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B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2014

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Sixth Semester

EC 9351 MEDICAL ELECTRONICS

(Regulation ...R2008...)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Define all or none law.
2. Mention the characteristics needed for a bioamplifier.
3. What is stroke volume?
4. List the factors that affect the speed of migration in electrophoresis.
5. Draw the waveform that is used in DC defibrillator and mark its significance.
6. Distinguish between CROS and BI-CROS.
7. Define the terms rheobase and chronaxie with reference to the intensity time curve.
8. What is microshock?
9. List any two LASER used for eye surgery.
10. Draw and mention the parts of an endoscopy.

Part – B (5 x 16 = 80 marks)

11. Explain the functions of surgical diathermy and various modes of operations. (16)
12. a) (i) Discuss in detail about the types of biopotential electrodes. (8)
(ii) Write short notes on EMG recorder & its characteristics. (8)
(OR)
b) Correlate the mechanical and electrical events during hearts activity and discuss the significance of different lead configuration with neat schematic. (16)
13. a) Describe the measurement of blood pressure using sphygmomanometer and ultrasonic method. (16)
(OR)
b) (i) With appropriate pictorial representation explain the various lung volume and capacities. (8)
(ii) Explain how Fick's method is used to measure the cardiac output. (8)
14. a) What is the need for pacemaker? Explain the different types of pacemakers. (16)
(OR)
b) (i) Explain the working of HLM (12)
(ii) Write the principle of Dialyzer. (4)

15. a) List out the physiological effects of electric current on human and write short notes on various safety techniques. (16)
- (OR)**
- b) (i) Write brief notes on the parameters, operational modes and electrodes used in short wave diathermy. (12)
- (ii) List some advantages and applications of biotelemetry. (4)