Code No: NR321003 **NR**

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

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What are the different types of muscles? Explain the importance of motor unit in the muscular contraction.
   (b) What is meant by central nervous system? Explain the different parts of it and their activity. [8+8]
2. (a) With the help of a neat sketch explain about the physiology of the heart.
   (b) What are the different parts and how bioelectrical potentials are generated within it? [8+8]
3. (a) Give the theory of differential amplifier. In what way it is superior than the single ended amplifier?
   (b) What is an operational amplifier? Discuss the different types of noises present in the amplifier circuits. [8+8]
4. (a) What are the different types of muscles? Explain the importance of motor unit in the muscular contraction.
   (b) Discuss about the various electrodes used in EMG. [10+6]
5. Write short notes on
   (a) Electrodes and leads in ECG
   (b) Einthonen triangle. [8+8]
6. (a) Describe various types of EEG frequency responses and explain their significance.
   (b) What is the difference between a normal and evoked response. [8+8]
7. (a) With the help of a neat block diagram explain the working of an external pacemaker.
   (b) Write short notes on short wave diathermy. [8+8]
8. (a) Briefly explain the different modes of ultrasonic scanning with suitable diagrams.
   (b) Describe the ultrasonic imaging systems (M-mode) with a suitable diagram. [8+8]

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