

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VI EXAMINATION – WINTER 2025

Subject Code:3160303

Date:17-11-2025

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.
4. Simple and non-programmable scientific calculators are allowed.

	MARKS
Q.1 (a) Describe needs of DC Defibrillator.	03
(b) Explain Principle of Artificial Kidney.	04
(c) Explain Ventricular synchronous External Pacemaker.	07
Q.2 (a) Explain types of Electrodes for DC Defibrillator.	03
(b) Explain Different types of Dialyzers.	04
(c) Explain safety aspects of Electrosurgical Unit.	07
OR	
(c) Explain circuit diagram of Microwave diathermy.	07
Q.3 (a) Explain Ultrasonic therapy unit.	03
(b) Explain Automatic External Defibrillator.	04
(c) Explain shortwave diathermy with circuit diagram.	07
OR	
Q.3 (a) Describe three and Five letter code of Pacemaker.	03
(b) Explain classification of ventilators.	04
(c) Explain schematic diagram of Anesthesia Machine.	07
Q.4 (a) Describe Baby incubator.	03
(b) Explain working of syringe and Infusion pump in detail.	04
(c) Explain schematic diagram of Hemodialysis Machine.	07
OR	
Q.4 (a) Explain Intra aortic balloon pump.	03
(b) Explain Heart lung Machine with block diagram.	04
(c) Explain Block diagram of Electrosurgical Unit.	07
Q.5 (a) Define Faradic current, Galvanic Current, Monophasic and Biphasic waveform.	03
(b) Explain electrodes for Cutting and coagulation.	04
(c) Explain circuit diagram of DC Defibrillator.	07
OR	
Q.5 (a) Define tidal volume, minute volume, Respiration rate.	03
(b) Explain positive pressure ventilators.	04
(c) Explain Transcutaneous electrical nerve stimulation (TENS) and Deep brain stimulation.	07
