Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) - EXAMINATION - SUMMER 2017

Date: 03/05/2017

Subject Name: Therapeutic Techniques & Instrumentation

Instructions:

- 1. Attempt all questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.

			MARKS
Q.1		Short Questions	14
•	1	Define Fibrillation.	
	2	What is the full form of TENS?	
	3	What is Ventilators useful for?	
	4	Define principle of Dialysis.	
	5	What is the meaning of fulguration?	
	6	What is the full form of LASER?	
	7	List the different types of lasers used for medical diagnostic application.	
	8	Give the frequency range of Microwave and Ultrasonic Therapy-	
	9	Give the application of apnea detection.	
	10	Give the name of Anesthetic agents used in medical field.	
	11	Enlist different application of Argon Laser.	
	12	Draw the waveform of Galvanic current and explain its importance.	
	13	What is the need for cardiac pacemaker?	
	14	What is the need for balloon angiography?	
Q.2	(a)	Explain electrodes used for defibrillator.	03
	(b)	Write a short note on Cardioverter.	04
	(c)	Draw the schematic representation of heart-lung machine and explain its working.	07
		OR	
	(c)	Draw and explain the basic circuit diagram of DC defibrillator.	07
Q.3	(a)	1 1	03
	(b)		04
	(c)	Explain working of Helium-Neon laser with schematic diagram. OR	07
Q.3	(a)	State principle operation of laser.	03
	(b)	Explain the following components of haemodialysis machine. a) Proportionating pump b) Blood leak detector	04
	(c)	Discuss the working principles and applications of CO ₂ LASER system.	07
Q.4	(a)	What is electrotherapy?	03
	(b)	Explain the terms: electrotomy and desiccation in surgical diathermy.	04
	(c)	Explain the risk associated with surgical diathermy and the safety measures for them.	07
		OR	
Q.4	(a)	Explain concept of High frequency heat therapy.	03
	(b)	Explain types of catheters in detail.	04
	(c)	Write a short note on pain relief through electrical stimulation.	07

Q.5	(a)	What are the types of incubators?	03
	(b)	Compare parallel flow, coil and hollow fiber types of hemodialyser.	04
	(c)	Explain construction and working of surgical diathermy machine.	07
		OR	
Q.5	(a)	Explain procedure of coronary angiography.	03
	(b)	Explain different applications of stents.	04
	(c)	Write a short note on Biotelemetry and their clinical significance.	07
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