

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VI • EXAMINATION – WINTER 2013

Subject Code: 160303**Date: 02-12-2013****Subject Name: Therapeutic Instrumentation****Time: 02:30 pm to 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 safety aspects of Electro-surgical units. **07**

(b) Explain all electro-surgical techniques. Draw the different waveforms generated by the surgical diathermy machines. **07**

Q.2 (a) Explain Implantable defibrillator system components. **07**

(b) What is fibrillation? Explain working of Defibrillator with necessary circuit. **07**

OR

(b) How to measure the energy content of Defibrillator discharge pulse? **07**

Q.3 (a) Explain all terms that define the performance of Dialyzers. **07**

(b) What is Apnea? Explain method of measurements. **07**

OR

Q.3 (a) Explain working of portable kidney machine using flow diagram. **07**

(b) Enlist the designs of Dialyzers. Explain construction of any two. **07**

Q.4 (a) What is the meaning of LASER coherence? Explain principle of operation, properties, gain medium and pumping mechanism of LASER. **07**

(b) Explain working of Helium-Neon laser with schematic diagram. **07**

OR

Q.4 (a) Explain working of CO₂ laser with Block diagram. **07**

(b) Explain physiological heat production and loss methods. **07**

Q.5 (a) Explain circuit diagram of short-wave diathermy unit with application technique of short-wave diathermy. **07**

(b) Explain vapour Delivery system of Anesthesia machine. **07**

OR

Q.5 (a) Explain applications of electrical stimulation for pain relief. **07**

(b) Draw complete schematic of anesthesia machine. Give the importance of different valves. **07**
