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4th Sem.

Branch : Eltx. Med Eltx., Eltx., Mecatronics, Power Eltx.
Sub : Instrumentation/Instrument. Process Control

Time : 3 Hrs.

M.M. : 100

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. (10x1=10)

Q.1 The units of torque is _____ (CO4)

- a) Newton
- b) Newton/meter
- c) Newton-meter
- d) Newton-meter

Q.2 The primary sensing element may be a (CO1)

- a) Transducer
- b) Data storage device
- c) PMMC instrument
- d) Signal conditioning

Q.3 Pyrometers are used for measurement of _____ (CO7)

- a) Displacement
- b) Temperature
- c) pH
- d) Pressure

Q.4 Displacement is measured by _____ (CO3)

- a) Potentiometer
- b) LVDT
- c) Both a & b
- d) None of these

Q.5. pH value of pure water is _____ (CO8)

- a) 0
- b) 4
- c) 7
- d) 14

Q.6 Turning moment of a force about an axis is called _____.
(CO4)

- a) Momentum
- b) Torque
- c) Acceleration
- d) Velocity

Q.7 The last stage of measurement system is _____ (CO1)

- a) Transducer
- b) Display device
- c) Converter
- d) Signal conditioning

Q.8 Thermocouple consists of (CO7)

- a) Two similar metals
- b) Two dissimilar metals
- c) Two dissimilar semiconductors
- d) Two similar semi conductors

Q.9 Hygrometer is used to measure (CO8)

- a) Pressure
- b) Temperature
- c) pH
- d) Humidity

Q.10 LVDT has _____ primary winding & _____ secondary winding (CO3)

- a) 1, 1
- b) 2, 1
- c) 1, 2
- d) 2, 2

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Define Gauge factor. (CO3)

Q.12 What is a inverse transducer? (CO2)

(1) 181041/121043/062444/
030954A/105955/031062

(2) 181041/121043/062444/
030954A/105955/031062

- Q.13 Define signal conditioning? (CO1)
 Q.14 Give full form of LED. (CO1)
 Q.15 What are units of strain? (CO3)
 Q.16 Thermistor is an active transducer. (True/False) (CO7)
 Q.17 LVDT stands for _____. (CO3)
 Q.18 What is use of bourdon tubes? (CO5)
 Q.19 Load cell converts _____ into electrical signal. (CO4)
 Q.20 Humidity is expressed in _____. (CO8)

SECTION-C

- Note:** Short answer type Questions. Attempt any twelve questions out of fifteen Questions. (12x5=60)
- Q.21 Explain various types of errors in instrumentation system. (CO1)
 Q.22 Explain various classification of transducers? (CO2)
 Q.23 How can we measure displacement by capacitive transducer? (CO3)
 Q.24 Define piezoelectric effect, show how transducers work on this principle? (CO3)
 Q.25 What is operating principle of LVDT? (CO2)
 Q.26 What is basic principle of electromagnetic flow meter? (CO6)
 Q.27 Explain in brief the working of thermocouple. (CO7)
 Q.28 Explain how inductive transducer works? (CO2)
 Q.29 What is meaning of pH? What is range of pH value? (CO8)

- Q.30 Explain working of pressure cell. (CO5)
 Q.31 Show how temperature is measured by thermistor? (CO7)
 Q.32 Explain U tube manometer. (CO6)
 Q.33 What is ultrasonic flow meter? (CO6)
 Q.34 Show how torque is measured? (CO4)
 Q.35 Draw and explain in brief the principle and working of pyrometers. (CO7)

SECTION-D

Note: Long answer questions. Attempt any two questions out of three Questions. (2x10=20)

- Q.36 Explain in detail the construction of pH meter. (CO8)
 Q.37 With the help of neat diagram, explain Bi-metallic thermometers. (CO7)
 Q.38 Explain in detail the various force measuring devices. (CO4)