

GUJARAT TECHNOLOGICAL UNIVERSITY**Diploma Engineering - SEMESTER-VI • EXAMINATION – SUMMER 2013****Subject Code: 361703****Date: 15/05/2013****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.
4. English version is considered to be Authentic.

- Q.1** (a) Explain working principle of Hemo-dialysis Machine. **07**
(b) Explain bioelectricity within living tissue and state the importance for medical science. **07**
- Q.2** (a) Define CT scan. Explain it in detail **07**
(b) Draw ECG block diagram and explain working principle of the machine.. **07**
OR
(b) Draw ECG wave and name the segments. Explain how the ECG is taken using ECG electrodes. state the applications. **07**
- Q.3** (a) Explain the defibrillator application. (why,where,how and by whom it is used) **07**
(b) Draw and explain block diagram of cautery (electro-surgery) machine. State the advantages of solid state electro-surgery machine. **07**
OR
- Q.3** (a) Draw and explain ultrasonic foetal monitor with application **07**
(b) Draw and explain block diagram of X- Ray machine. Also state applications. **07**
- Q.4** (a) Draw and explain working Principle of LVDT type blood pressure transducer. **07**
(b) List the types of respiration transducers. explain thermistor type in detail. **07**
OR
- Q.4** (a) Draw and explain working Principle of color doppler ultrasound machine. **07**
(b) Explain physiological effects of electricity on the human body. **07**
- Q.5** (a) Define blood cell counter and explain in detail. **07**
(b) Draw and explain block diagram of Muscle stimulator **07**
OR
- Q.5** (a) Draw block diagram and explain operation of an Auto Analyser. **07**
(b) Name the temperature sensors and explain any one. **07**
