

Total No. of Questions : 8]

SEAT No. :

P-426

[Total No. of Pages : 2

[6003]-523

T.E. (Robotics & Automation Engineering)

SENSOR TECHNOLOGY

(2019 Pattern) (Semester - I) (311504(A))

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory. Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 and Q.7 or Q.8.*
- 2) *Assume Suitable data if necessary.*
- 3) *Use of electronic pocket Calculator is allowed.*
- 4) *Neat diagrams must be drawn wherever necessary.*

Q1) a) Explain the following terms : **[8]**

- i) Bimetal strips
- ii) Gas thermometers

b) Explain resistance-temperature detectors (RTD) with respect to sensitivity, response time, construction, and signal conditioning. **[9]**

OR

Q2) a) Explain the following terms : **[8]**

- i) Thermocouple
- ii) Thermoelectric effect

b) Define temperature and explain following terms : **[9]**

- i) Thermal energy
- ii) Absolute and relative temperature

Q3) a) With neat sketch, explain the working of piezoresistive accelerometer. **[8]**

b) Compare point type and continuous type level sensors. **[9]**

OR

P.T.O.

- Q4) a)** With neat sketch, explain the working of piezoelectric Accelerometer. [8]
- b)** Explain how Accelerometer used as shock sensing element with suitable example. [9]

- Q5) a)** With the help of neat diagram explain quartz sensors also state the advantages and application of the same. [9]
- b)** What are the different types of strain Gauges explain any two with neat diagram also state the advantages and application of the same. [9]

OR

- Q6) a)** Explain working of load cell with suitable diagram also state the advantages and application of the same. [9]
- b)** Explain different applicable standards for strain Gauge circuits. [9]

- Q7) a)** Write a short note on : [9]
- i)** Photo sensors
- ii)** Bio sensors
- b)** Draw the suitable diagram and explain the operation of phototransistor also state the advantages and application of the same. [9]

OR

- Q8) a)** Explain in detail : [9]
- i)** Position and motion sensors
- ii)** Thermal detectors
- b)** Explain nanotechnology in detail how nanotechnology plays important role in sensor technology. [9]

