

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023****Subject Code:3160303****Date:05-12-2023****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) Explain External and Internal pacemaker with its electrodes.	03
(b) Explain types of Electrodes for DC Defibrillator.	04
(c) Explain Circuit diagram of DC Defibrillator in detail.	07
Q.2 (a) Describe Three letters Code of Pacemaker with one Example.	03
(b) Explain working of Automatic External Defibrillator.	04
(c) Explain Block diagram of Ventricular synchronous pacemaker in detail.	07
OR	
(c) Explain types of Dialyzers. Also explain performance parameters of Dialyzers.	07
Q.3 (a) Explain working principle of Artificial Kidney.	03
(b) Explain different types of techniques of ESU unit.	04
(c) Explain Circuit diagram of Short wave Diathermy with its application methods.	07
OR	
Q.3 (a) Explain principle of Electrosurgical Diathermy Machine.	03
(b) Explain Heart lung Machine with the help of block diagram.	04
(c) Explain schematic diagram of Anesthesia Machine and patient breathing circuit.	07
Q.4 (a) Explain working of Infusion pump in detail.	03
(b) Describe Safety aspects of Electrosurgical Diathermy Unit.	04
(c) Explain schematic diagram of Hemodialysis Machine.	07
OR	
Q.4 (a) Explain Transcutaneous electrical nerve stimulation (TENS).	03
(b) Explain Positive pressure Ventilators.	04
(c) Explain circuit diagram of Microwave Diathermy Machine.	07
Q.5 (a) Define Tidal volume, Lung Compliance, Respiration rate.	03
(b) Write short note on Intra aortic balloon pump.	04
(c) Explain Block diagram of Electrosurgical Diathermy Unit.	07
OR	
Q.5 (a) Explain types of Cardiac Stents with its benefits.	03
(b) Explain working of Ultrasound Diathermy Machine.	04
(c) Explain Block diagram of microprocessor controlled ventilator.	07
