

GUJARAT TECHNOLOGICAL UNIVERSITY
Diploma Engineering Semester –VI Examination Dec. - 2011

Subject code: 361703

Date: 08/12/2011

Subject Name: Biomedical Instrumentation

Time: 02.30 pm – 05.00 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 Authentic.

- Q.1** (a) Explain working principle of LVDT type blood pressure transducer **07**
 (b) Define bio-potential and Explain bioelectricity **07**
- Q.2** (a) List the types of respiration transducers and explain any one in detail **07**
 (b) Enlist the standard lead system of an ECG. Draw the connection Diagram **07**
 and state the application.
- OR
- (b) Draw ECG block diagram and explain working principle of the machine. **07**
- Q.3** (a) Draw and explain the defibrillator diagram and state the application **07**
 (b) Draw and explain block diagram and working principle of an EEG **07**
 Machine. also state EEG amplitude and frequency bands.
- OR
- Q.3** (a) Draw and explain ultrasonic foetal monitor with application **07**
 (b) Draw block diagram and explain working principle of electro-surgery **07**
 machine..
- Q.4** (a) Draw and explain working Principle of Hemo-dialysis **07**
 Machine.
 (b) What is blood cell counter? Explain any one method of measurement **07**
 using proper sketch
- OR
- Q.4** (a) Draw and explain block diagram of CT scan machine. State the **07**
 advantages over X-ray photography.
 (b) Explain physiological effects of electricity on the human body. **07**
- Q.5** (a) Define X-rays. Draw and explain the X ray generation and photography **07**
 image sating application.
 (b) Draw and explain block diagram of Muscle stimulator **07**
- OR
- Q.5** (a) Draw block diagram and explain operation of an X-Ray machine **07**
 (b) Enlist the temperature sensors and explain any one in detail **07**
