

Question Paper Code: 59476A

B.E./B.Tech. DEGREE EXAMINATION, MAY 2021

Open elective

Civil Engineering

15UEC976 SENSORS AND ACTUATORS

(Common to CSE, EEE, EIE, Mechanical, IT, Chemical, Agri)

(Regulation 2015)

Duration: 1:45 hours

Maximum: 50 Marks

Part A (10x2=20)

Answer Any ten questions

1. Sensor Which is used to measure a presence of an object _____ sensor (CO1)(U)
a. Temperature b. Photoelectric
c. Voltage divider d. Proximity
2. The most popular type sensor used in mobile phones fingerprint: (CO1) (Remember)
a. Capacitive sensor b. LDR sensor
c. Thermistor d. Resistive sensor
3. Pyroelectric detector detecting electromagnetic radiation in a wavelength range from _____ (CO3) (Remember)
a) (2to8) μm b)(2to11) μm c)(2to12) μm d)(2to14) μm
4. orifice plate sensor works on (CO3) (Understand)
a) Doppler effect b) Gauss law
c) Strain fluctuations d) pressure fluctuation
5. _____ sensors are utilised to measure variables such as point, velocity, acceleration, force, pressure, levels and flow. (CO3) (Understand)
a) Humidity b) Optical c) Thermal d) Mechanical
6. -----are used in street lights to control when the light should turn on and turn off : (CO4) (Understand)
a) Thermistor b) photoconductor c) photodiode d) photo resistor
7. _____ is a device that measure the speed (CO4) (Understand)
a) thermostat b) accelerometer c) vibrometer d) photoconductor

8. Which of the following temperature sensors is not used for a temperature measurement?
(CO4) (Understand)
- a) Non-electrical type b) Electrical type
c) Magnetic type d) Radiation type
9. MEM stands for _____. (CO5) (Remember)
- a) Macro electro magnetism b) Macro electro mechanism
c) Micro electro mechanism d) Micro electro magnetism
10. A “thermowell” is a:----- (CO5) (Understand)
- a) Heat sink b) Small vessel for holding liquids at high temperature
c) Protective tube for a temperature sensing element
d) Temperature sensing device
11. Water purity is tested by _____. (CO5) (Understand)
- a) Water activity sensor b) pH meter
c) SAW sensor d) BAW sensor
12. _____ that is used to measure volumetric flow of liquids and gases (CO3)(A)
- a) rotameter b) photodiode c) proximity sensor d) electric sensor
13. orifice plate sensor works on _____. (CO3) (R)
- a) Doppler effect b) Gauss law c) Strain fluctuations d) pressure fluctuations
14. _____ sensor can be used for monitoring for fermentation products and estimation of various ion (CO5) (R)
- a) resistive sensor b) biosensor c) chemical sensor d) microsensor
15. _____ is the phenomenon is used to recover original size when it is heated (CO5) (R)
- a) pseudo effect b) inverse piezo effect c) magnetic d) shape memory

Part B (3x10=30)

Answer Any three questions

16. Explain about displaced sensor. (CO1) (Apply)
- 17 Explain about tactile sensor (CO2) (Understand)
- 18 On what principle selective radiation pyrometer works?. Explain its construction, working and range based on their application. (CO3) (Apply)
- 19 Explain construction and working of thermocouple. (CO4) (Understand)
20. How capacitance signal transduction principle is applied to operate micro pressure sensor (CO5) (Apply)

