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Question Paper Code: 1213428

B.E. / B.Tech. DEGREE EXAMINATIONS, NOV/ DEC 2024

Third Semester

Biomedical Engineering

U20BM301– SENSORS AND TRANSDUCERS

(Regulation 2020)

Time: Three Hours

Maximum: 100 Marks

Answer ALL questions

PART – A

(10 x 2 = 20 Marks)

1. Classify the transducers.
2. Compare primary and secondary standards.
3. Recall the advantages and disadvantages of photomultiplier tube.
4. Classify optical encoders based on structure and output electrical signal.
5. Define gauge factor.
6. What is the working principle of optical pyrometer?
7. List the advantages and disadvantages of force balance method.
8. What are the applications of implantable pressure transducer?
9. Name some applications of biosensor in agriculture.
10. List the uses of biosensor in environment monitoring.

PART – B

(5 x 16 = 80 Marks)

11. (a) Explain about static characteristics of transducer in detail. (16)

(OR)

(b) Summarize the various errors in measurement with suitable examples. (16)

12. (a) Outline the principle, construction and working of photovoltaic cell in detail. (16)

(OR)

(b) Illustrate the principle, construction and working of piezoelectric transducer with necessary sketch. (16)

13. (a) Explain the principle, construction and working of LVDT in detail. (16)

(OR)

(b) Outline the principle, working and characteristics of thermistor in detail. (16)

14. (a) Explain about diaphragm pressure transducer in detail. (16)

(OR)

(b) Explain about strain gauge type blood pressure transducer in detail. (16)

15. (a) Summarize the use of biosensor in industrial process and environmental monitoring. (16)

(OR)

(b) Outline the application of enzyme electrodes as biosensor in industry, healthcare, food and environment. (16)

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