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Question Paper Code: 31573

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

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. Mention the various applications of phonocardiogram.
5. What are the types of ultrasonic blood flow meters?
6. What is 'cardiac output'?
7. Expand the term 'SIMV' used in ventilators.
8. List out the types of dialyzers.
9. Distinguish the terms "PET and "SPECT".
10. What is "CT Number"?

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

12. (a) Explain about the recording setup and analysis of ECG signals with necessary diagrams. (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) (i) Discuss in detail about the physiological effects of Electric current on human body. (8)

(ii) Explain about micro and macro shock hazards. (8)

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

Or

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

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