



# CBCS SCHEME

15EE662

## Sixth Semester B.E. Degree Examination, June/July 2019 Sensors and Transducers

Time: 3 hrs.

Max. Marks: 80.

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

### Module-1

- 1 a. What is transducer? How are they classified? (06 Marks)
- b. What are the advantages of electrical transducers? (05 Marks)
- c. Explain variable reluctance transducer. (05 Marks)

OR

- 2 a. Explain the working of Piezoelectric accelerometer. List the advantages, disadvantages and application of Piezoelectric transducers. (06 Marks)
- b. Explain the working of LVDT with advantages, disadvantages and its applications. (06 Marks)
- c. Explain the displacement measurement using Hall effect transducers. (04 Marks)

### Module-2

- 3 a. Explain the working of semi conductor strain gauges with advantages and disadvantages. (06 Marks)
- b. Explain: i) Pneumatic Sensors ii) Eddy current proximity sensors. (06 Marks)
- c. What are digital transducers? What are the advantages of them? (04 Marks)

OR

- 4 a. Explain the working of synchros and Resolvers, mentioning their advantages. (08 Marks)
- b. Explain MEMS accelerometer with its applications and advantages. (04 Marks)
- c. What are the factors need to be considered for selecting a sensor for a particular application? (04 Marks)

### Module-3

- 5 a. What are the functions of signal conditioning equipment? (05 Marks)
- b. What is an op-amp? State the characteristics of an op-Amp. (05 Marks)
- c. What you mean by filter and filtering? How are the filters classified? (06 Marks)

OR

- 6 a. Draw the block diagram of a generalised Data Acquisition system and explain it briefly. (06 Marks)
- b. Explain the working of a multi channel analog multiplexed data acquisition system. (05 Marks)
- c. Explain briefly the R-2R Ladder D/A converter and PWM. (05 Marks)

### Module-4

- 7 a. With the help of a block diagram, explain the working of telemetering system. (05 Marks)
- b. Explain briefly the amplitude modulation and frequency modulation. (06 Marks)
- c. What is a modem? Explain with interfacing block diagram. (05 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 inductance type pressure transducers. (04 Marks)
- b. Define :
- i) Atmospheric pressure
  - ii) Gauge pressure
  - iii) Absolute pressure
  - iv) Static pressure
  - v) Total pressure, with the help of schematic diagram. (06 Marks)
- c. Give the construction and working of a hot filament congaion gauge. List its advantages and disadvantages. (06 Marks)

**Module-5**

- 9 a. What is "Seebeck effect"? explain with a neat diagram the construction and working of a thermoelectric pyrometer. (08 Marks)
- b. Briefly explain: i) Rotometer ii) ELbow menter. (08 Marks)

OR

- 10 a. Explain briefly : i) DC tachometer generator ii) AC tachometer generator (08 Marks)
- b. Explain : i) Piezo electric accelerometer ii) Ultra sonic Liquid level gauge. (08 Marks)

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