



Reg. No. :

| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

Question Paper Code : 91418

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Sixth Semester

Electronics and Communication Engineering

EC6001 – MEDICAL ELECTRONICS

(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Mention the requirements of bioamplifier.
2. State all or null law with respect to cell biopotential.
3. What is the reason for decrease of cardiac output ?
4. Define – Tidal Volume.
5. Name the three types of exchangers used in Hemodialysis system.
6. What is dialysate ? Mention its composition.
7. What are the advantages of biotelemetry system ?
8. State the differences between micro and macro shock.
9. Define Let-go current.
10. Write the applications of laser in medicine.

PART – B

(5×13=65 Marks)

11. a) i) With a neat block diagram explain the working principle of EEG signal. (9)
ii) Give an account on the need of surface electrodes and mention its types. (4)

(OR)

- b) Explain about the lead system of ECG signal in detail.



12. a) Explain the working principle of spectrophotometer with a neat diagram.

(OR)

b) Elucidate the detailed procedure to detect blood pressure using Sphygmomanometer and ultrasonic method.

13. a) Draw the block diagram of cardiac pacemaker and explain its working principle.

(OR)

b) Describe in detail the working of Heart lung machine.

14. a) Draw the typical block diagram of electrosurgical unit and explain its functioning. Mention the hazards that commonly occur in electrosurgical unit.

(OR)

b) Describe the working principle of short wave diathermies with a neat diagram.

15. a) Explain the principle of Laser and give a detailed account on how laser is used in medicine.

(OR)

b) Give a detailed account on cryogenic application in Neutron therapy and cryosurgery.

PART – C

(1×15=15 Marks)

16. a) Design a suitable amplifier that can be used in the front end of an ECG machine. Justify your by specifying the features of the selected amplifier.

(OR)

b) Describe the working principle and image acquisition technique using thermograph.
