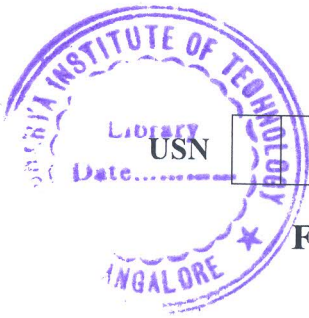


CBCS SCHEME

17MT46



Fourth Semester B.E. Degree Examination, June/July 2019 Instrumentation and Measurement

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 operation of instruments. Also explain how the resolution of digital instruments can be increased. (08 Marks)
b. With a neat diagram, explain the elements of generalized measurement system. (12 Marks)

OR

- 2 a. List the factors to be considered while selecting transducer. (06 Marks)
b. Explain how the effect of modifying and interfering i/p is minimized/eliminated in measurement systems with examples. (14 Marks)

Module-2

- 3 a. Explain the phenomenon of hysteresis effects in measurement systems. (12 Marks)
b. Explain the terms Dead zone, Dead time and threshold with respect to measurement systems. (08 Marks)

OR

- 4 a. Explain time domain specifications. (08 Marks)
b. Derive the expression for response of a second order system step i/p for under damped system and write the response curve. (12 Marks)

Module-3

- 5 a. Briefly explain principles of translation and explain variable resistance devices. (10 Marks)
b. Write short notes on : i) Ultrasonic level detector ii) Optical level detector. (10 Marks)

OR

- 6 a. Explain differential pressure level measurement with neat diagram; write the advantages and disadvantages of this measurement. (12 Marks)
b. Explain float level devices with neat diagram. (08 Marks)

Module-4

- 7 a. Explain principle and operation of resistance strain wire gauge (unbounded type). (08 Marks)
b. Explain whetstone's bridge with a neat diagram. What are its limitations? Write its applications. (12 Marks)

OR

- 8 a. Explain Wagner's earth connection with a neat diagram. (10 Marks)
b. Explain Wein's bridge with neat diagram and derive the equation for frequency of the applied voltage. (10 Marks)

Module-5

- 9 a. Explain the construction and working of LVDT. Write its advantages and disadvantages. (12 Marks)
b. Explain resistive position transducer. (08 Marks)

OR

- 10 a. With neat diagram, explain photo electric transducer. (14 Marks)
b. Write notes on thermocouple. (06 Marks)

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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.