

ANNA UNIVERSITY: CHENNAI 600 025

Department of Electronics and Communication Engineering
B.E/ B.Tech (Full Time) –End Semester Examination –Nov/Dec 2011
EC384 – Medical Electronics VI semester R 2004

Time: 3 Hrs

Answer all Questions

Max. Marks: 100

PART – A

(10 x 2 = 20 marks)

1. Draw a typical cell potential waveform.
2. Name the output devices of EEG, ECG and EMG unit.
3. Define stroke volume, Average heart rate and instantaneous heart rate .
4. What are the basic components used for calorimeter? Give its importance?
5. Draw the air and bone conduction responses of normal ear .
6. What are the basic components required for construction of a dialyser unit? List the types?
7. Give the frequencies for muscle and nerve stimulation.
8. What is Diapulse therapy?
9. What is laser ? What are the basic components of laser?
10. Define microshock , macroshock Patient leakage current and Patient enclosure current .

PART- B

(5 x 16 = 80 marks)

- 11.a. Draw and explain the block diagram of an ECG machine. (8)
 - b. Draw the Einthoven triangle and explain the various type of lead connections with typical ECG waveforms. (8)
- 12a. Explain the operation of blood cell counter based on the principle of microscopic and optical method.

OR

- 12b. Explain the dye dilution method for measurement of cardiac output.

- 13ai. With neat block diagram explain the principle of a synchronous and a dc defibrillator. (8)
- ii. Explain the working of a programmable pacemaker and state its significance. (8)

OR

- 13bi. With neat diagram discuss the principle of operation of an Heart lung machine . (8)
- ii. Discuss the various types of oxygenates and pumps used in heart lung machine. (8)

14a. With neat block diagram and waveforms explain the diagnostic / therapeutic stimulating unit and its advantages.

OR

14bi. What is telemetry ? Explain the Multichannel wireless telemetry and its applications. (8)

ii. With neat diagrams explain the precautions to minimize electrical shock hazard for electro medical equipment (8)

15ai. Explain the principle of operation of an endoscopy unit and its applications. (8)

ii. Explain the principle of operation and application of medical thermography. (8)

OR

15bi. Explain the working principle of surgical diathermy with neat Waveforms. (8)

ii. Write short notes on.

i).Cryogenics ii).Laser in medicine. (8)
