SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 What are proximity sensors? Write their applications. (CO2)

Q.24 Explain the construction and working principle of solenoids. (CO4)

Q.25 How flow is measured by Electromagnetic flow meter method? (CO3)

(**Note:** Course outcome/CO is for office use only)

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4th Sem. / Automation and Robotics

Subject : Sensors and Actuators

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Thermocouple works on the principle of _____ (CO3)

a) Ohm's law b) Doppler effect
c) seeback effect d) Faraday's law

Q.2 Unit of pressure is _____ (CO1)

a) Newton b) Newton-m
c) Newton/m d) Newton-m^2

Q.3 Inductive proximity sensor uses ____ (CO2)

a) Electric field
b) Magnetic field
c) Electromagnetic field
d) All of these

Q.4 For plastic _____ sensors are used. (CO2)

a) Restive b) Capacitive

c) Inductive d) None of these

Q.5 In LDR sensors, if intensity of light is more, resistance will become (CO3)

a) Less b) High

c) Zero d) Infinity

Q.6 Change of output of sensor with change in input is _____. (CO1)

a) Threshold b) Sensitivity

c) Slew rate d) None of these

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define an actuator. (CO4)

Q.8 Name any one Piezoelectric material. (CO1)

Q.9 What is frequency range of Infra red rays? (CO3)

Q.10 Rotary actuators are based on Gear and motors. (True/False) (CO4)

Q.11 Give one example of Bio-sensor. (CO5)

Q.12 Which sensor is used for DNA sensing? (CO5)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Differentiate between Static & Dynamic sensors. (CO1)

Q.14 Explain basic principle of resistance transducers. (CO1)

Q.15 Write a note on proximity switches. (CO2)

Q.16 Explain basic principle of MEMS sensors. (CO2)

Q.17 What is basic principle of RTDs? (CO3)

Q.18 Show how flow is measured by Venturi tube method. (CO3)

Q.19 What is the criteria of selecting an actuator? (CO4)

Q.20 Show how Hydraulic actuator works. (CO4)

Q.21 Explain in brief the concept of smart sensors. (CO5)

Q.22 Give applications of nano-sensors. (CO5)