

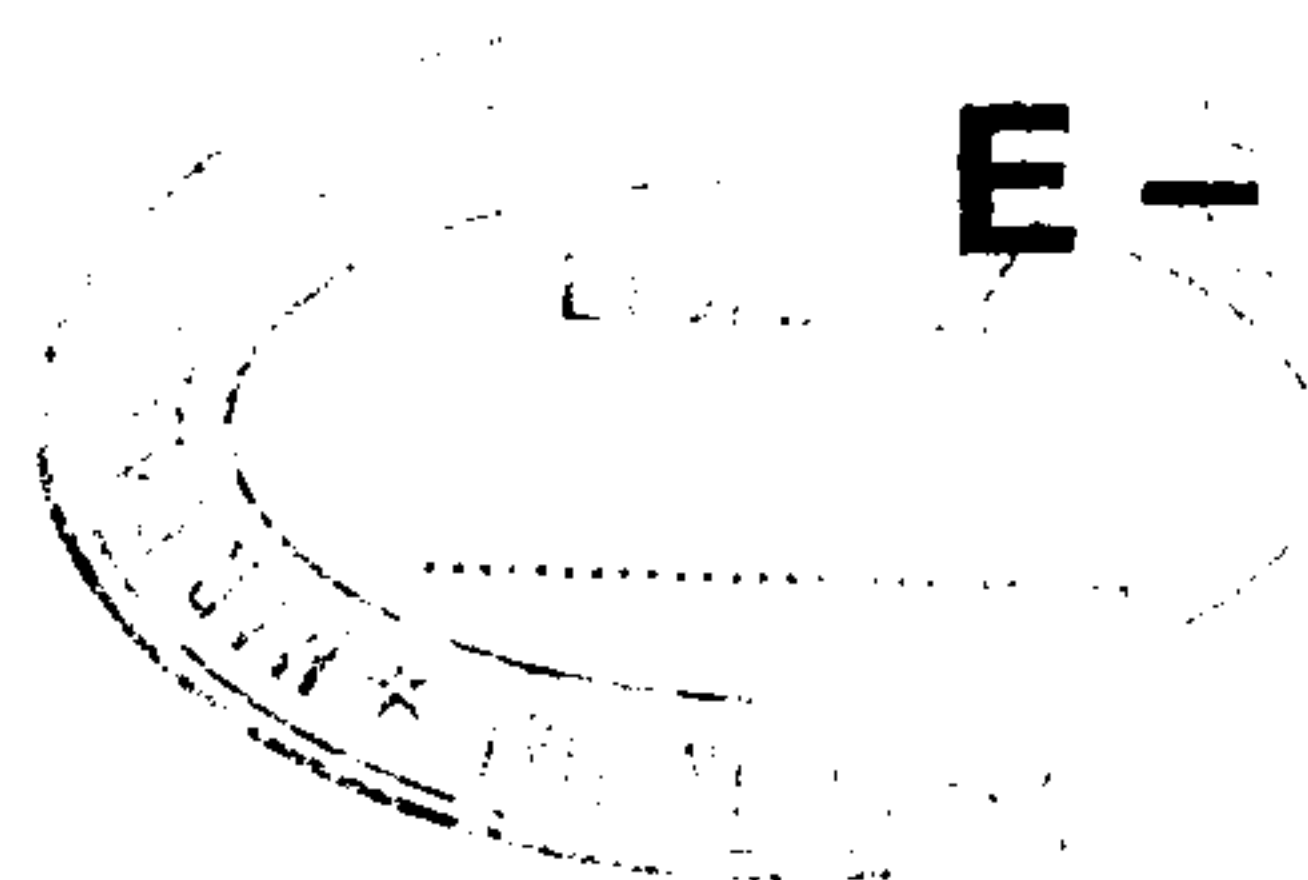


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E – 1998

Reg. No. : .....

Name : .....



**Sixth Semester B.Tech. Degree Examination, May 2018**  
**13.606.1 : BIOMEDICAL INSTRUMENTATION (E)**  
**(2013 Scheme)**

Time : 3 Hours

Max. Marks : 100

**PART – A**

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

1. List out any two problems encountered in measuring living systems.
2. Explain transducer. Name a transducer for temperature measurement.
3. What are the applications of microelectrodes ?
4. Explain the terms systole and diastole.
5. Sketch the ECG waveform and mark the various complexes.
6. Explain a neuron.
7. What is electromyography ?
8. Explain the principle of ultrasonic imaging.
9. What is hemodialysis ?
10. Distinguish between synchronous and asynchronous pace makers.

**PART – B**

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

**Module – I**

11. a) Explain cardio-vascular system of human body. 10
- b) Explain polarisation, depolarisation and repolarisation using an action potential waveform. 10

**OR**

12. a) Explain skin surface and needle electrodes. 10
- b) Explain any two transducers for pressure measurement. 10

P.T.O.



**Module – II**

13. a) Explain the electrical activity of heart with relevant diagrams. 10  
b) Using block diagram explain an ECG recording system. 10

OR

14. a) Explain with a neat diagram the set up for measuring volume changes using spirometer. 10  
b) With a neat diagram explain various lung capacities and volumes. 10

**Module – III**

15. a) Explain a bed side monitor using block diagram. 10  
b) Explain the anatomy of nervous system. 10

OR

16. a) Explain in detail the various EEG waves. 10  
b) Using block diagram explain EMG recorder. 10

**Module – IV**

17. a) Explain the principle of MRI scanning. 10  
b) Write a note on cardiac pacemakers. 10

OR

18. a) Distinguish between macro and micro shocks. 10  
b) Explain microwave diathermy machines. 10
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