

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)

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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