(Pages : 3) **N – 5886**

Reg. No. .....

Name : .....

Sixth Semester B.Tech. Degree Examination, April 2022

(2013 Scheme)

13.606.1 — BIOMEDICAL INSTRUMENTATION (E)

Time : 3 Hours Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **2** marks.

1. What is meant by action potential? What is its cause?
2. Mention the specific application of needle electrodes.
3. Sketch atypical EGG signal.
4. Mention the importance of heart rate measurement.
5. Sketch Einthoven triangle.
6. List various respiratory parameters.
7. What are the typical EEG wave types and mention their frequency.
8. What are evoked potentials in EEG?
9. What is the need of pace makers?
10. List advantages of MRI scanning.

(10 × 2 = 20 Marks)

P.T.O.

PART – B

Answer **one** questions. **Each** question carries **20** marks.

Module – I

11. (a) Describe generation and propagation of action potentials in human body. **8**

    (b) Explain various bio-potential electrodes used in biomedical engineering. **12**

OR

12. (a) Sketch action potential of EGG and explain. **8**

    (b) With neat diagrams. explain various transducers used for pressure measurement. **12**

Module – II

13. (a) Explain about various lead systems used for EGG recording. **10**

    (b) Illustrate any one indirect method of blood pressure measurement. **10**

OR

14. (a) Draw the block diagram of EGG recording machine and explain. **10**

    b) Explain the working of spirometer to measure lung volume and capacities. **10**

Module – III

15. (a) Discuss briefly about human nervous system its communication process. **10**

    (b) With a neat block schematic, describe the working of EMG machine and its recording process. **10**

OR

16. (a) Draw the block diagram of bed side monitor and explain. **8**

    (b) Explain EEG lead configuration system and the signal recording process. **12**

Module – IV

17. (a) What are defibrillator? Explain various types of defibrillators used in medical field. **10**

(b) Explain the principle and operation of CT scanner. **10**

OR

18. (a) Explain the working and application of a hemo-dialyzer unit. **10**

(b) Explain the principle and operation of MRI machine. **10**

(4 × 20 = 80 Marks)