B.Tech II Year I Semester (R15) Supplementary Examinations June 2017

SENSORS & TRANSDUCERS

(Electronics and Instrumentation Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) What are the sensors and transducers?

(b) Describe the classification of sensors according to emerging sensor technology.

(c) Name the different types of capacitive sensors.

(d) State optic axis.

(e) Explain Helium low temperature thermometer.

(f) What is Seebeck effect?

(g) What is Magnetostriction?

(h) What are synchros?

(i) What are MEMS?

(j) What are the parameters monitored for optimization of aerospace sensors.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 What are the statistical characteristics of sensors (measuring systems)?

OR

3 Write in detail about the Resistance Stain Gauge.

UNIT – II

4 Briefly describe the inductive sensors.

OR

5 Briefly describe the following:

(a) The parallel plate capacitive sensors.

(b) Electrostatic transducer.

UNIT – III

6 What are MI thermocouples? What special advantage do these thermocouples have and what are their disadvantages?

OR

7 What are the important detectors in a total radiation pyrometer (Pyroelectric thermal sensor)? How are they characterized?

UNIT – IV

8 Explain in detail about the Hall effect sensor.

OR

9 Explain Linear Variable Differential Transformer (LVDT) in detail.

UNIT – V

10 What are the unexpected developments occur through Nano-sensors? Explain them.

OR

11 Explain the important aspects in Micromatching.

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