No. of Printed Pages : 4
Roll No. .....

222843/212843

4th Sem./ Automation & 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 _____ is not a example of active sensor: (CO1)

a) Thermocouple b) Piezoelectric crystal

c) Solar Cell d) LDR

Q.2 LVDT is_____ sensor: (CO1)

a) Light b) Displacement

c) Temperature d) Pressure

Q.3 In thermistor, if resistance decreases with increase in temperature, then it has _____ (CO4)

a) PTC b) TTC

c) MTC d) NTC

SECTION-D

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

Q.23 Explain the working principle of LVDT. Write its advantages, disadvantages and applications. (CO1)

Q.24 Explain the construction and working of electromagnetic flow meter. (CO4)

Q.25 What are nano and micro sensors? Explain their principle with examples. (CO5)

Q.4 Which device measures gases or liquid? (CO1)

a) Proximity Sensor b) Pressure sensor

c) Temperature sensor d) Touch Sensor

Q.5 Which of the following is not an actuator? (CO4)

a) DC Motor b) Stepper Motor

c) Relay d) Shutter Doors

Q.6 Output of smart sensors will be_____ (CO5)

a) Analog b) Digital

c) Analog & Digital d) None of the above

SECTION-B

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

Q.7 Barometer is a _____ sensor. (CO1)

Q.8 Name any two types of electrical strain gauge. (CO1)

Q.9 MEMS stands for_____ (CO2)

Q.10 Venturi tube is used for_____ measurement.(CO3)

Q.11 What is an actuator? (CO4)

Q.12 Thermocouple are generally used for accurate temperature measurement upto_____^{o}C (CO3)

SECTION-C

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

Q.13 Define transducers. Differentiate between active and passive transducers. (CO1)

Q.14 Explain basic operation of capacitive Transducers. Write the types of capacitive transducers. (CO1)

Q.15 Draw and explain the working of Bourdon tube. (CO2)

Q.16 What are the types of resistance transducers? (CO2)

Q.17 Explain float type level indicator in detail. (CO3)

Q.18 Explain the working of Hydraulic actuator. (CO4)

Q.19 Write short note on solid state switch. (CO2)

Q.20 Differentiate between linear & rotary actuators. (CO4)

Q.21 Explain the principle of operation of DC motor. (CO4)

Q.22 Write short note on bio-sensors. (CO5)