Total No. of printed pages = 3

Et-507/EI/5th Sem/2017/M

ELECTRONIC INSTRUMENTATION

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer any *five* questions.

1. (a) Define transducers. Explain how a Bourdon tube can work as a primary transducer for the measurement of pressure .

   (b) State the different factors affecting choice of transducers. 2+8+4=14

2. (a) What do you understand by bonded and unbonded strain gauges ?

   (b) Draw neat diagrams for the following :

   (i) Linear strain gauge

   (ii) Rosette

[Turn over

(iii) Torque gauge

(iv) Helical gauge

(c) Explain in brief the working of the semi-conductor strain gauges. 2+8+4=14

3. (a) Discuss the construction and working of an LVDT with the help of neat diagram.

(b) State its advantages and disadvantages. 9+5=14

4. (a) What is the piezo electric effect ? How does it find application in piezo electric transducers ?

(b) State the different modes of operation of piezo-electric transducers. Give neat sketches for your answer.

(c) Discuss one of the methods for digital measurement of angular velocity. 2+4+4+4=14

5. (a) Differentiate between the working principles of a thermometer and a thermistor. Also state the salient features of a thermistor.

(b) Discuss the constructional details and working of a total radiation pyrometer. 4+4+6=14

6. (a) What are electromagnetic flow meters ? How do they help in the measurement of flow ?

(b) Explain the construction and operation of an electrical transducer used for the measurement of liquid level. 1+7+6=14

7. Write short notes on any *two* : 7+7=14

(i) Classification of transducers.

(ii) AC tachometer.

(iii) Disappearing filament optical pyrometer.

(iv) Signal conditioning.