

Seat No.: \_\_\_\_\_  
No. \_\_\_\_\_

Enrolment

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VI • EXAMINATION – WINTER • 2014**

**Subject Code: 160303**

**Date: 01-12-2014**

**Subject Name: Therapeutic 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.

- Q.1** (a) Explain construction and working of surgical diathermy machine. **07**  
(b) Explain various types of electro-surgery techniques with waveforms generated by surgical diathermy machine. **07**
- Q.2** (a) Explain principles of short wave diathermy with circuit diagram. **07**  
(b) Explain block diagram of an ultrasonic therapy unit with ways of dosage control. **07**
- OR**
- (b) Write a short note on pain relief through electrical stimulation. **07**
- Q.3** (a) Explain process of balloon angiography with necessary schematic diagram. **07**  
(b) Explain Gas supply system of Anesthesia machine **07**
- OR**
- Q.3** (a) Give Illustration of way that a Heart-lung machine is connected to the heart. Also give brief note on components of Heart-lung machine. **07**  
(b) Explain Vapour delivery system of Anesthesia machine. **07**
- Q.4** (a) Write a short note on physiological heat balance, heat production and heat loss methods **07**  
(b) Explain method of Apnea detection. **07**
- OR**
- Q.4** (a) Explain role of Photo therapy devices in therapeutic instrumentation with examples. **07**  
(b) Explain principle of operation, properties, gain medium, pumping mechanism and resonator design of LASER. **07**
- Q.5** (a) Explain block diagram of implantable defibrillator. **07**  
(b) Draw and explain schematic diagram of hemodialysis machine. **07**
- OR**
- Q.5** (a) Explain working principle of defibrillator analyzers with necessary equations. **07**  
(b) Explain any two types of Dialyzers. **07**

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