

Total No. of Questions : 8]

SEAT No. :

**P7737**

**[6180]-266**

[Total No. of Pages : 2

**T.E. (Robotics & Automation Engineering)  
SENSORS TECHNOLOGY  
(2019 Pattern) (Semester - I) (311504 (A))**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Solve Q.No.1 or Q.No. 2, Q.No.3 or Q.No.4, Q.No.5 or Q.No.6 Q.No.7 or Q.No.8.*
- 2) *Neat diagram must be drawn wherever necessary.*
- 3) *Assume suitable data, if necessary.*
- 4) *Use of electronic pocket calculator is allowed.*

- Q1) a)** Explain working principle of Resistance Temperature Detector (RTD). Also list the several application of RTD. [8]
- b) What is a “Bimetallic Strip”? Explain its operation with suitable example. Also state the advantages, disadvantages and application of the same.[9]

OR

- Q2) a)** Explain in detail the operation of Thermocouple with suitable circuit diagram. [8]
- b) Explain the following term. [9]
- i) Thermal Energy
  - ii) Absolute Temperature
  - iii) Relative Temperature

- Q3) a)** What is Position Sensor? Explain in details about LVDT. [8]
- b) Explain in details with suitable example for Capacitive, Inductive and Resistive type of Sensor. [9]

OR

**P.T.O.**

- Q4)** a) Distinguish between “Point Type Level Sensor” and “Continuous Type Level Sensor” [8]
- b) Write a note on [9]
- i) Piezoelectric Accelerometer
- ii) Piezoresistive Accelerometer

- Q5)** a) Explain the working of Load Cell with suitable circuit diagram also state the advantages and application of the same. [9]
- b) Explain the role of Wheatstone Meter Bridge in Strain Gauge Circuit also state the advantages and application of the same. [9]

OR

- Q6)** a) Explain Bounded type Strain Gauge also state the advantages and application of the same. [9]
- b) Distinguish between Metal Foil type and Semiconductor type Strain Gauge. [9]

- Q7)** a) Explain in detail construction and working of “Bio Sensor” with suitable example. Also state the advantages and application of the same. [9]
- b) Write a short note on Thermal Detectors and explain its any two types. [9]

OR

- Q8)** a) Explain “Nanotechnology”. How Nanotechnology plays an vital role in sensor technology. [9]
- b) Explain in detail position and motion sensors. [9]

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