TED (15/19) 3214
(Revision-2015/19)

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

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. Define passive transducer.
2. List out two applications of LVDT.
3. Define piezoelectric effect.
4. List any two nuclear radiation sensors.
5. Define a nanosensor. (5 x 2 = 10)

PART – B
Maximum marks: 30

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

1. Explain working principle of Resistive Transducers.
2. List the advantages and disadvantages of semiconductors strain gauge.
3. Explain the working principle of pressure measurement using LVDT.
4. Explain the application of Hall effect transducer for current measurement.
5. List six applications of photo electric transducer.
6. Describe inductive proximity sensor.
7. Explain about MEMS. (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) Describe the loading effect in a potentiometer. (10)

(b) Draw the schematic diagram of rotary potentiometer. (5)

OR

IV. (a) Explain the working of strain gauge. (5)

(b) Explain the construction and working of unbonded strain gauge. (10)

UNIT – II

V. (a) Explain the working of a variable reluctance transducer. (7)

(b) Explain the construction and working of LVDT. (8)

OR

VI. (a) Explain the principle of operation of magnetoresistive transducer. (7)

(b) Explain the principle of operation of Hall effect transducer. (8)

UNIT - III

VII. (a) With necessary figures, explain the variable area capacitive transducer. (8)

(b) Explain the working principle of a Photovoltaic Cell. (7)

OR

VIII. (a) Explain the principle of operation of Piezoelectric transducer with neat sketch. (8)

(b) Describe the construction and operation of Photoemissive cell. (7)

UNIT – IV

IX. (a) Describe the construction and operation of Ionization chamber. (8)

(b) Explain the working principle of Ultrasonic transducers. (7)

OR

X. (a) Explain the working of Geiger Muller counter. (7)

(b) Explain Smart Transmitters with block diagram. (8)
