

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- VIth SEMESTER-EXAMINATION – MAY- 2012****Subject code: 160303****Date: 15/05/2012****Subject Name: Therapeutic Instrumentation****Time: 10:30 am – 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 DC defibrillator. Show current waveform versus patient impedance for typical damped sine wave defibrillator. **07**

(b) Explain the architecture and working of implantable defibrillator system. **07**

Q.2 (a) What is haemodialysis? How performance analysis of dialyzer can be measured? **07**

(b) With flow diagram explain the working of portable kidney machine. **07**

OR

(b) Distinguish between Parallel flow and hollow fibre dialyzer. **07**

Q.3 (a) What are the common types of electro-surgery techniques? Draw the different types of waveforms generated by surgical diathermy machine. **07**

(b) Explain the risks associated with electro-surgery and safety measures to overcome the same. **07**

OR

Q.3 (a) Explain working and applications of pulsed ruby laser. **07**

(b) What is Argon-Ion laser photo-coagulator? How it is more suitable for photo-coagulation of retina compare to ruby laser? **07**

Q.4 (a) Describe the circuit of short-wave diathermy and distinguish between condenser and inductive methods of treatment. What is diathermy therapy? **07**

(b) What are the components of spinal cord stimulator? Explain the different features and working of same. **07**

OR

Q.4 (a) With block diagram explain apnea detector. **07**

(b) What is incubator? Explain components of baby incubator. **07**

Q.5 (a) With schematic diagram discuss anesthesia machine and patient breathing circuit. **07**

(b) What is the clinical significance of humidification of gases in the anesthesia machine? Discuss the commonly employed humidification measures. **07**

OR

Q.5 (a) Explain types of catheters with its applications. **07**

(b) What is balloon angiography? List different types of stents. **07**
