

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VIII • EXAMINATION – SUMMER 2013

Subject Code: 180803**Date: 09/05/2013****Subject Name: Biomedical Instrumentation****Time: 10:30 am TO 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) What do you mean by biomedical signals? Brief the sources of biomedical signals in Human body. **07**

(b) Explain Respiratory system in Human body **07**

Q.2 (a) Explain basic medical instrumentation system with general block diagram of medical instrumentation system. **07**

(b) How the principal ions involved in the phenomena of producing cell potentials. **07**

OR

(b) What is meant by central nervous system? What is a spinal cord? **07**

Q.3 (a) Explain general constrain in design of medical instrumentation systems. **07**

(b) Define transducer and its types. List some active transducers and passive transducers. **07**

OR

Q.3 (a) Define and discuss the term 'Biosensors' **07**

(b) What is the need of instrumentation amplifier in medical equipments? **07**

Q.4 (a) Discuss the various ECG leads configuration in detail. **07**

(b) How pH value of blood is measured? Explain. **07**

OR

Q.4 (a) Explain in detail pumping action of the heart and the genesis of ECG waveform. **07**

(b) What are the methods of measuring blood pressure? Explain. **07**

Q.5 (a) What are the important parameters monitored in ICU? What is requirement to setup ICU for 8 beds? Elaborate the implementation plans. **07**

(b) With a neat block diagram show how EEG is recorded? **07**

OR

Q.5 (a) Explain any one type of pacemaker circuit and defibrillator circuit. **07**

(b) What are the different modes of ultrasonic scanning with suitable diagrams? **07**
