

### SECTION-C

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

- Q.21 Explain the working of LED. Give its advantages and disadvantages .
- Q.22 What is direct and indirect methods of measurement ?
- Q.23 What is piezoelectric effect.
- Q.24 Explain LVDT in detail.
- Q.25 Discuss Dynamometer.
- Q.26 What is pirani Gauge ?
- Q.27 Explain AC & DC tachometer .
- Q.28 Explain thermocouple.
- Q.29 Explain thermistor .
- Q.30 Discuss turbine flow meter .
- Q.31 Write a short note on Hygrometer.
- Q.32 Discuss Potentiometer.
- Q.33 Define graphic recorder.
- Q.34 What is signal conditioning explain briefly ?
- Q.35 Explain inductive torque transducer .

### SECTION-D

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

- Q.36 What is a strain gauge ? Discuss in brief.
- Q.37 Write a short note on piezoelectric transducer , burden tube and bellow.
- Q.38 Write a shorts note on load cell .

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### 3rd Sem / Mechatronics Subject:- Electronic Instrumentation

Time : 3Hrs.

M.M. : 100

### SECTION-A

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

- Q.1 LVDT is \_\_\_\_\_ type of transducer.
- a) Resistive                      b) Capacitive
- c) Inductive                      d) Optical
- Q.2 To detect very small changes in resistance strain gauges are configured with:
- a) Wheatstone bridge    b) Maxwell's Bridge
- c) Hay's Bridge              d) Anderson Bridge
- Q.3 Which transducer does not require any external power supply for working ?
- a) Strain gauge transducer
- b) Piezoelectric crystals
- c) Hydraulic transducer
- d) Pneumatic transducer

(20)

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- Q.4 What is the difference between gauge pressure and absolute pressure ?
- Gauge pressure is relative to atmospheric pressure , while absolute pressure is measured relative to a vacuum.
  - Gauge pressure is measured relative to a vacuum , while absolute pressure is relative to atmospheric pressure.
  - Gauge pressure and absolute pressure are the same thing .
  - Gauge pressure is only used for liquids, while absolute pressure is only used for gases.

- Q.5 What is a manometer ?
- A device used to measure the pressure of a gas
  - A device used to measure the pressure of a liquid
  - A device used to measure the flow rate of a fluid
  - A device used to measure the temperature of a fluid

- Q.6 What is the definition of flow rate ?
- The amount of fluid flowing per unit time
  - The amount of fluid stored in a container
  - The amount of pressure in a fluid
  - The amount of fluid velocity

- Q.7 When the reference junction is the same temperature as the measurement junction in a thermocouple circuit , the output voltage ( measured by the sensing instrument ) is :
- Zero
  - Reversepolarity
  - Noisy
  - AC instead of DC

- Q.8 Humidity is simply the amount of \_\_\_\_\_ held in the air .

- Water
- Water vapor
- Oxygen
- Liquid

- Q.9 What is a digital recorder ?

- records digital data
- records analog data
- does not record data
- records both analog and digital data

- Q.10 Phase difference between two voltages at frequencies above 10 Hz can be measured using \_\_\_\_\_.

- CRO
- Voltmeter
- X-Y Plotter
- Multi meter

### SECTION-B

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

- Q.11 SI unit of temperature is .....

- Q.12 Define Linearity.

- Q.13 What is gauge factor ?

- Q.14 What is humidity ?

- Q.15 Write the full form of DAS .

- Q.16 Write the full form of LCD.

- Q.17 What is below?

- Q.18 Write Faraday's first law

- Q.19 Define pyrometry.

- Q.20 Define force.