DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, NOVEMBER – 2023

INDUSTRIAL INSTRUMENTS I

[Maximum Marks : 100]   [Time : 3 hours]

PART – A
(Maximum Marks : 10)

Marks

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

1. Define pressure head.

2. List the errors in manometers.

3. Define Celsius scale for temperature measurement.

4. State level switch.

5. Define thermopile.   (5x2=10)

PART – B
(Maximum Marks : 30)

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

1. Explain the terms (a) Gauge pressure (b) Absolute pressure (c) Vacuum pressure.

2. Explain ultrasonic method for level measurement.

3. Illustrate the working of capacitive type level indicator.

4. Explain Mercury in glass thermometer with a neat diagram.

5. Explain different types of industrial thermocouples.

6. Compare the characteristics of Thermocouple and RTD.

7. Explain different temperature scale and their conversions.

(5x6=30)

PART – C

(Maximum Marks : 60)

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

UNIT – I

III. (a) Describe the working of well type manometers. (7)

    (b) Explain the calibration of pressure gauge using Dead weight Tester. (8)

OR

IV. (a) Explain the working of capacitive type pressure gauge. (7)

    (b) Describe the working of McLeod gauge. (8)

UNIT – II

V. (a) Illustrate the working of radiation type level indicator. (7)

    (b) Illustrate the working of displacer and torque tube type level indicator. (8)

OR

VI. (a) Explain Sight glass level indicator. (7)

    (b) Describe the working of Float type level method with a neat diagram. (8)

UNIT –III

VII. (a) Explain Vapour pressure thermometer with a neat diagram. (7)

    (b) Explain the Construction and working of Optical pyrometer. (8)

OR

VIII. (a) Convert the following temperature to given scale. (7)

        (a) $67°C$ = ………..°K   (b) $95°F$ = ………..°C

        (c) $55°C$ = ………..°F   (d) $338°K$ = ………°F

    (b) Explain the Working of bimetallic thermometer. (8)

UNIT – IV

IX. (a) Explain See beck effect, Peltier effect and Thomson effect. (7)

    (b) Explain thermistors and their types. (8)

OR

X. (a) Explain law of intermediate temperature and law of intermediate metals. (7)

    (b) Explain construction and working of Resistance Temperature Detector. (8)

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