

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, NOVEMBER - 2022**

INSTRUMENT TRANSDUCERS

[Maximum marks: 100]

(Time: 3 Hours)

PART – A

Maximum marks : 10

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

1. Write two different classifications of transducers.
2. Write two applications of LVDT.
3. Draw the equivalent circuit of piezoelectric transducer.
4. List two photoelectric transducers.
5. List two uses of radiation sensors. (5 x 2 = 10)

PART – B

Maximum marks : 30

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

1. Describe the analog and digital transducers with examples.
2. List the advantages and disadvantages of semiconductor strain gauges.
3. With necessary figure, describe the working principle of variable reluctance type inductive transducers.
4. Describe the working principle of variable area type capacitive transducers.
5. Describe working principle of capacitive proximity sensors.
6. With necessary figures, describe the working principle of magneto resistive transducers.
7. Describe the working principle of scintillation counters. (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) With necessary figures, explain construction and working of rotary potentiometers. (7)

(b) With necessary figures, explain any two different types of strain gauges. (8)

OR

IV.(a) With example, explain active and passive transducers and Mechanical and Electrical transducers. (8)

(b) With figure, explain construction and working of linear potentiometers. (7)

UNIT-II

V. (a) With necessary figures, explain working principle of variable eddy current type inductive transducers. (8)

(b) With necessary figures, explain pressure measurement using LVDT. (7)

OR

VI. (a) With necessary figures, explain construction, working and characteristics of Linear Variable Differential Transformers(LVDT) (9)

(b) Explain working principle of Hall effect transducers. (6)

UNIT-III

VII.(a) With necessary figures, explain variable distance type capacitive transducers. (8)

(b) With necessary figures, explain acceleration measurement using piezoelectric transducers. (7)

OR

VIII.(a) With necessary figures, explain any one application of variable capacitive transducers. (8)

(b) With necessary figures, explain working of photo multiplier tube. (7)

UNIT-IV

IX.(a) With necessary figures, explain the working principle of Gieger Muller counter. (8)

(b) With necessary figures, explain smart sensors. (7)

OR

X. (a) With necessary figures, explain working of ionization chamber. (8)

(b) Explain working of ultrasonic transducers. (7)
