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Question Paper Code: 37503

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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. What is 'repolarization'?
2. Differentiate polarizable and non-polarizable electrodes.
3. List out the types of electrodes used for measuring ECG.
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. Distinguish the terms "PET and "SPECT".
10. Give the block diagram of a bio-telemetry system.

PART - B (5 x 16 = 80 Marks)

11. (a) Describe the Isolation amplifiers in detail with necessary diagrams. (16)

Or

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

12. (a) Describe in detail about the clinical significance, lead configuration, recording methods and waveforms of ECG. (16)

Or

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

13. (a) Draw the block diagram of automated electro sphygmomanometer for blood pressure measurement and explain its operation. (16)

Or

(b) Discuss the following methods of cardiac output monitoring

(i) Dye dilution method (8)

(ii) Thermal dilution method (8)

14. (a) Discuss in detail about the physiological effects of Electric current on human body. (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 in detail about the thermal imaging system. (16)

Or

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