(Pages : 2) **B – 5996**

Reg. No. : .....

Name : .....

Sixth Semester B.Tech. Degree Examination, April 2017
(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 the need of Gel in Bio potential measurement ?
2. What are the transducers best suited for temperature measurement ?
3. Write the signal characteristics of ECG.
4. Draw a diagram showing lung volumes and capacities.
5. What are the direct methods of blood pressure measurement ?
6. What are the applications of EMG ?
7. What is spirometer ?
8. What is the working principle of Artificial kidney ?
9. What is the principle of MRI scanning ?
10. What are micro shock and macro shock ? **(10×2=20 Marks)**

PART – B

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

Module – I

11. a) Explain different physiological systems of human body. **10**

    b) Explain different types of transducers used in biomedical applications. **10**

OR

12. a) Explain how action potential is generated and propagated. **12**

    b) What are the basic types of electrodes used for bio potential measurement ? **8**

Module – II

13. a) Explain in detail the blood pressure measurement using Sphygmomanometer. **10**

    b) Explain with figures the 12 lead system of ECG measurement. **10**

OR

14. a) Explain the principle of electromagnetic blood flow measurement. **10**

    b) Explain any two methods of respiration rate measurement. **10**

Module – III

15. a) What is EMG ? Draw the block diagram of EMG measurement and explain the need for each block. **12**

    b) Explain in detail the anatomy of the nervous system. **8**

OR

16. a) Draw the block diagram of EEG machine and explain how EEG is recorded. **12**

    b) Explain the monitoring systems in intensive care units. **8**

Module – IV

17. a) With block diagram explain the working of computer tomography scanner. **10**

    b) Explain different diathermy techniques used in medicine. **10**

OR

18. a) Explain the working of ultrasonic imaging system. What are the important applications ? **10**

    b) Explain the various modes of operation of pacemakers. **10**