

CBCS SCHEME

18MT46

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Fourth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Instrumentation and Measurements

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain the analog and digital modes of instruments. Explain how the resolution of digital instruments can be increased. (10 Marks)
- b. Explain how the effect of modifying and interfering inputs is minimized or eliminated in measurement system with examples. (10 Marks)

OR

- 2 a. With a neat diagram, explain the elements of generalized measurement system. (10 Marks)
- b. Describe the difference between deflection and null type of instruments giving suitable example. Discuss about their accuracy. (10 Marks)

Module-2

- 3 a. Draw the block diagram of time base selector and also explain the digital measurement of time. (10 Marks)
- b. With a basic circuit of digital frequency meter, explain a neat block diagram of digital frequency meter. (10 Marks)

OR

- 4 a. Explain with a neat block diagram, dual slope type DVM (Digital Volt Meter) (Voltage to Time Conversion) (10 Marks)
- b. Describe the successive approximation Digital Volt Meter. (10 Marks)

Module-3

- 5 a. With a neat diagram of Cathode Ray Tube, explain the basic principle and features of Cathode Ray Tube. (10 Marks)
- b. Describe the basic block diagram of oscilloscope. (10 Marks)

OR

- 6 a. Explain the digital storage oscilloscope. (10 Marks)
- b. Describe the Concept of Electronic Switch with a neat diagram. (10 Marks)

Module-4

- 7 a. Explain the measurement of Resistance using Wheatstone's Bridge also note the sensitivity of a Wheatstone's bridge. (10 Marks)
- b. Describe the operations of Kelvin's bridge with a neat diagram. (10 Marks)

OR

- 8 a. Explain with a neat diagram, working of a Wagner's ground connection. (10 Marks)
- b. Explain the working of Wien's bridge. Derive the balanced equation for it. (10 Marks)

Module-5

- 9 a. Explain the working of piezoelectric transducer with a circuit diagram. (10 Marks)
b. Explain the working principle of thermocouple. (10 Marks)

OR

- 10 a. Describe with a diagram, construction of an LVDT. (10 Marks)
b. Write a short notes on;
(i) Resistant Temperature Detector.
(ii) Resistance Position Transducer. (10 Marks)
