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Question Paper Code : 71701

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Sixth Semester

Electronics and Communication Engineering

EC 6001 — MEDICAL ELECTRONICS

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define absolute and relative refractory period.
2. Mention the cause of first and second heart sounds.
3. What is blood pressure? State the normal values of blood pressure.
4. State the different types of test performed using auto analyser.
5. Differentiate internal and external defibrillator.
6. What is dialysate? Mention its composition.
7. Define desiccation and haemostasis.
8. List the applications of biotelemetry.
9. What makes thermograph useful?
10. List the properties of LASER beam.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the international standard 12 lead system used to record ECG. (10)
- (ii) List and discuss the important characteristics of bioamplifier. (6)

Or

- (b) (i) Discuss in detail about the 10 - 20 lead system. (10)
(ii) Describe the typical EMG waveform and its characteristics. (6)
12. (a) (i) Describe the measurement of PO₂. (8)
(ii) Explain the block diagram and working of colorimeter. (8)

Or

- (b) (i) Define the term "Cardiac Output". How is cardiac Output measured by dye dilution technique? Explain. (8)
(ii) Describe the working of principal of electromagnetic blood flow meter. (8)
13. (a) (i) With a neat diagram explain the block diagram of DC defibrillator. (8)
(ii) Describe the working of atrial synchronous pacemaker. (8)

Or

- (b) Explain in detail the different types of oxygenators and pumps used in heart lung machine. (16)
14. (a) (i) Explain the simplified circuit diagram of a microwave diathermy machine. (10)
(ii) Discuss the different methods of applying electrodes in shortwave diathermy treatment. (6)

Or

- (b) (i) Describe the single channel ECG telemetry system. (8)
(ii) Briefly discuss about micro and macro shocks. (8)
15. (a) (i) What is endoscope? Explain the different types of operations performed using endoscopy. (10)
(ii) Describe the working principle of thermograph. (6)

Or

- (b) (i) Explain the different types of LASER. (10)
(ii) Write short notes on cryogenic applications. (6)