

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/  
COMMERCIAL PRACTICE, NOVEMBER – 2024**

**INDUSTRIAL INSTRUMENTS I**

[Maximum Marks : 100]

[Time : 3 hours]

**PART – A**  
(Maximum Marks : 10)

**I.** Answer **all** questions in one or two sentences. Each question carries 2 marks.

1. Define absolute pressure.
2. List any two errors in manometers.
3. Write two advantages of float type level indicator.
4. Convert 25°C to Fahrenheit scale.
5. List any two applications of Thermistor. (5x2=10)

**PART – B**  
(Maximum Marks : 30)

**II.** Answer any **five** of the following questions. Each question carries 6 marks.

1. Explain the working of C-type bourdon gauge.
2. Explain the working of McLeod Gauge.
3. Explain the sight glass type level indicator for open tank measurement.
4. Explain the level measurement using radiation absorption method.
5. Draw and explain the working of gas pressure thermometer.
6. Explain Peltier effect and Thomson effect.
7. Distinguish between PTC & NTC thermistors.

(5x6=30)

**PART – C**

(Maximum Marks : 60)

(Answer **one full** question from each unit. Each full question carries 15 marks)

**UNIT – I**

- III.** (a) Explain pressure measurement using strain gauges. (8)  
(b) Explain the working of inclined tube manometer. (7)

**OR**

- IV.** (a) Describe the working of capacitive pressure gauge with figure. (8)  
(b) Explain the working of Ionisation Gauge with figure. (7)

**UNIT – II**

- V.** (a) With figure, explain air purge type level indicator. (8)  
(b) Explain the working of ultrasonic level gauge. (7)

**OR**

- VI.** (a) Explain the working of capacitive type level gauge with figure. (8)  
(b) Explain the laser method used for level indication. (7)

**UNIT –III**

- VII.** (a) Explain the working of bimetallic thermometer. (8)  
(b) Explain the construction and working of radiation pyrometer. (7)

**OR**

- VIII.** (a) Explain the working of mercury in steel thermometer. (8)  
(b) Describe the construction and working of optical pyrometer. (7)

**UNIT – IV**

- IX.** (a) Explain the construction and working of RTD. (9)  
(b) Draw any 3 types of thermistors. (6)

**OR**

- X.** (a) Explain the working of thermocouple and its types. (9)  
(b) Describe thermopile. (6)

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