

Total No. of Questions : 8]

SEAT No. :

PA-1607

[Total No. of Pages : 2

[5926]-234

T.E. (Robotics & Automation Engineering)
(311504(A)): SENSOR TECHNOLOGY
(2019 Pattern) (Semester - I) (Elective - II)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) Answer 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 term : [8]

- i) Thermoelectric Effect
- ii) Gas Thermometers.

b) Explain Resistance-Temperature Detectors (RTD) with respect to Sensitivity, Response Time, Construction and Signal Conditioning. [9]

OR

Q2) a) Explain four characteristics of each : [8]

- i) Thermistor
- ii) Thermocouple

b) Define Temperature and explain following terms : [9]

- i) Thermal Energy
- ii) Absolute and Relative Temperature.

Q3) a) Explain : [8]

- i) Shock and Vibration Sensors
- ii) Variable-Reluctance Sensors

P.T.O.

- b) Explain Point type and Continuous type Level Sensors with suitable diagram also state the advantages and application of the same. [9]

OR

- Q4)** a) With neat sketch, explain the working of Piezoelectric Accelerometer.[8]

- b) Explain the following Sensors : [9]
- i) Resistive Sensor
 - ii) Capacitive Sensor
 - iii) Inductive Sensor

- Q5)** a) With the help of neat circuit diagram explain operation of Metal Strain Gauge also state the advantages and application of the same. [9]

- b) Explain different Applicable Standards for Strain Gauge Circuits. [9]

OR

- Q6)** a) Explain Standards Strain Gage Sensors also state the advantages and application of the same. [9]

- b) With the help of neat circuit diagram explain operation of Semiconductor Strain Gauge also state the advantages and application of the same. [9]

- Q7)** a) Explain Construction and Working of Biosensor with suitable example.[9]

- b) Explain Nanotechnology in detail how nanotechnology plays important role in Sensor Technology. [9]

OR

- Q8)** a) Explain in detail Photo Sensors and its type. [9]

- b) Explain in detail : [9]
- i) Position and motion Sensors.
 - ii) Thermal Detectors.

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