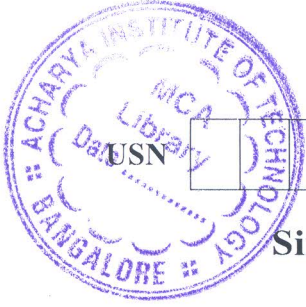


CBCS SCHEME



21EE641

Sixth Semester B.E. Degree Examination, June/July 2024 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. What is a transducer? Explain also explain the classification of transducers based on electrical principle of working give at least two example for each class. (10 Marks)
- b. Explain briefly the Hall effect transducers. (05 Marks)
- c. List five advantages of electrical transducers. (05 Marks)

OR

- 2 a. Explain working of :
 - i) Variable reluctance type transducer
 - ii) Mutual inductance transducer with a neat diagram. (10 Marks)
- b. Explain briefly the LVDT with a neat diagram. (05 Marks)
- c. Mention the advantages and disadvantages of Piezo electric accelerometer. (05 Marks)

Module-2

- 3 a. Explain the working of semi-conductor strain gauge with advantages. (06 Marks)
- b. Explain the working of a load cell. (07 Marks)
- c. Write short notes on synchros and resolvers. (07 Marks)

OR

- 4 a. What are digital transducers? What are the advantages of them? (05 Marks)
- b. Write short notes on selection of sensors. (05 Marks)
- c. With a neat block diagram, describe the Micro Mechanical Systems [MEMS]. (10 Marks)

Module-3

- 5 a. Describe a general measurement system with a neat diagram and hence explain signal conditioning and necessity. (10 Marks)
- b. Explain the objectives and configuration of Data Acquisition System (DAS). (10 Marks)

OR

- 6 a. Explain briefly for the following amplifiers :
 - i) Mechanical amplifiers
 - ii) Electrical and electronic amplifiers. (10 Marks)
- b. Explain briefly the following :
 - i) Successive approximation A/D converter
 - ii) Flash A/D converter. (10 Marks)

Module-4

- 7 a. Explain the working a general telemetering system and how are telemetry system classified. (10 Marks)
- b. Describe the construction and working of a Dead Weight Tester. (10 Marks)

OR

- 8 a. Define the terms data transmission and telemetry and state the advantage of current telemetering system. (10 Marks)
- b. With a neat diagram, explain : (10 Marks)
- i) Hydraulic transmission
 - ii) Magnetic transmission.

Module-5

- 9 a. Explain briefly the following expansion thermometers : (10 Marks)
- i) Liquid in glass thermometers
 - ii) Bimetallic thermometers.
- b. Explain with a neat sketch the working of any electromagnetic flow meter. (05 Marks)
- c. Write short notes on Piezo electric accelerometer. (05 Marks)

OR

- 10 a. Define viscosity and explain any one methods for measuring viscosity. (10 Marks)
- b. Write short notes on : (10 Marks)
- i) Capacitance type level gauge
 - ii) Write anemometers.
