

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Supplementary Examination, Dec 2023

Course: Introduction to Sensor Technology and Instrumentation
Program: B.Tech CSE+ IoT&SC
Course Code: CSIS 2007

Semester: 3rd
Time 03 hrs.
Max. Marks: 100

Instructions: Explain using diagrams, if applicable.

SECTION A

S. No.		Marks	CO
Q 1	Compare wheat stone bridge with max well bridge.	4	CO1
Q 2	Discuss the principle of Hall Effect used in designing sensors.	4	CO2
Q 3	Describe photoelectric effect and discuss work function in context with efficiency of sensors designed on the basis of this effect.	4	CO2
Q 4	Discuss, why IR sensor is so much popular inspite of lesser accuracy.	4	CO1
Q 5	Identify the major sources of noise in sensors and circuits. Also describe the countermeasures for it.	4	CO2

SECTION B

Q 6	Discuss various types of sensors that are used to measure pressure of each category. OR Explain transistor amplifier in common emitter, common collector and common base configurations.	10	CO3
Q 7	Discuss and assess following effects in context of sensing some property: a. Photoelectric Effect b. Piezoelectric Effect	10	CO1
Q 8	Explain the characteristics on basis of which, a sensor can be selected for a particular application?	10	CO3
Q 9	Discuss in detail the use of sensing technology in home automation.	10	CO2

SECTION-C

Q 10	Discuss the different types of temperature sensors along with their working principles.	20	CO4
Q 11	Explain the working of different types of sensors that can sense the occupancy of a particular space (any 4). OR Explain principle and working of following sensors: a. Bi-metallic Thermostat b. Thermistor c. RTD d. Thermocouple Pyrometer	20	CO5