

Code :R5321006

R5

III B.Tech II Semester(R05) Supplementary Examinations, April/May 2011
BIOMEDICAL INSTRUMENTATION
(Electronics & Instrumentation Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

1. (a) List out the properties of an operational amplifier which makes it suitable as a bioelectric amplifier. Also substantiate the reasons for using an operational amplifier as a bio-amplifier.
(b) Define CMRR. Give its importance in Bioelectric amplifiers.
2. (a) Explain the electro physiology of a nerve and explain how an impulse is transmitted from nerve to muscle.
(b) Explain the generation of bio- electric potentials associated with the muscles of the heart.
3. (a) With a neat constructional diagram and equivalent circuit explain the function of skin surface electrodes.
(b) List out different types of electrodes and give their applications.
4. (a) Describe how the heart rate is controlled by the frequency at SA node.
(b) Correlate the function of heart with Blood pressure generation.
5. (a) Explain in detail about 12-lead ECG recording system
(b) Why 12 leads are used instead of one in the system?
(c) Describe the various noise problems in an ECG machine and methods for their elimination.
6. Draw the circuit diagram of a blocking oscillator synchronous pacemaker and explain its functions. Mention its merits and demerits.
7. Explain the features of different block of an EEG machine. List the specifications of an EEG amplifier.
8. Describe the construction and working of two electrode impedance pneumograph anatomy.
