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**5th Sem / Branch : Elect., Eltx.  
Sub.: Instrumentation**

Time : 3Hrs.

M.M. : 100

**SECTION-A**

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

Q.1 A light emitting diode is \_\_\_\_\_. (CO1)

- a) Heavily doped
- b) Lightly doped
- c) Intrinsic semiconductor
- d) Zener diode

Q.2 What should be the band gap of the semiconductors to be used as LED? (CO1)

- a) 0.5 eV
- b) 1 eV
- c) 1.5 eV
- d) 1.8 eV

Q.3 Which of the following is an example of active type transducer? (CO2)

- a) Thermocouple
- b) Photocell
- c) LDR
- d) All the above

Q.4 A process of converting energy in one form to another form is called \_\_\_\_\_. (CO2)

- a) Transduction
- b) Reflection
- c) Rectification
- d) Deflection

Q.5 The \_\_\_\_\_ of a strain gauge varies with applied force: (CO2)

- a) Resistance
- b) Capacitance
- c) Inductance
- d) Flux

Q.6 Strain gauge is an active transducer. (CO3)

- a) True
- b) False

Q.7 Load cells are used (CO3)

- a) For the measurement of weight
- b) For pile driving
- c) For the measurement of strain
- d) For the measurement of stress

Q.8 Piezoelectric transducer consists of \_\_\_\_\_. (CO2)

- a) Copper rod
- b) Aluminium wire
- c) Gold crystal
- d) Quartz crystal

Q.9 Humidity of air contains \_\_\_\_\_ concentration? (CO5)

- a) Gas
- b) Water is vapour
- c) Liquid
- d) All the above

Q.10 On which of the following parameters do humidity depends on? (CO5)

- a) Pressure
- b) Temperature
- c) Volume
- d) Both A & B

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## **SECTION-B**

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

- Q.11 Define measurement? (CO1)  
Q.12 LVDT stands for \_\_\_\_\_. (CO3)  
Q.13 What is Gauge Pressure? (CO4)  
Q.14 What is thermocouple? (CO5)  
Q.15 For what purpose hygrometer is used? (CO5)  
Q.16 List example of piezoelectric material? (CO2)  
Q.17 What is pH value of acidic solution? (CO5)  
Q.18 What is Thermopile? (CO4)  
Q.19 Whether thermistor has positive temperature coefficient of resistance. (True/False) (CO4)  
Q.20 ON what principle electromagnetic flow meter is based? (CO2)

## **SECTION-C**

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

- Q.21 State the importance of measurement? (CO1)  
Q.22 How the transducers are classified? (CO2)  
Q.23 Explain the piezoelectric effect? (CO2)  
Q.24 Define  
a) Vacuum pressure  
b) Velocity pressure (CO5)

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- Q.25 State difference between potentiometer and rheostat? (CO3)  
Q.26 Define stroboscope? (CO4)  
Q.27 On what factor pH of a solution depends? (CO5)  
Q.28 List example of piezoelectric material? (CO2)  
Q.29 State the advantage of LCD over LED? (CO1)  
Q.30 State difference between thermistor and RTD? (CO4)  
Q.31 Define (a) Moisture (b) Absorption (CO5)  
Q.32 State principle of Strain Gauge? (CO2)  
Q.33 What is proving ring? (CO4)  
Q.34 Define (a) Specific Humidity (b) Dew point (CO5)  
Q.35 Difference between Primary and Secondary transducers? (CO2)

## **SECTION-D**

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

- Q.36 With the help of diagram, explain functional elements of an instrumentation system? (CO1)  
Q.37 Define strain Gauge? Derive its expression to calculate the value of Gauge factor? State its advantages and disadvantages? (CO2)  
Q.38 With the help of neat diagram explain the construction and the working of pH meter? (CO5)

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