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Question Paper Code: 37503

B.E. / B.Tech. DEGREE EXAMINATION, MAY 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 'repolarization'?
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. List out the types of dialyzers.
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) Describe in detail about the clinical significance, lead configuration, recording methods and waveforms of ECG. (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) Draw the block diagram of automated electro sphygmomanometer for blood pressure measurement and explain its operation. (16)

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)