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B.E./B.TECH (FULL TIME) DEGREE ARREAR EXAMINATIONS, NOVEMBER/DECEMBER 2012
ELECTRONICS AND COMMUNICATION ENGINEERING BRANCH
SIXTH SEMESTER, REGULATIONS: R-2008
EC 9351 – MEDICAL ELECTRONICS

Time: 3 Hours

Answer ALL Questions

Max.Marks: 100

Part-A (10x2=20 Marks)

1. Draw a typical cell potential waveform.
2. Draw the schematic diagram of an instrumentation amplifier and give its advantages.
3. Define stroke volume, heart rate, cardiac output.
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 is meant by dialyser? List the types of it.
7. Draw the current waveforms normally used in electro diagnostic and electrotherapy.
8. What is Diapulse therapy?
9. What is laser? What are the basic components of laser?
10. What are cryogenics? List few applications.

Part-B (5x16=80 Marks)

11. Draw the Einthoven triangle and explain the various type of lead connections with typical ECG waveforms. (16)
 - 12.(a) Explain the operation of blood cell counter based on the principle of microscopic and optical method. (16)
- OR**
- 12.(b) Explain the dye dilution method for measurement of cardiac output. (16)
 - 13.(a) Discuss the types of implantable pacemakers with neat diagrams. (16)
- OR**
- 13.(b)(i) With neat diagram discuss the principle of operation of an heart Lung machine. (8)
 - (ii) Discuss the types of Hearing aids with neat diagram. (8)

- 14.(a)(i) What is a radio-pill? Describe. How will you decide the frequency of operation? (8)
(ii) Discuss the Multichannel wireless telemetry with neat diagram. (8)

OR

- 14.(b) With neat block diagram explain the diagnostic / therapeutic stimulating unit and its advantages. (16)

- 15.(a)(i) Explain the principle of operation and application of medical thermography. (8)
(ii) Discuss few applications of endoscopy unit. (8)

OR

- 15.(b)(i) Explain the various types of electro surgery technique commonly used in surgical diathermy machines. (8)

- (ii) Define the terms: (8)

- (a) Patient leakage current
- (b) Enclosure leakage current
- (c) Microshock
- (d) Macroshock.
