B.Tech Even Semester Examination, May, 2025

Electronics & Communication Engineering

(8th Semester)

Course No: ECC-803B

(Biomedical Instrumentation)

Full Marks: 50

Pass Marks: 25

Time: 2 hours

Note:

1. Attempt any five questions.
2. Begin each answer in a new page
3. Answer parts of a question at a place
4. Assume reasonable data wherever required
5. The figure in the right margin indicates full marks for the question
6. All the mathematical symbols and abbreviations have their usual meanings.

1. What is blood? Write about different components of blood. Discuss about the importance of blood in the dignosis of diseases. 2+4+4=10

2. Define biotelemetry? Draw a biotelemetry system and describe all the components. 2+8=10

3. a) What is fetal monitoring? Why is it necessary to monitor the well being of a foetus in the mother's womb? 2+3

   b) What is a biosensor? What are analyte and bioreceptor in a biosensor? 2+3=5

4. What is operational amplifier (OPAMP)? What are inverting and non-inverting inputs of an OPAMP? List the characteristics of an ideal OPAMP. 2+3+5=10

5. What do you mean by patient safety? How and when current flows through human body? What happens when current pass through human body? 1+4+5=10

6. What is image processing? What are different imaging techniques that are used in the diagnosis of diseases? Discuss. 3+7=10

7. a) What is modulation? Why do we need modulation? What are the different types of modulation? 2+2+2=6

   b) Why patient monitoring system are so important in CCU or ICU? 4

8. Write short note on the following

   a) Laser in biomedical applications

   b) Biomedical recorders 5x2=10

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