

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2022**

INSTRUMENT TRANSDUCERS

[Maximum Marks: **100**]

[Time: **3 Hours**]

PART-A

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

1. Name two Active Transducers.
2. Define Villari Effect.
3. State Piezo resistive effect.
4. Define Dark Resistance.
5. State the term Scintillation.

(5 x 2 = 10)

PART-B

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

1. Explain principle and operation of Resistive Transducers.
2. List the advantages and disadvantages of Semiconductor Strain Guages.
3. Explain Variable Eddy current Inductive Transducer.
4. Describe the Equivalent Circuit of Piezo electric Transducer.
5. Explain the principle and operation of Solar Cells.
6. Explain the working of Solid state Radiation Detectors.
7. Describe the working of LM 35 IC Sensor.

(5 x 6 = 30)

PART-C

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

UNIT – I

- III. (a) Derive the expression for Guage Factor of Strain Gauges. (8)
- (b) Classify different types of Transducers. (7)

OR

- IV. (a) Derive the Sensitivity of Linear Potentiometer. (8)
(b) Explain Strain Guage Bridge Circuit. (7)

UNIT – II

- V. (a) Describe the construction and working of LVDT. (8)
(b) Explain the working of Magneto strictive Transducers. (7)

OR

- VI. (a) Explain the operation of Hall Effect Transducers. (8)
(b) Describe Weight measurement using LVDT. (7)

UNIT- III

- VII. (a) Describe the working of Variable Area Capacitive Transducers . (8)
(b) Explain the operation of Photo emissive Cell. (7)

OR

- VIII. (a) Explain the working of Photo Voltaic Cell. (8)
(b) Describe the operation of Piezoelectric Accelerometer. (7)

UNIT - IV

- IX. (a) Describe the working of Smart Transmitter. (8)
(b) Explain the operation of Geiger Muller Counter. (7)

OR

- X. (a) Describe the principle and operation of Ionization Chamber. (8)
(b) Explain the working of Capacitive Proximity Sensor. (7)
