

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE – SEMESTER – VI EXAMINATION – WINTER 2015**

**Subject Code:160303****Date:08/12/ 2015****Subject Name: Therapeutic Instrumentation****Time:2:30pm to 5:00pm****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 the complete schematic of anesthesia machine. **07**  
 (b) What is the need of synchronizer in DC Defibrillators? Explain along with its circuit diagram. **07**
- Q.2** (a) Explain short wave diathermy along with circuit diagram **07**  
 (b) List the characteristics of laser. Explain CO<sub>2</sub> Laser. **07**
- OR**
- (b) State principle operation of laser. List the types of lasers & explain any one in details. **07**
- Q.3** (a) Discuss about Heart lung machine with diagram. **07**  
 (b) Explain construction of parallel flow dialyzers & Hollow fiber hemodialyser. **07**
- OR**
- Q.3** (a) Describe principle of dialysis in the artificial kidney. Explain Hemodialyses Machine with neat diagram. **07**  
 (b) Write a short note on cardioverter-defibrillator. **07**
- Q.4** (a) What is the need for cardiac pacemaker? Explain with block diagram Ventricular Synchronous demand Pacemaker. **07**  
 (b) Explain in detail the safety aspects in Electro-Surgical Unit. **07**
- OR**
- Q.4** (a) Write short note on Electrotomy, fulguration, coagulation, and desiccation. **07**  
 (b) (1) Explain the power sources for implantable pacemakers. **03**  
 (2) Explain types of electrodes and leads used in pacemakers. **04**
- Q.5** (a) Short Note on baby incubator. **07**  
 (b) (1) What is catheter and give its applications. **04**  
 (2) Explain apnea detection. **03**
- OR**
- Q.5** (a) Write short note on: Coronary angiography. **07**  
 (b) Explain Phototherapy devices. **07**

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