PVP 20

Code: 20EC2501A

III B.Tech - I Semester – Regular Examinations - DECEMBER 2022

SENSOR TECHNOLOGY

(Common to ALL Branches)

Duration: 3 hours Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.
2. All parts of Question must be answered in one place.

BL – Blooms Level CO – Course Outcome

			BL	CO	Max. Marks
UNIT-I					
1	a)	What is sensor? Give some examples of sensors used in various applications.	L1	CO1	7 M
	b)	Describe a data acquisition system and explain the role of sensors with any example and suitable diagrams.	L2	CO1	7 M
OR					
2		Give the classification of sensors with as many examples as possible.	L1	CO1	14 M
UNIT-II					
3	a)	Differentiate the terms Self and Mutual induction. Write down the faradays law of mutual induction with proper explanation.	L2	CO2	7 M

	b)	A copper wire of 5cm long and 10cm^2 cross sectional area has free electron concentration of 10^{30} per cm^3. The mobility of electrons in copper is 6000 cm^2/v-s. A voltage of 10 V applied across the wire. Find current in the wire.	L3	CO2	7 M
OR					
4	a)	Describe the term 'Piezoelectricity'. Explain the working of piezoelectric sensor.	L2	CO2	7 M
	b)	What is Hall effect and explain its applications?	L2	CO2	7 M
UNIT-III					
5	a)	Build an op-amp circuit to convert charge to voltage? Explain working principle.	L2	CO3	7 M
	b)	Explain the working principle of light to voltage converter using op-amp.	L2	CO3	7 M
OR					
6		What is an A to D converter, explain the working principle of successive approximation ADC.	L2	CO3	14 M
UNIT-IV					
7	a)	Discuss in detail about various kinds of Temperature Sensors.	L2	CO4	7 M
	b)	Discuss in detail about various kinds of Pressure Sensors.	L2	CO4	7 M
OR					
8	a)	Enlist various types of occupancy and motion detectors.	L2	CO4	7 M

	b)	Give the block diagram of microwave occupancy detector circuit to detect doppler frequency shift.	L2	CO4	7 M
UNIT-V					
9		What do mean by thick and thin film deposition? Describe vacuum depositions.	L2	CO5	14 M
OR					
10		With neat sketches explain about Electroplating.	L2	CO5	14 M