



CBCS SCHEME

18MT751

Seventh Semester B.E. Degree Examination, Jan./Feb. 2023 Biomedical Signal Processing

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain the nature of biomedical signals and give examples of biomedical signals. (10 Marks)
b. Briefly explain basic electrocardiography. (10 Marks)

OR

- 2 a. Explain ECG lead systems. (10 Marks)
b. State the conversion requirements for biomedical signals and explain any one signal conversion circuit. (10 Marks)

Module-2

- 3 a. Explain the basics of signal averaging and signal averaging as a digital filter. (10 Marks)
b. Briefly explain software for signal averaging. (10 Marks)

OR

- 4 a. Explain principal noise canceller model. (10 Marks)
b. Explain 60 Hz adaptive cancelling using a sine wave model. (10 Marks)

Module-3

- 5 a. Explain Turning Point Algorithm. (10 Marks)
b. Explain Huffman coding technique. (10 Marks)

OR

- 6 a. Explain AZTEC algorithm. (10 Marks)
b. Explain frequency domain analysis of the ECG. (10 Marks)

Module-4

- 7 a. Explain QRS detection algorithm. (10 Marks)
b. Explain ST segment analyzer. (10 Marks)

OR

- 8 a. Explain ECG Signal Characteristics (parameters and their estimation). (10 Marks)
b. Briefly explain portable Arrhythmia monitor. (10 Marks)

Module-5

- 9 a. Explain the EEG signal and its characteristics. (10 Marks)
b. Explain the spike and wave detection in EEG signal. (10 Marks)

OR

- 10 a. Explain the concepts of EEG rhythms. (10 Marks)
b. Explain template matching for EEG. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.