

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI (NEW) - EXAMINATION – SUMMER 2016****Subject Code:2160303****Date:11/05/2016****Subject Name: Therapeutic Techniques & 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) Explain role of telemetry in medical field. **07**  
(b) Explain working principle of microwave diathermy machine. **07**

- Q.2** (a) Explain the specifications and circuit diagram of DC defibrillator. **07**  
(b) Define electrosurgical apparatus. Explain different modes of operation with appropriate diagrams. **07**

**OR**

- (b) Explain working of heart lung machine with necessary diagrams. **07**

- Q.3** (a) What is apnea? Explain apnea detection technique. **07**  
(b) Discuss the safety aspects in electro-surgical units. **07**

**OR**

- Q.3** (a) Explain construction and working coil type and hollow fiber types of hemodialyser. **07**  
(b) Explain Gas supply system of Anesthesia machine **07**

- Q.4** (a) How to measure the energy content of Defibrillator discharge pulse? **07**  
(b) Discuss principle, working and applications of ultrasonic therapy unit. **07**

**OR**

- Q.4** (a) Give brief information about spinal cord stimulation and cerebral stimulation. **07**  
(b) Explain schematic diagram of anesthesia machine and patient breathing circuit. **07**

- Q.5** (a) Explain working of Blood leak detector in dialysers. **07**  
(b) Explain working of CO<sub>2</sub> laser with Block diagram. **07**

**OR**

- Q.5** (a) Explain principle of operation, properties, gain medium and pumping mechanism of LASER. **07**  
(b) Explain working of Helium-Neon laser with schematic diagram. **07**

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