Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–VI (NEW) EXAMINATION – WINTER 2024

Subject Code:3160303 Date:25-11-2024

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.**

Q.1	**(a)**	Explain different types of Electrodes for Internal Pacemaker.	**03**
	(b)	Explain DVI code of Pacemaker.	**04**
	(c)	Explain circuit diagram of DC Defibrillator in detail.	**07**
Q.2	**(a)**	Define Fibrillation. What is the need of Defibrillator?	**03**
	(b)	Explain electrodes of DC defibrillator with diagram.	**04**
	(c)	Explain Safety aspects of Electrosurgical Unit.	**07**
		OR	
	(c)	Explain schematic diagram of Hemodialysis Machine in detail.	**07**
Q.3	**(a)**	Define: Ultra filtration rate, Residual Blood volume, Dialysance.	**03**
	(b)	Explain Application Technique of Short-wave Therapy.	**04**
	(c)	Explain circuit diagram of Microwave Diathermy.	**07**
		OR	
Q.3	**(a)**	Explain different types of Dialyzer.	**03**
	(b)	Explain block diagram of Rate Responsive pacemaker.	**04**
	(c)	Explain Block diagram of Electrosurgical Unit in detail.	**07**
Q.4	**(a)**	Write applications of Syringe pump and Infusion pump.	**03**
	(b)	Describe working of Intra aortic balloon pump (IABP).	**04**
	(c)	Explain schematic diagram of Anesthesia Machine.	**07**
		OR	
Q.4	**(a)**	ExplainTranscutaneous electrical nerve stimulation (TENS).	**03**
	(b)	Describe design of membranes for Hemodialysis Machine.	**04**
	(c)	Explain in detail Block diagram of a microprocessor controlled ventilator**.**	**07**
Q.5	**(a)**	Explain needs of Anesthesia Machine. Give name of anaesthetic agents.	**03**
	(b)	Write short note on Baby Incubator.	**04**
	(c)	Explain Conductivity monitoring and blood leak detector using block diagram in Hemodialysis Machine.	**07**
		OR	
Q.5	**(a)**	Explain working of Nebulizer.	**03**
	(b)	Explain ventilator types based on the method of initiating the inspiratory phase.	**04**
	(c)	Explain circuit diagram of shortwave Diathermy Machine.	**07**

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