

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- VIIIth SEMESTER-EXAMINATION – MAY- 2012****Subject code: 180803****Date: 08/05/2012****Subject Name: Biomedical Instrumentation****Time: 10:30 am – 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Explain various components of physiological system of body. **07**

(b) List and discuss briefly various types of transducers used for Bio- medical applications. **07**

Q.2 (a) Explain electrode tissue interface for surface electrodes used with jelly. Also discuss Electrode Electrolyte interface. **07**

(b) What is EEG? Why is it much more difficult to recognize than ECG? How can certain characteristic EEG Waveform be related to sleep? **07**

OR

(b) Describe Ultrasonic Blood flow method for blood flow measurement through artery along with governing Doppler equation. **07**

Q.3 (a) Write short notes on Pacemakers and Defibrillators. **07**

(b) What is Heart Lung Machine? Explain its working with constructional Diagram. **07**

OR

Q.3 (a) What do you understand by the term “blood count”? Describe the operation of blood counter. **07**

(b) Explain the structure and function of central nervous system. **07**

Q.4 (a) Explain the generation of bioelectric potential in human body. Explain acting and resting potential with necessary wave form. **07**

(b) What is Hemodialysis? Explain Hemodialysis machine with block diagram **07**

OR

Q.4 (a) Explain Auto Analyser system with the help of neat diagram and explain function of each block? **07**

(b) What is Colorimeter? Explain block diagram of colorimeter with its application. **07**

Q.5 (a) Describe and explain shock hazards for electric equipment and prevention against them. **07**

(b) Explain the working principle of CT Scan with block diagram. **07**

OR

Q.5 (a) What you mean by pH? Explain measurement of pH with electrode. How this system calibrated? **07**

(b) Name the three basic types of electrodes for measurement of bioelectric potentials. Explain any one in detail **07**
