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A – 2856

Reg. No. :

Name :

**Sixth Semester B.Tech. Degree Examination, May 2016
(2008 Scheme)**

08.606 (Elective – II) (b) BIOMEDICAL INSTRUMENTATION (E)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.



1. Explain how action potentials are generated.
2. What are the different types of electrodes used for the measurement of electromyograms.
3. Describe briefly how blood pressure is measured using sphygmomanometer and a stethoscope.
4. Discuss any one method for the measurement of blood flow.
5. Draw the block diagram of a computer aided ECG recording system and explain its working.
6. What are the various types of electrodes used for recording Electroencephalograms ?
7. Explain the principle of MRI scanning.
8. What are cardiac pacemakers ?
9. What are the advantages of ultrasonic imaging over other imaging modalities ?
10. Discuss the safety aspects provided in biomedical equipments for patient safety.

(10×4 = 40 Marks)



PART – B

Answer **any one** question from **each** Module.

Module – I

11. a) What are the direct methods used for the measurement of blood pressure?
b) Explain the working of a laser doppler blood flowmeter.

OR

12. a) Explain how heart rate is measured.
b) Describe any one method for the measurement of blood flow.

Module – II

13. a) Draw the block diagram of ECG machine and explain its working.
b) Draw the block diagram of EEG machine and explain its working. What are the methods employed in EEG recorder for eliminating 50 Hz noise.

OR

14. a) Explain how conduction velocity is measured in a nerve or muscle fiber.
b) What are the important applications of EMG ? Explain how EMG signals are quantified ?

Module – III

15. a) Explain the principle of ultrasonic imaging.
b) What are the important applications of ultrasonic imaging ?
- OR
16. a) Describe the working of an artificial kidney machine.
b) Explain the working of short wave diathermy machine. **(20×3=60 Marks)**