D 92930 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION, NOVEMBER 2020

Electronics

ELE 3A 12—GENERAL COURSE II : SENSORS AND TRANSDUCERS

Time : Two Hours and a Half Maximum : 80 Marks

Section A (Short Answer Questions)

Answer at least **ten** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 30.

1. What is a transducer ? Give an example.
2. What is the difference between sensors and transducers ?
3. Define the sensitivity of a transducer.
4. What are the static characteristics of a transducer ?
5. What is the difference between primary and secondary transducer ?
6. Explain the loading effect of a potentiometer.
7. What is an IR sensor ? What are the applications of IR radiation sensors ?
8. What is the effect of the temperature coefficient of resistance in strain gauge measurement ?
9. Write short notes on Photovoltaic cells.
10. RTDs are commonly made of doped platinum. Why ?
11. What is a sound level meter ? What are its different parts ?
12. What is the basic principle of working of Hall Effect transducers ?
13. How does an orifice plate flow meter work ?
14. What is meant by transduction ? Explain.
15. Write a note on the application-based classification of sensors.

(10 × 3 = 30 marks)

Section B (Short Essay Quetions)

Answer at least **five** *questions.*
Each question carries 6 *marks.*
All questions can be attended.
Overall Ceiling 30.

16. Distinguish between active and passive transducers with example.
17. With a neat diagram, explain the working of capacitive transducers based on the change in distance between the plates.

Turn over

18. Explain the working of an unbonded strain gauge.
19. Explain capacitive level gauge for discrete level measurement.
20. Explain Bernoulli's principle and continuity equation.
21. How does a rotameter measure a flow ?
22. Explain the working of photodiodes in sensors.
23. Explain any two dynamic characteristics of a transducer.

(5 × 6 = 30 marks)

Section C (Long Essay Quetions)

Answer any **two** *questions.*
Each question carries 10 *marks.*

24. With a Schematic diagram explain the construction and working of LVDT.
25. Explain the construction of the venturi meter and its working.
26. Explain the principle and working of the thermistor. What are the different types of thermistors ? What are its applications ?
27. With suitable diagrams explain the working of any one type of manometer.

(2 × 10 = 20 marks)

BCA