Reg. No. | | | | | | | | | | | | |

Question Paper Code : 71409

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

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)

(Also common to 10144 ECE 11 – Medical Electronics for B.E. (Part – Time) Sixth Semester – ECE – Regulation 2010)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define resting potential and action potential.

2. Give the ECG signal characteristics.

3. Which flow meters are used to measure pulsatile flow of blood?

4. Draw lung volume diagram.

5. What is Radio pill? Give its two uses.

6. What is meant by Bradycardia and Tachycardia?

7. Distinguish radiographic and fluorographic techniques.

8. What are the isotopes used in Alpha and Beta radiation?

9. Write the physiological effects of electricity.

10. Name the laser commonly used for ophthalmic application. Why?

PART B — (5 × 16 = 80 marks)

11. (a) Classify and explain bio-potential electrodes with neat diagram. (16)

Or

(b) (i) Draw and explain different types of Lead configuration in ECG and gives its significances. (10)

(ii) Explain the working of a multi-channel EEG recording machine. (6)

12. (a) (i) With sketch explain how the PCO_2 of blood is measured. (8)

(ii) Describe the working principle of an Electrophoresis apparatus. Give its applications. (8)

Or

(b) (i) Explain electromagnetic blood flow meter. (8)

(ii) Explain ausculatory blood pressure measurement. (8)

13. (a) (i) What is Defibrillator? With block diagram explain the operation of Synchronised DC Defibrillator. (12)

(ii) Distinguish Internal and External Pacemaker. (4)

Or

(b) Explain the single channel and Multi-channel Bio telemetry system with neat diagram. (16)

14. (a) Classify the X-rays and with neat diagram explain the function X-Ray machine. (16)

Or

(b) (i) Explain the use of Radio Isotopes in diagnosis. (8)

(ii) Draw the gamma camera and explain the principle. (8)

15. (a) (i) What is Leakage current? Explain the impact of leakage in cardiac patient and how it can be avoided? (12)

(ii) List the therapeutic application of Laser. (4)

Or

(b) With neat sketch explain the following :

(i) Surgical Diathermy (8)

(ii) Endoscopy unit. (8)

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