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

Question Paper Code : X 60406

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
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 – Medical Electronics for B.E.
(Part-Time) Sixth/Seventh Semester – ECE – Regulations 2009)

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. Specify the frequencies used for biotelemetry.
6. What are the batteries used for implantable pacemaker ?
7. What are soft and hard X-rays ?
8. Mention the characteristics required for the radio isotope to be used for medical imaging.
9. Bring out the need for patient plate in surgical diathermy.
10. What are the precautions necessary to avoid microshock ?

PART – B **(5×16=80 Marks)**

11. a) i) What should be the characteristics of biopotential amplifier ? Explain with proper justification. **(8)**

ii) Write about 10-20 system of recording EEG. **(8)**

(OR)

b) i) Explain the origin of biopotential. **(8)**

ii) Draw a typical ECG waveform and mark the important features and the associated function of the heart. **(8)**

12. a) Illustrate the procedure of a modern spirometry test conduction. Discuss the clinical implications of flow-volume graph. **(16)**

(OR)

b) Show the application of ultrasonic waves in measuring

i) Blood flow **(8)**

ii) Blood pressure. **(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) With its principle of operation, explain the working of diagnostic X-ray equipments.

(OR)

b) What are the various radio isotopes used in diagnosis ? List its advantages and disadvantages. Also explain how these isotopes are used in radiation therapy.

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)**

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