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Sixth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 Sensors and Transducers

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Describe the classification of transducer. (06 Marks)
b. With a neat diagram, explain strain measurement using resistive strain gauge. (08 Marks)
c. Discuss the advantages and disadvantages of transducer. (06 Marks)

OR

- 2 a. Define transducer and explain transducers actuating mechanisms. (06 Marks)
b. With a neat diagram, explain the working of capacitive transducer. (08 Marks)
c. Describe Hall effect transducers, with a neat diagram. (06 Marks)

Module-2

- 3 a. Define load cell and explain the working of load cell used to measure strain. (07 Marks)
b. Explain rotary form of variable differential transformer for measurement of rotation. (07 Marks)
c. Discuss the selection of sensors. (06 Marks)

OR

- 4 a. Explain the working of fiber optic transducer. (08 Marks)
b. Discuss the application of proximity sensor. (05 Marks)
c. Describe the operation of digital transducer with neat diagram. (07 Marks)

Module-3

- 5 a. Explain the functions of signal conditioning equipment in detail. (10 Marks)
b. Compare and contrast mechanical amplifiers, fluid amplifiers and electronic amplifiers, provide examples where each type might be used. (10 Marks)

OR

- 6 a. Explain the process of data conversion in a data acquisition system. (08 Marks)
b. Discuss the importance of Analog to Digital Conversion (ADC) in measurement systems. (07 Marks)
c. Discuss the objectives of a typical data acquisition systems. (05 Marks)

Module-4

- 7 a. Define telemetry. Explain the general telemetring system. (10 Marks)
b. Discuss the advantages and disadvantages of landline telemetry system. (10 Marks)

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.

OR

- 8 a. Explain the operation of pressure measurement of non-electrical quantities using Bridgman gauge. (10 Marks)
b. Explain the data transmission system. (10 Marks)

Module-5

- 9 a. Explain the working of temperature measurement on non-electrical quantities. Any two types in brief. (10 Marks)
b. Explain the measurement of electromagnetic flow meters on non electrical quantities. (10 Marks)

OR

- 10 a. Explain the measurement of liquid level on non electrical quantities using capacitive and ultrasonic methods. (10 Marks)
b. Explain the measurement of shaft power using eddy current dynamometer. (10 Marks)

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