



Reg. No. :

Name :

**Sixth Semester B.Tech. Degree Examination, March 2015
(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. What are bioelectric potentials ?
2. What are the various types of transducers used for the measurement of blood pressure ?
3. What are the clinical informations which can be obtained from ECG recordings ?
4. Explain how EMG signals can be quantified.
5. Write short notes on EEG electrodes.
6. Draw the block diagram of an X-ray machine and explain its working.
7. Explain the principle of computed tomography.
8. What are the various components used in a dialysate solution used in an artificial kidney machine ?
9. What are microwave diathermy machines ? Explain its important uses in medical field.
10. What are the various types of membranes used in an artificial kidney machine ?

(10×4=40 Marks)



PART - B

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

Module - I

11. What are the various types of surface electrodes used for the measurement of ECG ?

OR

12. An excitable cell is impaled by a micropipet, and a second extracellular electrode is placed close by at the outer membrane surface. Brief pulses of current are then passed between these electrodes which may or may not cause it to conduct an action potential. Explain how the polarity of the stimulating pair influences the membrane potential and subsequently the activity of the excitable cell.

Module - II

13. Draw the block diagram of modern bed side monitor and explain the working principle.

OR

14. Explain the working of a modern ECG recording setup and explain its working. What are the different types of electrodes used in ECG recording ?

Module - III

15. Explain the working of any one type of hemo-dialysis machine. What are its advantages and disadvantages ?

OR

16. Describe the working of an ultrasonic imaging system. Explain its principle. What are the important applications of ultrasound in medicine and biology ?

(20×3=60 Marks)

