

III B.Tech II Semester Supplementary Examinations, April/May 2005
PRINCIPLES OF BIO-MEDICAL INSTRUMENTATION
(Electronics & Instrumentation Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain the terms Resting Potential and Active potential . How are these generated in Muscles
(b) With the help of sketches explain about polarized cell and depolarized cell
2. (a) Give the classification of heart sounds based on their origin and explain briefly about each.
(b) Explain how the heart sounds are measured or recorded?
3. (a) What is skin -electrolyte interface? Explain.
(b) With a block diagram explain UV recorder and mention the different types of UV recorders
4. (a) What is bio-feedback instrumentation. Explain how it is used in ECG and EMG.
(b) What are the differences in amplification and bandwidth requirement of amplifiers for ECG and EMG?
5. (a) Explain in detail the genesis of the ECG signal.
(b) Draw and explain the Einthoven triangle and prove the Einthoven triangle.
6. (a) What is meant by the 10 - 20 EEG electrode placement system? Describe it.
(b) Name five common EEG machine malfunctions.
7. (a) Explain the fibrillation and defibrillation in the heart and hence explain the need for defibrillation with neat circuit diagrams.
(b) Discuss the computer analysis of ECG.
8. (a) Explain the principle behind the generation and detection of ultrasound.
(b) Explain with a neat diagram how ultra sounds are used in medical field.
