

CBCS SCHEME

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18BM651

Sixth Semester B.E. Degree Examination, July/August 2022 Biomedical Transducers and Instrumentation

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. What is Transducer? Explain measurement Signal and Noise in the measurement system. (12 Marks)
- b. Explain general structure of a measurement system. (08 Marks)

OR

- 2 a. Discuss the static characteristic of transducer. (12 Marks)
- b. Define the following and explain them : (08 Marks)
(i) Standard (ii) Calibration (iii) Accuracy (iv) Error

Module-2

- 3 a. With a neat figure explain ECG. (12 Marks)
- b. With a neat circuit explain the electrolyte skin interface. (08 Marks)

OR

- 4 a. Briefly explain any two electrode of ECG. (12 Marks)
- b. Discuss electrical conductivity of electrode jellies and creams. (08 Marks)

Module-3

- 5 a. With the relevant figure and equation explain LVDT. (10 Marks)
- b. Explain in Brief : (10 Marks)
(i) Catheters used for direct pressure measurement
(ii) Implantable pressure transducers

OR

- 6 a. Discuss about the catheter tip pressure transducers. (10 Marks)
- b. Describe about the automatic blood pressure measuring apparatus using Korotkoff's method. (10 Marks)

Module-4

- 7 a. Define thermistors and explain in detail with relevant figure and equation. (12 Marks)
- b. With neat figure describe about P-N junction diodes and transistors. (08 Marks)

OR

- 8 a. With a neat figure explain the photovoltaic cell. (10 Marks)
- b. Write a note on Bio Sensors. (10 Marks)

Module-5

- 9 a. With a relevant figure and equation explain electromagnetic flow meters. (10 Marks)
- b. Explain Perivascular probes and Intra vascular probes. (10 Marks)

OR

- 10 a. Explain with neat figure on Ultrasonic Doppler flow meter. (10 Marks)
- b. Explain the concept of indicator dilution method and its two types. (10 Marks)

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