

Roll No.

Total Pages : 2

BT-8/M-20

38018

TRANSDUCER AND THEIR APPLICATIONS

Paper–ECE-430E

Time Allowed : 3 Hours]

[Maximum Marks : 100

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All questions carry equal marks.

UNIT-I

1. Discuss the properties of a material used for Piezoelectric transducers. Also, discuss in detail the construction, working and applications of Photoelectric transducers. 20
2. (a) Define a Transducer. Discuss the basic requirements of a Transducer.
(b) Differentiate between active and passive transducers. 20

UNIT-II

3. Differentiate between Optical pyrometer and radiation pyrometers. Draw appropriate diagrams to support your answer. 20

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4. (a) Find the Seebeck voltage for a thermocouple with proportionality constant of $40\mu\text{V}/^\circ\text{C}$, if the junction temperatures are 40°C and 80°C . 10
- (b) What are Manometers ? Define the terms Force constant and Pressure constant relative to an elastic pressure diaphragm. 10

UNIT-III

5. Write short notes on the following :
- (a) Capacitive transducers.
- (b) Strain gauge transducers. 20
6. Describe the working of a Photoelectric tachometer with a neat diagram. Describe its construction details also. 20

UNIT-IV

7. (a) Define Torque. Explain in detail absorption type dynamometers. 10
- (b) Discuss the method of working of a Torsion meter in detail with necessary diagrams. 10
8. How a LVDT can be used for the measurement of Force ? Why LVDT, though being a transformer is called as a Transducer ? Justify your answer. 20