(Pages : 2) **A – 2742**

Reg. No. : .....

Name : .....

Sixth Semester B.Tech. Degree Examination, May 2016
(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 are objectives of biomedical instrumentation system ?
2. What are the different physiological systems of human body ?
3. What are the different types of electrodes used in biomedical instrumentation ?
4. What is the significance of heart sounds in diagnosis ?
5. What is the medical significance of impedance pneumography ?
6. How EEG waveforms are classified ?
7. Draw a neat diagram of human nerve cell.
8. What are the applications of ultrasonic imaging ?
9. What is meant by defibrillators ?
10. What are the physiological effects of electric current in human body ? **(10×2=20 Marks)**

PART – B

Answer **any one** full questions from **each** Module.

Module – I

11. a) With the help of diagrams explain how action potential is generated. **12**
    b) Explain different types of electrodes used in bio potential measurement. **8**

OR

12. a) What are the major problems encountered in measuring living systems ? **8**
    b) Explain how resistive and capacitive transducers are used for practical applications. **12**

P.T.O.

Module – II

13. a) Explain cardiovascular system with the help of a block diagram. 10

    b) Explain any two indirect methods of blood pressure measurement. 10

OR

14. a) Explain the working of ECG recorder with block diagram. 10

    b) What are the methods for respiration rate measurement ? Explain any two methods. 10

Module – III

15. a) Explain the 10-20 electrode system of EMG measurement with necessary diagrams. 12

    b) Explain the elements of intensive care units. 8

OR

16. a) Explain with block diagram the working of EMG recorders. What are the applications of EMG ? 12

    b) Explain the anatomy of the nervous system with neat diagram. 8

Module – IV

17. a) Draw the block diagram of X-ray machine and explain its working. 10

    b) What is hemodialysis ? Explain any one type of hemodialyzer. 10

OR

18. a) Compare computer tomography and magnetic resonance imaging system with their working principles. 10

    b) Explain the working of short wave diathermy machine. 10
