CBCS SCHEME

USN | | | | | | | | | | |

18EE647

Sixth Semester B.E. Degree Examination, June/July 2025
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. Define sensors and list the various specifications that need to be carefully studied. **(10 Marks)**

b. With a neat diagram explain the operation of Ionization gauges? **(10 Marks)**

OR

2 a. With a neat diagram, explain the operation of a piranigauge? **(06 Marks)**

b. Explain piezoelectric Crystal detector for sensing changes impressure? **(06 Marks)**

c. Explain the working of synchros and Resolvers, mentioning their advantages. **(08 Marks)**

Module-2

3 a. Explain the following with neat diagram :
i) Photo Conductive cell
ii) Photo Voltaic devices. **(10 Marks)**

b. Explain the principle of photo multiplier and LCD. **(10 Marks)**

OR

4 a. What are the applications of optical fibers? **(04 Marks)**

b. Explain briefly the working of image transducers. **(08Marks)**

c. Write short notes on the following
i) Light Valves
ii) Radio Waves **(08 Marks)**

Module-3

5 a. Explain with a diagram. bimetallic type of thermal sensor. **(10 Marks)**

b. Explain briefly the working of bolometer. **(10 Marks)**

OR

6 a. Describe PTC and NTC thermistors with their characteristics. **(10 Marks)**

b. Explain the principle of Thermocouples with their characteristics. **(10 Marks)**

Module-4

7 a. With a neat diagram explain moving coil microphone and carbon microphone in audio to electrical sensors. **(10 Marks)**

b. With a neat diagram, explain Ribbon loudspeakers. **(10 Marks)**

OR

8 a. With a neat diagram explain the principle of capacitor microphone. **(10 Marks)**

b. Write a short notes on :
i) Ultra Sonic Transducer
ii) Infra Sound Sensors. **(10 Marks)**

Module-5

9 a. Explain Capacitive proximity sensors. **(10 Marks)**

b. Explain the construction and working of Giger Muller. **(10 Marks)**

OR

10 a. Explain briefly photo electric smoke detector. **(10 Marks)**

b. Explain with a neat diagram construction and working of typical gas sensors. **(10 Marks)**

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