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

4. (a) Find the Seebeck voltage for a thermocouple with proportionality constant of 40μV/°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