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**Question Paper Code: 37503**

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2021

Seventh Semester

Electronics and Instrumentation Engineering

01UEI703 - BIOMEDICAL INSTRUMENTATION

(Common to Instrumentation and Control Engineering)

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Differentiate polarizable and non-polarizable electrodes.
2. List the different types of electrodes.
3. Mention the various applications of phonocardiogram.
4. Define the term latency in EMG.
5. What is 'cardiac output'?
6. Discuss about the origin of heart sounds.
7. Expand the term 'SIMV' used in ventilators.
8. What is micro shock?
9. What is "CT Number"?
10. Give the block diagram of a bio-telemetry system.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain in detail about the generation and propagation of action potential through nerve-muscle cells. (16)

Or

(b) What are the electrodes used in biomedical and explain the types of electrodes in detail with diagrams. (16)

12. (a) Explain the working of (i) EEG Recorder (ii) EMG System. (16)

Or

(b) Discuss in detail about the generation of EEG with 10-20 lead configuration system. (16)

13. (a) Explain about the Indirect methods of blood pressure monitoring. (16)

Or

(b) Discuss the following methods of cardiac output monitoring

(i) Dye dilution method (8)

(ii) Thermal dilution method (8)

14. (a) In detail, explain the working of Heart Lung machine with neat diagram. (16)

Or

(b) Discuss the process of dialysis with diagrams. How does this technique play a useful role in medical field? Give a few examples and state the limitations of this technique. (16)

15. (a) Explain the construction and working of a computed tomography system. (16)

Or

(b) Write the significance of X ray machine and explain its functioning with necessary diagram. (16)