Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 20384

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

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. Differentiate micropipette and metal microelectrode.

2. Define relative refractory period.

3. Write the principle of colorimeter.

4. State the principle behind Rheographic method of blood pressure measuring technique.

5. Write down the advantages of DC defibrillator over AC defibrillator.

6. What is dialyasate? Mention its composition.

7. State the difference between micro and macro shock.

8. Mention the features of Ultrasonic type diathermy.

9. List the applications of cryogenic technique.

10. Write the principle of Liquid Crystal Thermograph.

PART B — (5 × 13 = 65 marks)

11. (a) (i) With a neat block diagram, explain the working principle of ECG recorder. (8)

(ii) Give an account on surface electrode and state its application. (5)

Or

(b) (i) Describe in detail about 10-20 electrode system. (8)

(ii) Explain the working principle of isolation amplifier. (5)

12. (a) Explain in detail about thermo dilution and dye dilution of cardiac output measurement technique. (13)

Or

(b) Describe in detail about the working principle of electromagnetic type blood flow meter. (13)

13. (a) With a neat block diagram explain the principle of operation of a hemo dialyzer machine. (13)

Or

(b) Draw the block diagram of synchronized DC defibrillator and explain its working principle. (13)

14. (a) Explain the working principle of surgical diathermy unit with a neat block diagram. (13)

Or

(b) (i) Describe the working of biotelemetry system. (8)

(ii) State the influence of leakage current in cardiac patients and explain in detail about the preventive method. (5)

15. (a) Describe the working principle and image acquisition technique using thermograph. (13)

Or

(b) Give a detailed description of about fiber optic endoscopy system. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Explain the working of Heart Lung Machine (HLM) and state its application. Justify the scenarios where HLM can be used.

Or

(b) Design a suitable amplifier that can be used in the front end of an ECG machine. Justify your by specifying the features of the selected amplifier.