A 1171

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Eighth Semester

Mechatronics Engineering

EC 041 — MEDICAL ELECTRONICS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What do you mean by skin contact impedance?

2. Briefly describe the basic concept involved with PhonoCardiograph (PCG).

3. Write short notes on calorimeter.

4. How blood cells are counted with microscopic method?

5. What are the causes for ventricular fibrillation?

6. When speech audiometry is needed?

7. Discuss briefly about sport physiology studies through telemetry.

8. What is Radio-Pill?

9. State three applications of thermograph.

10. What are the precautions to be taken to minimize electric shock hazards?

PART B — (5 × 16 = 80 marks)

11. (a) With neat block diagram, explain the working principle of an electro cardiograph machine. (16)

Or

(b) (i) Discuss about the electrodes for EEG, EMG and EFG. (10)

(ii) Write notes on Electromyograph. (6)

12. (a) Discuss the working principle of electromagnetic blood flowmeter. (16)

Or

(b) How respiration rate and temperature measured? Explain with required diagram. (16)

13. (a) (i) Differentiate fixed and demand pace-maker. (6)

(ii) With neat block diagram, explain the working principle of implantable programmable pacemaker. (10)

Or

(b) Discuss about various types of dialyser. (16)

14. (a) Explain the basic concept of short wave diathermy. Compare it with microwave diathermy. Mention some of its applications. (16)

Or

(b) Write about

(i) Single channel telemetry systems. (8)

(ii) Temperature telemetry system. (8)

15. (a) (i) Explain in detail about the principle of surgical diathermy. (10)

(ii) Briefly describe about endoscopy. (6)

Or

(b) Discuss about the principle of operation of LASER and Pulsed Ruby Laser. (16)
