280016 - MEASUREMENTS AND INSTRUMENTATION

Time : 3 Hours

Max. Marks : 100

PART - A

(10 x 2 = 20 Marks)

ANSWER ALL QUESTIONS

1. Define limiting errors and instrumental errors.
2. What is the significance of calibration?
3. List the various types of registering mechanism used in single phase energy meter.
4. Define nominal ratio and ratio correction factor in instrument transformer.
5. List the advantages of using standard capacitor in Maxwell bridge.
6. What are the technical parameters to be considered in grounding?
7. Define the deflection sensitivity of CRT.
8. What are data loggers?
9. Define inverse transducer with an example.
10. State the performance parameters of ADC.

PART - B

(5 x 16 = 80 Marks)

ANSWER ALL QUESTIONS

11. (a) i) Draw the block diagram showing the basic functional elements of an instrument and explain the functions of each. 8  
ii) Discuss the statistical evaluation of measurement data. 8

(OR)

11. (b) Describe the static and dynamic characteristics of an instrument.
12. (a) i) Explain with a neat circuit diagram the working of successive approximation type digital voltmeter. 8

- ii) Explain the various methods for the determination of B-H curve. 8

(OR)

- (b) i) Explain the function of 3 phase wattmeter. 8  
ii) Draw and explain the circuit diagram of digital frequency meter. 8

13. (a) i) With fundamentals distinguish between DC and AC potentiometers and give any two specific applications for each. 8

- ii) Discuss the advantages and limitations of electromagnetic interference in measurements. 8

(OR)

- (b) i) Describe the sources and the null detectors that are used for AC bridges. 8  
ii) Describe about the multiple earth and earth loops. 8

14. (a) Enumerate the construction and working of LCD. Mention the difference between light scattering and field effect types of LCD. Also explain the advantages of LCD.

(OR)

- (b) i) Explain the modes of operation of digital storage oscilloscope. 8  
ii) Describe the basic components of magnetic recorders. 8

15. (a) i) Discuss the different selection criteria of the transducers for a particular application. 8  
ii) Describe in detail the successive approximation method of analog to digital conversion 8

(OR)

15. (b) i) How a differential output is taken from an inductive transducer? Explain the advantages when inductive transducers are used in push - pull configuration. 8  
ii) Discuss optical fiber displacement sensors. 8

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