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Branch : Eltx. Med. Eltx. Mechatronis
, Power Eltx.

Subject : Instrumentation/Instrument. Process Control

Time : 3 Hrs. **M.M. : 100**

SECTION-A

Note : Multiple choice questions. All questions are compulsory. (10x1=10)

Q.1 Which of the following is correct for a digital transducer? (CO-1)

a) Measures digital quantity only
b) Give digital output
c) Doesn't measure analog input
d) None of the mentioned

Q.2 What is the relation of temperature coefficient of resistivity on the coefficient of thermal expansion in RTD? (CO-7)

a) Higher b) Lower
c) Equal d) None of the mentioned

Q.3 Permalloy are most suitable for _____ (CO-3)

a) Pressure measurement
b) Temperature measurement
c) Voltage measurement
d) All of the mentioned

Q.4 Which of the following represents pressure of a liquid column with constant density? _____(CO-3)

a) ϱgh b) ϱh

c) ϱg d) None of the mentioned

Q.5 Inductive potentiometers are used to measure _____ (CO-2)

a) Voltage b) Current
c) Displacement d) None of the mentioned

Q.6 Load cells are used for measuring _____(CO-1)

a) Large weights only
b) Small weights only
c) Weights moving in high speed
d) Slowly moving weights

Q.7 Which of the following quantities can be measured using bellows? (CO-8)

a) Absolute pressure b) Gauge pressure
c) Differential pressured) All of the mentioned

Q.8 Closeness of measured value to true value is _____ (CO-1)

a) Accuracy b) Precision
c) Correction d) Uncertainty

Q.9 Which of the following conversions take place in float element? (CO-6)

a) Level to force
b) Level to voltage
c) Level to displacement
d) None of the mentioned

Q.10 Data acquisition system acquire data from _____. (CO-8)

a) Transducers b) Flip flop
c) Memory d) None of the mentioned

SECTION-B

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

Q.11 Define the measurand. (CO-1)

Q.12 Give full form of LCD. (CO-1)

Q.13 Define secondary transducer. (CO-1)

Q.14 What is bellows? (CO-5)

Q.15 Define the inverse transducer. (CO-2)

Q.16 Define Absolute Pressure. (CO-5)

Q.17 Define the thermisters. (CO-7)

Q.18 State any one application of Ultrasonic transducer. (CO-5)

Q.19 Define Humidity. (CO-7)

Q.20 Define Speed. (CO-4)

SECTION-C

Note : Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Explain how transducers are classified. (CO-1)

Q.22 Explain the working of AC tachometer. (CO-4)

Q.23 Differentiate between Primary and Secondary transducer. (CO-2)

Q.24 Write the principle and explain working of piezoelectric transducer. (CO-2)

Q.25 Define flow meter. What are the advantages of electromagnetic flow meter. (CO-6)

Q.26 Explain the working of pyrometers. (CO-7)

Q.27 What is the use of capacitive transducer. List four advantages of Capacitive Transducer. (CO-2)

Q.28 Define torque. Write short note on torque measurement. (CO-4)

Q.29 Write short note on Dynamometer. (CO-4)

Q.30 Differentiate between dew and frost. (CO-8)

Q.31 What is potentiometer? Explain the working of helical potentiometer. (CO-3)

Q.32 What is load cells? Explain strain gauge load cell? (CO-3)

Q.33 Explain in brief about Pirani Gauge. (CO-3)

Q.34 Explain the working principle of thermocouple (CO-7)

Q.35 Draw the block diagram of digital data acquisition system. (CO-8)

SECTION-D

Note : Long Answer type question. Attempt any two questions out of three question. (2x10=20)

Q.36 Write the basic principle and working of LVDT. Also how the displacement is measured using LVDT. (CO-3)

Q.37 What is pressure? Explain how it is measured by Bourdon's Tube. (CO-5)

Q.38 Define the pH value of a solution. Explain, how we can measure the pH value using the electrodes.(CO-8)