CBCS SCHEME

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18EE732

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022
Micro and Nano Scale Sensors and Transducers

Time: 3 hrs.

Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. Explain theory of capacitive pressure sensors. (10 Marks)
   b. Explain structure of inductive pressure sensors. (10 Marks)

OR

2 a. Explain theory of ultra high sensitivity pressure sensors. (10 Marks)
   b. Explain the block diagram of the interface circuit used to measure the inductance L. (10 Marks)

Module-2

3 a. Explain smoke detectors. (10 Marks)
   b. Determine the gate voltage of the smoke detector. (10 Marks)

OR

4 a. Explain the principle of operation of the acceleration sensors. (10 Marks)
   b. Explain the theory of CO gas sensors. (10 Marks)

Module-3

5 a. Explain the structure of moisture sensors. (10 Marks)
   b. Explain the auxiliary experimental results of moisture sensors. (10 Marks)

OR

6 a. Explain the theory of opto electronic microphone. (10 Marks)
   b. Explain the flowchart of the code used in conjunction with the image processing board. (10 Marks)

Module-4

7 a. With neat diagram, explain "Lab on Chip" sensors. (10 Marks)
   b. Explain principle of operation of magnetic field sensors. (10 Marks)

OR

8 a. Explain the deviation of the electronic path in the horizontal direction of the magnetic field sensor. (10 Marks)
   b. Explain bending radius of the generated free electrons in magnetic field sensors. (10 Marks)

Module-5

9 a. Explain the principle of operation of the α particle icing detector. (10 Marks)
   b. Explain the theory of operation of the aircraft icing detector. (10 Marks)

OR

10 a. With a neat diagram explain the experimental results of the magnetic field sensors. (10 Marks)
    b. Explain the temperature effect on the response of the magnetic field sensor. (10 Marks)

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