



LOYOLA COLLEGE (AUTONOMOUS) CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – PHYSICS

FIFTH SEMESTER – NOVEMBER 2024



16UPH5ES02 – BIOMEDICAL INSTRUMENTATION

Date: 21-11-2024

Dept. No.

Max. : 100 Marks

Time: 01:00 pm-04:00 pm

SECTION A

Answer ANY FOUR of the following

4 x 10 = 40 Marks

1. What is Biomedical Instrumentation? List the basic components of biomedical instrumentation and write a brief note of it.
2. Distinguish between Polarizable and Non-Polarizable Electrode.
3. Describe about the isolation amplifier in biomedical analysis.
4. What are electrodes? Write the classification of electrodes.
5. Explain the recording of EMG with a block diagram.
6. Write a note on Brain waves.
7. Differentiate between internal pacemaker and external pacemaker.
8. Explain the different types of waveforms used in stimulators (electrotherapy).

SECTION B

Answer ANY THREE of the following

3 x 20 = 60 Marks

9. Draw the block diagram of basic components of biomedical instrumentation and explain it in details.
10. List the five types of biosignals? Write a brief note on static and dynamic biosignal.
11. Draw and explain the block diagram of an ECG Unit. Describe the details of placements of electrodes.
12. Give the construction and working of a lithium cell used in pacemaker batteries.
13. Explain the different techniques involved in electrosurgery and draw the block diagram.
14. Explain the working of shortwave diathermy and microwave diathermy.

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