

4E4123

Roll No.

Total No. of Pages : 3

4E4123

B. Tech. IV-Sem. (Main) Exam; April-May 2017
Electronics Instrumentation & Control Engg.
4EI4A Sensor & Transducers

Time : 3 Hours

Maximum Marks : 80
Min. Passing Marks : 24

Instructions to Candidates :-

Attempt any five questions, selecting one question from each unit. All Questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used : calculated must be stated clearly. Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL

2. NIL

UNIT - I

1 Differentiate between the following using suitable examples :

- (i) Transducer and Inverse Transducer
- (ii) Active and Passive Transducer
- (iii) Primary and Secondary Transducer
- (iv) Analog and Digital Transducer.

16

OR

1 (a) Define the following with reference to transducers :

- (i) Sensitivity error
- (ii) Non conformity error
- (iii) Hysteresis error
- (iv) Dynamic error.

10

4E4123]

1

[P.T.O.]

(b) Explain the output characteristics of a transducer.

6

UNIT - II

2 (a) Explain the working principle of piezoelectric transducers with neat diagram.

(b) Explain the application and working principle of Pirani gauge.

OR

2 Explain the following transducers with their applications :

(a) Ionization Transducers

(b) Hall effect transducers.

UNIT - III

3 (a) Derive the expression of Gauge factor of strain gauge.

(b) Explain the working principle of displacement measurement transducers.

OR

3 Explain the following transducers with their applications :

(a) Capacitive transducers

(b) Passive type temperature transducers.

UNIT - IV

4 (a) Explain the following :

(i) Bourdon tubes

(ii) Bellows.

(b) Discuss about the load cell with merits and demerits.

OR

8

4 (a) Explain the construction and working of Hydrometer for the density measurement.

(b) Define the following :

(i) Viscosity to pressure transducers

(ii) Acceleration transducers.

8

8

UNIT - V

5 Write short notes on the following :

(a) Electro-luminescent displays.

(b) LED displays.

8

8

OR

5 Write short notes on the following :

(a) LCD displays

(b) Gas discharged plasma panels.

8

8