

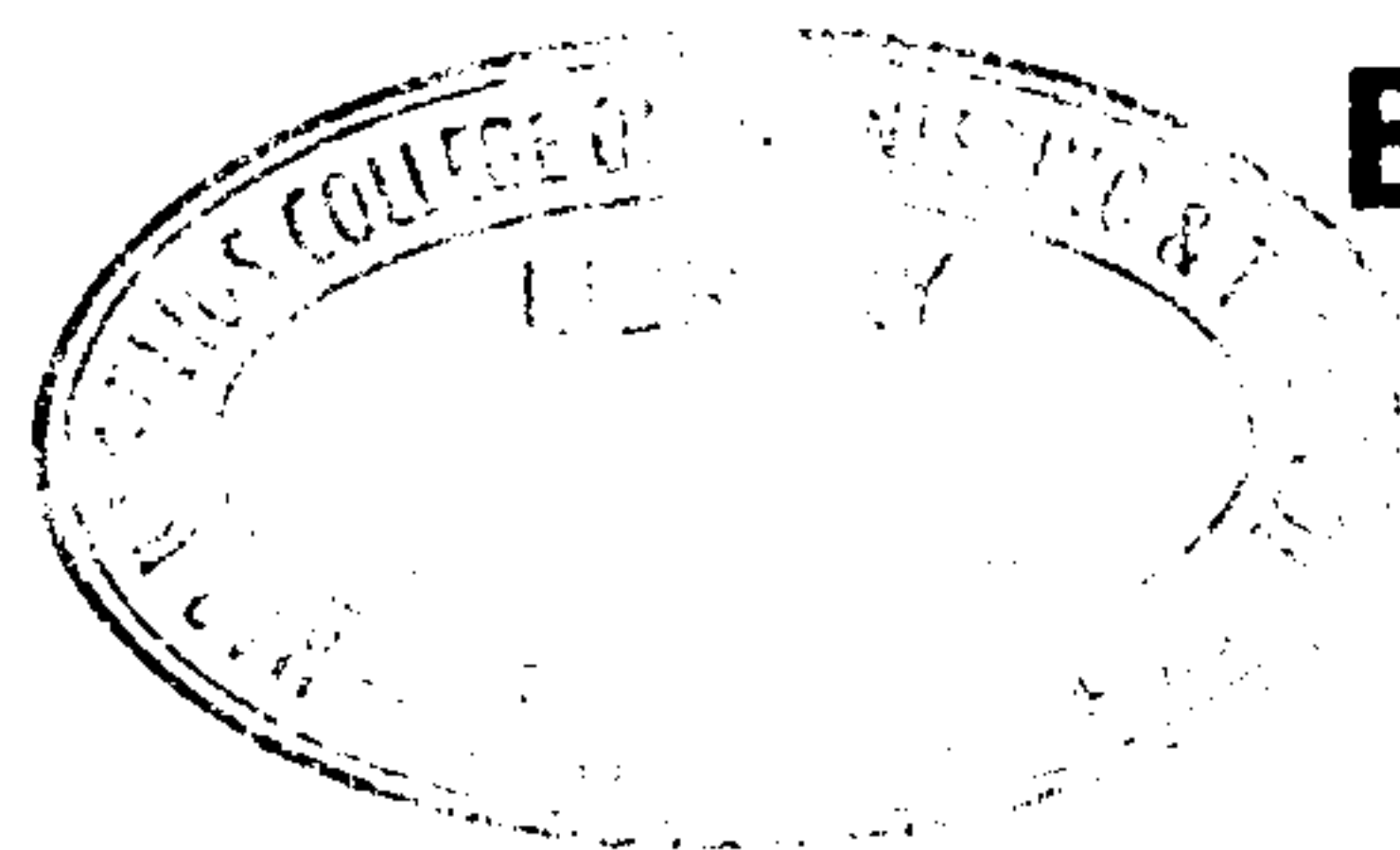


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E – 2480

Reg. No. :

Name :



**Eighth Semester B.Tech. Degree Examination, May 2018
(2013 Scheme)**

13.806.2 : BIOMEDICAL ENGINEERING (T)

Time : 3 Hours

Max. Marks : 100

PART – A

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

1. What do you mean by half-cell potential ?
2. What are bio-potential electrodes ? Give a simple equivalent circuit of it.
3. Mark QRS complex in ECG wave. What is the cause of it ?
4. What is meant by plethysmography ?
5. Give the principle of operation of X-ray scan.
6. Mention few applications of MRI scan.
7. Compare CT and MRI scanning techniques.
8. What are defibrillators ?
9. State the function of pulse oxymeter.
10. What are the various components of biotelemetry system.

PART – B

Answer **any one** question from **each** module. **Each** question carries **20** marks.

Module – I

11. a) Give the typical frequency range of ECG and EEG signals. 5
- b) Explain the generation and acquisition of EEG and EMG signals. 15

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12. a) Define resting and action potentials. 5
b) Illustrate how action potential is propagated in nerves. 15

Module – II

13. a) Sketch a typical ECG signal and mark the parameters. 5
b) Explain the electrical activity of heart and point out reasons for P, Q, R, S and T waves in ECG wave. 15
14. a) Mention various non-invasive blood pressure measurement techniques. 5
b) Draw the block diagram of ECG machine and explain each section. 15

Module – III

15. a) Write a note on interaction of X-ray beam with tissue. 5
b) With diagrams, explain the image acquisition and reconstruction techniques in CT scanner. 15
16. a) Compare A-mode, B-mode and M-mode displays. 5
b) What are the various ultra sound transducers used ? Explain any one with diagrams. 15

Module – IV

17. a) Briefly explain the necessity of ventilators in hospitals. 5
b) With diagram, explain the working of various types of defibrillators. 15
18. a) Write on the physiological parameters to be considered for biotelemetry system. 5
b) Explain the working and applications of wireless telemetry system. 15
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