CBCS SCHEME

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18MT46

ACHARYA INSTITUTE OF TECHNOLOGY MCA Library Date ... BANGALORE

Fourth Semester B.E. Degree Examination, July/August 2022
Instrumentation and Measurement

Time: 3 hrs. Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-1

1 a. Explain the elements of generalized measurement system. **(10 Marks)**

b. Classify the analog and digital modes of operation of instruments. Explain how resolution of digital instrument can be increased. **(10 Marks)**

OR

2 a. Explain the null and deflection type of instruments and differentiate between them. Discuss about their accuracy. **(10 Marks)**

b. Explain with a neat diagram the input and output configuration of measuring instruments and measurement systems. **(10 Marks)**

Module-2

3 a. Explain the dual slope integrating type digital voltmeter (voltage to time conversion). **(10 Marks)**

b. Explain digital frequency meter with a neat block diagram. **(10 Marks)**

OR

4 a. Explain the successive approximation principle with a neat diagram. **(10 Marks)**

b. Explain the Dual slope integrating type digital voltmeter (voltage to frequency conversion). **(10 Marks)**

Module-3

5 a. With a neat diagram, explain the basic principle and features of cathode ray tube. **(10 Marks)**

b. Explain the basic block diagram of an electronic switch. **(10 Marks)**

OR

6 a. Explain the dual beam cathode ray oscilloscope. **(10 Marks)**

b. Explain the dual trace cathode ray oscilloscope. **(10 Marks)**

Module-4

7 a. Explain the working of Wheatstones bridge and derive the balanced condition. **(10 Marks)**

b. Describe with diagram the operation of Kelvins bridge. **(10 Marks)**

OR

8 a. Explain Weir's bridge with derivation of frequency and component values. Derive the condition for balancing. **(10 Marks)**

b. Explain with the diagram the working of Wagner's ground connection and mention the advantages. **(10 Marks)**

Module-5

9 a. List the factors to be considered while selecting a transducer. Explain the resistance thermometer working with advantages and disadvantages. **(10 Marks)**

b. Explain the working principle of thermocouple with a neat diagram. **(10 Marks)**

OR

10 a. Explain the working of a Thermistor. **(10 Marks)**

b. Explain the construction, principle and working of LVDT. **(10 Marks)**

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