

S.No. 2795

P 16 ELE 1 B

(For candidates admitted from 2016–2017 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Part III — Electronics — Elective

MEDICAL ELECTRONICS

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20)

Answer ALL questions.

1. What is the approximate value of resting and action potential?
2. What is the difference between a cell and a tissue.
3. Name the electrode which is suitable for picking up electrical activity from the body.
4. How do you expect the input and output Impedance of a Biomedical Amplifier.
5. What do you mean by Uremia?
6. What is the frequency of X wave in EEG?

7. What is the name given to the X-ray tube?
8. What is the frequency and wavelength of X-ray?
9. Define population immersion in a Laser.
10. What is the use of Thermography?

PART B — ($5 \times 5 = 25$)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write a short note on the nature of cancer cells.

Or

- (b) Explain briefly about the nervous system in our body.

12. (a) Explain briefly about a Biomedical Amplifier.

Or

- (b) Define Half cell potential of an electrode and how can you reduce contact Impedance.

13. (a) With a simple diagram explain the working of EEG.

Or

- (b) Write a note on Biomedical Recorders.

14. (a) What are the application of X-rays in medicine? Explain briefly.

Or

- (b) What are the various elements of a Bio Telemetry system?

15. (a) Write a brief note on Endoscopy.

Or

- (b) What is the use of Thermography? Explain briefly.

PART C — ($3 \times 10 = 30$)

Answer any THREE questions.

16. Write a detailed note on the generation of action potential in cells.
17. With a neat block diagram explain the various components of a Biomedical Instrument system in detail.
18. Draw the diagram to explain the various lead placements for ECG measurement in detail.
19. Draw the diagram of an Election Microscope and explain it in detail.
20. Draw the block diagram of a MRI machine and explain its working in detail.