B. Tech.

(SEM. VIII) EXAMINATION, 2006-07
BIOMEDICAL INSTRUMENTATION

Time : 3 Hours] [Total Marks : 100

Notes : (i) Attempt all questions
(ii) All questions carry equal marks.

1 Attempt any two parts of the following : 2x10

(a) Draw the block diagram of a biomedical instrumentation system and explain each block.

(b) What do you mean by biopotential electrodes ? How these electrodes are classified ? How Biopotential can be measured by using two electrodes ?

(c) What are different transducers which are used for Biomedical applications ? Prepare a table with columns the physical variable and type of transducer. Name the transducers used blood pressure measurement and blood flow measurement.

VB-3052] 1 [Contd...
2  Attempt any two parts of the following: 2x10
   (a) What are the requirements of a patient-monitoring display? Explain one monitoring display system.
   (b) Draw block diagram of inkjet recorder and explain its working.
   (c) What are principle of ECG recorder? What are different types of ECG recorders? Explain clinical applications of ECG.

3  Attempt any two parts of the following: 2x10
   (a) Write short notes on anatomy of nervous system.
   (b) Explain the procedure of measurement of Neuronal firing with the suitable diagrams.
   (c) Discuss the different components of EMG measurement. Describe the desired features of electromyograph.

4  Write short notes on any two of following: 2x10
   (a) Eye pressure measurement
   (b) Ophthalmoscope
   (c) Electro Ocuigram

VB-3052] 2 [Contd...
5 Attempt any two parts of the following: 2x10

(a) In both X-ray and radioisotope procedures, potentially, harmful ionizing radiation is used for diagnostic purposes. Why is the safe intensity of radiation of X-rays much higher than that for isotopes methods? Describe X-ray production arrangement.

(b) What do you mean by fibrillation? Draw the circuit arrangement of a D.C. defibrillator and explain its working.

(c) Write short notes on radiation therapy.