GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–IV (NEW) EXAMINATION – WINTER 2020

Subject Code:3140915   **Date:26/02/2021**
Subject Name:Power Electronics
Time:02:30 PM TO 04:30 PM   **Total Marks:56**

Instructions:
1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

			Marks
Q.1	(a)	Draw waveform of full bridge topology of 1-Phase bridge inverter with resistive load.	03
	(b)	Discuss SVPWM technique in brief.	04
	(c)	Sketch unipolar and bipolar PWM	07
Q.2	(a)	Derive output voltage equation for signle phase full wave rectifier	03
	(b)	State the merits & demerits of current source inverter & voltage source inverter.	04
	(c)	Explain 3 phase inverter operation for 120° with the gate voltage and phase voltage waveform	07
Q.3	(a)	Derive output voltage equation for signle phase half wave rectifier.	03
	(b)	Give classification of different techniques for voltage control of inverter. Explain any one.	04
	(c)	Analysis of working of 3-ϕ half wave controlled rectifier with RL load with continuous conduction mode	07
Q.4	(a)	Derive AC voltage controller average output voltage equation	03
	(b)	Explain protection of SCR and its design.	04
	(c)	Explain Dual Converter.	07
Q.5	(a)	Expalin CSI	03
	(b)	Explain Snubber circuit and its design	04
	(c)	Explain the basic principle of operation of a cycloconverter with neat equivalent circuit diagram.	07
Q.6	(a)	Explain any one chopper.	03
	(b)	Derive inveter output voltage	04
	(c)	Explain Buck Boost converter	07
Q.7	(a)	Explain Matrix converter	03
	(b)	Define Mid point CycloConvereter.	04
	(c)	Explain DC to DC converter.	07
Q.8	(a)	Give Application of Power Electronics.	03
	(b)	Explain Buck converter.	04
	(c)	Explain three stage sequence control AC voltage controller with RL load	07

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