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Question Paper Code : 51369

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2014.

Sixth Semester

Electronics and Communication Engineering

EC 2021/EC 601/EC 1001/10144 ECE 11 — MEDICAL ELECTRONICS

(Regulation 2008/2010)

(Common to PTEC 2021-Medical Electronics for B.E. (Part-Time) Seventh Semester
– ECE – Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. The contraction of skeletal muscle is termed as what? Give its specifications.
2. Enlist the electrodes used for recording EEG.
3. Write the principle behind Electromagnetic blood flow meter.
4. Nitrogen washout technique is meant for what measurements?
5. Draw the typical discharge pulse of a DC-defibrillator.
6. What are the essential requirements of the FM telemetry receiver?
7. Labelled sodium isotope is deployed in diagnosis of what impairment.
8. Mammograms are used for what purposes?
9. Mention the situations which account for hazards from electric shock.
10. Can pain be relieved through electrical stimulation? What is the equipment used for it?

PART B — (5 × 16 = 80 marks)

11. (a) With neat diagrams explain the formation of various lead systems used for recording ECG.

Or

- (b) (i) Distinguish a biological amplifier from a conventional amplifier with suitable equations and circuits. (10)
(ii) Write short notes on measurement of PCG. (6)
12. (a) From basic principles discuss the working of a pulmonary function analyzer.

Or

- (b) Explain the following :
(i) Photometer. (8)
(ii) Auto Analyzer. (8)
13. (a) Explain the function and characteristics of the various types of on-demand cardiac pacemakers.

Or

- (b) Show how tele-stimulation is achieved and write the merits and demerits of E-health.
14. (a) Explain the function of diagnostic x-ray equipment with neat block diagram.

Or

- (b) Discuss how the radioisotopes are used as
(i) Diagnostic imaging. (8)
(ii) Radiation therapy. (8)
15. (a) (i) With a neat block diagram explain the working of an endoscopy unit. (8)
(ii) Write a brief note on the functioning of microwave diathermy unit. (8)

Or

- (b) Explain the application of different types of Lasers in medicine. (16)