

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, APRIL - 2025**

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. List any two errors in manometers.
2. Define pressure head.
3. Write two advantages of sight glass tube.
4. Define temperature.
5. List any two types of thermocouple.

(5 x 2 = 10)

PART-B

[Maximum Marks: **30**]

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

1. Explain the working of U-tube manometer.
2. Describe the working of Pirani gauge.
3. Describe the operation of capacitive level indicator.
4. Explain the principle of radiation absorption method for level measurement.
5. Convert 20°C into Fahrenheit and Kelvin.
6. Compare any three properties of thermocouples.
7. Write a short note on thermopile.

(5 x 6 = 30)

PART-C

[Maximum Marks: **60**]

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

UNIT – I

- III. a. Explain the working of Inclined type manometer. (7)
b. Explain the calibration of pressure gauge using dead weight tester with neat sketch. (8)

OR

- IV. a. Explain the constructional details and working of C-type Bourdon tube pressure gauge. (7)
b. Describe the working of Piezoelectric pressure sensor. (8)

UNIT – II

- V. a. Explain sight glass techniques for level measurement. (8)
b. Explain the laser method used for level detection. (7)

OR

- VI. a. Describe the working of air purge level indicator with figure. (7)
b. Explain the working of displacer and torque tube type level indicator. (8)

UNIT- III

- VII. a. Describe the working of mercury in glass thermometer. (7)
b. Explain the working of bimetallic thermometer. (8)

OR

- VIII. a. Explain the working of vapour pressure thermometer. (7)
b. Describe the working of radiation Pyrometer. (8)

UNIT - IV

- IX. a. State and explain -Seeback effect and Peltier effect. (8)
b. Draw the characteristic curve of different RTD(Pt,Ni,Cu) and briefly explain . (7)

OR

- X. a. Compare the characteristics of RTD, Thermistor and Thermocouple. (8)
b. Briefly explain about thermistors. (7)
