Code No: OR410457 **OR**

IV B.Tech I Semester Supplementary Examinations, April/May 2005
PRINCIPLES OF BIO-MEDICAL INSTRUMENTATION
(Electronics & Communication Engineering)

Time: 3 hours **Max Marks: 70**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Explain how action potentials are generated in the muscles. Also explain Depolarization and Repolarization of cells.
   (b) What are the different types of Bioelectric potentials generated in the body ? Explain.
2. (a) Explain clearly the following terms:
      i. Ventricular repolarization
      ii. Ventricular depolarization
      iii. Atrial repolarization
      iv. Atrial depolarization
   (b) Distinguish between the functioning of SA mode and AV mode.
3. (a) What is Metal-Electrolyte interface? Explain.
   (b) Discuss the different tape recording methods used in medical systems. List its advantages and disadvantages?
4. (a) Explain the qualitative requirements of the different blocks of a muscle stimulator.
   (b) Explain the various types of stimulating and recording electrodes used in a muscle stimulator.
5. (a) Draw an ECG waveform and label it.
   (b) Explain in detail the different waves, segments and intervals associated with the ECG waveform. Also give their normal values.
6. (a) With a neat block diagram explain the working principle and operation of various blocks in an EEG recorder.
   (b) What type of electrodes are used and how they are placed on the skull in order to record EEG signal. Explain with a neat sketch.
7. (a) What are the different modes of triggering in a Pacemaker ?
   (b) Explain with a block diagram, the asychromous pacemaker.
8. (a) Explain the single channel telemetry system.
   (b) Describe the working of FM Telemetry transmitter used in medical field.

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