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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
- Q5. 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)

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- 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)

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- 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)

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