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# Question Paper Code : 52883

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Sixth Semester

Electronics and Communication Engineering

EC 6001 — MEDICAL ELECTRONICS

(Regulation 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the types of bioelectric potentials.

2. Name the electrodes used for recording EMG and ECG.

3. What are the typical values of blood pressure and pulse rate of an adult?

4. What is cardiac output? What are the methods of measurement of cardiac output?

5. Calculate the energy stored in 16 μF capacitor of a DC defibrillator that is charged to a potential of 5000 Vdc.

6. What are the types of batteries used for implantable pacemaker?

7. Draw the block diagram of a Bio-Telemetry system.

8. What is a radio-pill?

9. Define – Endoscopes and mention some of its types.

10. What is medical thermography? Mention its applications.

PART B — (5 × 13 = 65 marks)

11. (a) Explain in detail the origin of bio potential. (13)

Or

(b) Draw the typical ECG waveform with its characteristics. (13)

12. (a) Describe in detail the principle of calorimeter with neat diagram. (13)

Or

(b) Explain the working principle of conductive method blood cell counter with its construction details. (13)

13. (a) With a neat diagram, illustrate the working of D.C. defibrillator. (13)

Or

(b) Write a brief note on heart lung machine. (13)

14. (a) What are the components of biotelemetry system? Briefly discuss about biotelemetry. (13)

Or

(b) Draw the block diagram of short wave and Microwave diathermy and explain in detail. (13)

15. (a) Write a brief note on Lasers in Medicine. (13)

Or

(b) What is thermography? Elucidate it in detail. (13)

PART C — (1 × 15 = 15 marks)

16. (a) What are the different types of ultrasonic blood flow meter? Explain each in detail. (15)

Or

(b) Explain about the evolution and technologies involved in telemedicine. And discuss the application areas of telemedicine. (15)

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