

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2023****Subject Code:3160303****Date:06-07-2023****Subject Name:Therapeutic 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.
4. Simple and non-programmable scientific calculators are allowed.

		<b>MARKS</b>
<b>Q.1</b>	(a) Briefly discuss about codes of pacemaker.	<b>03</b>
	(b) Describe internal and external pacemaker briefly.	<b>04</b>
	(c) Write a short not on DC Defibrillator.	<b>07</b>
<b>Q.2</b>	(a) What is the need of Defibrillator?	<b>03</b>
	(b) Explain Parallel plate dialyzer.	<b>04</b>
	(c) Draw the diagram of Hemodialysis machine and explain blood leak detector.	<b>07</b>
<b>OR</b>		
	(c) Describe Pacer-cardioverter-defibrillator in detail.	<b>07</b>
<b>Q.3</b>	(a) Explain Principle of surgical Diathermy.	<b>03</b>
	(b) Explain working operation of Stents.	<b>04</b>
	(c) Discuss about safety aspects of Electrosurgical Diathermy.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) What is Intra-aortic balloon pump (IABP)?	<b>03</b>
	(b) Define: 1.electro-cutting, 2.coagulation, 3.fulguration, 4.dessication.	<b>04</b>
	(c) Write a short note on heart lung machine.	<b>07</b>
<b>Q.4</b>	(a) Explain Deep Brain Stimulation briefly.	<b>03</b>
	(b) Describe Inductive method for shortwave diathermy.	<b>04</b>
	(c) Discuss Transcutaneous electrical nerve stimulation (TENS) in Detail.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Explain principle of high frequency heat therapy.	<b>03</b>
	(b) Draw a circuit diagram of shortwave diathermy.	<b>04</b>
	(c) Write a short note on Functional Electrical Stimulation (FES).	<b>07</b>
<b>Q.5</b>	(a) Define: Tidal volume, Minute Volume, Mean Airway Pressure.	<b>03</b>
	(b) Explain Syringe Pump.	<b>04</b>
	(c) Discuss about various modes of ventilators.	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) What is the need of Anesthesia?	<b>03</b>
	(b) Explain Infusion Pump.	<b>04</b>
	(c) Write a short note on Positive pressure Ventilator.	<b>07</b>

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