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Question Paper Code: 37503

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

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 bio electric potential?
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. What is the cardiac pacemaker and why is it used?
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) Explain the process of propagation of electrical pulses along the axon with relevant diagrams. (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) Explain about the recording setup and analysis of ECG signals with necessary diagrams. (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) Discuss in detail about the physiological effects of Electric current on human body. (16)

Or

(b) Why do we require Heart-lung machine? Draw a block diagram of it and explain its working. (16)

15. (a) Explain in detail about the thermal imaging system. (16)

Or

(b) (i) Discuss the implantable telemetry with any one application. (8)

(ii) Explain in detail about the thermal imaging system. (8)