

**D 111915****(Pages : 2)****Name.....****Reg. No.....****THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION  
NOVEMBER 2024****B.Sc. LRP (Alternate Pattern)****A12 GENERAL COURSE II : SENSORS AND TRANSDUCERS****(2019—2023 Admissions)****Time : Two Hours and a Half****Maximum : 80 Marks****Section A***Answer the following questions (1-15).**Each question carries 2 marks.*

1. What are the differences between sensors and transducers ?
2. Write any *four* desirable characteristics of a transducer.
3. What is meant by gauge factor in strain gauge ?
4. Differentiate between primary and secondary transducers.
5. What is the effect of the temperature co-efficient of resistance in strain gauge measurement ?
6. Explain the change in sensitivity with respect to the change in area of plates in a capacitive transducer.
7. What is Seeback Effect ? Give the name of a transducer that works on the principle of Seeback Effect.
8. What is the principle of operation of LVDT ?
9. What are the applications of photodiode ?
10. What is an active IR sensor ?
11. What is a sound level meter ?
12. What is the working principle of a Rotameter ?
13. What is the principle of operation of photo-emissive cell ?

**Turn over**

14. How the flow nozzle can measure the flow ?
15. Explain the working principle of capacitor microphone.

(Ceiling : 25 marks)

### Section B

*Answer the following questions (16-23).*

*Each question carries 5 marks.*

16. What are the different static characteristics of a transducer ?
17. Explain the working of a capacitive transducer based on the change in dielectric constant.
18. What is RTD ? What are the components of RTD ?
19. Explain the construction and working of a thermistor
20. Explain the working of photovoltaic transducers and plot the characteristics also.
21. Explain capacitive level gauge for discrete level measurement.
22. Explain the principle and working of Hall Effect transducers with a neat sketch.
23. Explain Bernoulli's principle and continuity.

(Ceiling : 35 marks)

### Section C

*Answer any **two** questions (24-27).*

*Each question carries 10 marks.*

24. What are the different types of resistance strain gauges ? Explain the working of each one.
25. Explain the working of thermocouple. What are the different types of thermocouples ?
26. What are the different types of manometers ? Explain their working.
27. Explain the construction and working principle of the electromagnetic flowmeter.

(2 × 10 = 20 marks)