

Total No. of Questions : 4]

SEAT No. :

PE115

[Total No. of Pages : 2

[6579] 421

T.E. (Robotics and Automation) (Insem)

SENSORS TECHNOLOGY

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

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right side indicate full marks.
- 4) Assume suitable data, if necessary.

UNIT-I

- Q1)** a) Describe the ideal characteristics of an operational amplifier. [5]
- b) Draw and explain the block diagram of signal conditioning. [5]
- c) Analyze the impact of environmental factors on sensor performance. How do temperature, humidity, and electromagnetic interference affect sensor accuracy and reliability? [5]

OR

- Q2)** a) How to classify the sensors as active and passive sensors? [5]
- b) Elaborate various elements of data acquisition system in detail. [5]
- c) Explain working of chemical sensors in Detail. [5]

UNIT-II

- Q3)** a) Describe the difference between gauge pressure and absolute pressure. Also classify types of pressure sensors. [5]
- b) Explain with a neat sketch Gyroscope sensor. [5]
- c) Write a short note on Cell based sensor. [5]

OR

P.T.O.

- Q4)** a) What is a piezoelectric sensor, and in what type of applications is it typically used? [5]
- b) Classify various types of chemical sensors. Elaborate any one in detail. [5]
- c) Discuss the role of transduction in the development of modern sensor technology. How have advances in transduction methods impacted various industries such as automotive, healthcare, and environmental monitoring? [5]

