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Question Paper Code : 60409

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Sixth/Seventh Semester

Electronics and Communication Engineering

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

(Regulations 2008/2010)

(Common to PTEC 2021/10144 ECE 11 — Medical Electronics for BE. (Part-Time)
Sixth/Seventh Semester — ECE — Regulations 2009/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is bioelectric potential?
2. Define latency in EMG.
3. Which flow meters are used to measure pulsatile flow of blood?
4. Draw lung volume diagram.
5. List the two types of multiplexing involved in multichannel wireless telemetry.
6. What is meant by a demand pacemaker?
7. What is meant by ionising radiation?
8. What is a betatron? What is its application?
9. List the parts of endoscope unit.
10. What is Macro shock?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the different lead systems used in the measurement of ECG waveform and also explain the working of an ECG recorder.

Or

- (b) With a neat diagram, explain the working of EMG systems and also give its typical waveforms that represent its signal characteristics.

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 auscultatory blood pressure measurement. (8)
13. (a) (i) With neat diagram, describe the function of ventricular inhibited pacemaker. (8)
(ii) What is a radiopill? Explain with the help of an example. (8)

Or

- (b) How is atrial fibrillation arrested? Explain with the help of relevant diagram of the setup.
14. (a) With the aid of suitable diagrams explain the construction and operation of LINAC used in radiotherapy. Also, mention the safety precautions to be followed in radiotherapy. (16)

Or

- (b) With suitable illustration explain the functional aspects of X-Ray machine. Discuss the rôle of each part of the circuit. (16)
15. (a) Write brief notes on :
(i) Thermograph (8)
(ii) Endoscopy unit. (8)

Or

- (b) Explain the following :
(i) Surgical diathermy (8)
(ii) Argon Laser and its medical application. (8)