

B. Tech Degree VIII Semester Examination, April 2009

EC/EE 804(D) BIOMEDICAL INSTRUMENTATION (2002 Scheme)

Time : 3 Hours

Maximum Marks : 100

- I. a. Explain how bioelectric potential is generated. Sketch a typical cell potential waveform. (10)
b. With neat diagram explain EEG & EMG electrodes. (10)
OR
- II. a. List the various types of ECG electrodes. Explain any one in detail. (10)
b. Write notes on
(i) Action potential (ii) Resting potential (10)
- III. a. List the various recorders used in biomedical instruments. Explain ECG recorder in detail. (10)
b. Explain in detail all 12 different lead connections of ECG recording set up. (10)
OR
- IV. a. Explain UV recorder. (8)
b. Draw the normal waveform of the following Bio-electric signals & explain their Characteristics.
(i) ECG (ii) EEG (iii) EMG (12)
- V. a. What is a defibrillator? Explain both external and implantable pacemakers. (15)
b. What is an ultrasonic therapy unit. (5)
OR
- VI. a. What is cardiac pacemaker? Explain both external and implantable pacemaker? (12)
b. Explain the power sources and types of electrodes used in implantable pacemaker. (8)
- VII. a. With simplified block diagram and circuit-diagram, explain the operation of an X-ray machine. (15)
b. Briefly explain real time imaging system. (5)
OR
- VIII. a. Explain the principle of operation of MRI scanner? (10)
b. Explain the principle behind NMR Imaging. List the advantage and disadvantage of NMR Image in S/M. (10)
- IX. a. What are the different types of modulation techniques used in biotelemetry? Explain any one with the help of circuit diagram. (10)
b. With the help of block diagram explain a single channel ECG telemetry system? (10)
OR
- X. a. Draw the block diagram set up for the transmission of analog physiological signals over telephone line and explain? (15)
b. What is implantable telemetry system? (5)

