Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI(NEW) – EXAMINATION – SUMMER 2019

Subject Code:2162409 **Date:16/05/2019**

Subject Name:Power Electronic Circuits – II

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.**

Q.1	**(a)**	What is significance of THD ? Give its equation.	**03**
	(b)	Describe single phase bridge inverter with R load with gate and output waveforms.	**04**
	(c)	Describe different methods for inverter output control.	**07**
Q.2	**(a)**	Define harmonic factor.	**03**
	(b)	Explain the principle of operation of resonant converters.	**04**
	(c)	Write a short note on three phase inverter with 120° conduction mode	**07**
		OR	
	(c)	Draw single phase bridge inverter with RL load. Also draw its load voltage and load current waveforms.	**07**
Q.3	**(a)**	Define odd and even symmetry of waveform with example.	**03**
	(b)	Define quarter wave symmetry and discuss its significance in Forier analysis of waveform.	**04**
	(c)	Derive THD of square wave output wave form of an inverter.	**07**
		OR	
Q.3	**(a)**	Sketch unipolar and bipolar modulated inverter output voltage waveform.	**03**
	(b)	Explain advantages of active front end rectifier.	**04**
	(c)	Explain integral cycle control and derive equation for its output voltage.	**07**
Q.4	**(a)**	Explain cascaded H-bridge multilevel inverter in brief.	**03**
	(b)	Why dead band is required in inverter gating pulses ?	**04**
	(c)	Write a short note on SVPWM.	**07**
		OR	
Q.4	**(a)**	Give comparison of voltage source and current source inverters.	**03**
	(b)	Explain techniques for generating dead band for inverter switches.	**04**
	(c)	Explain 3 level diode clamped multilevel inverter (DCMLI) with necessary diagrams.	**07**
Q.5	**(a)**	Why various PWM techniques are required in inverter ?	**03**
	(b)	Explain sine PWM technique with diagram.	**04**
	(c)	Explain L-type ZCS resonant converter with circuit diagram and waveforms.	**07**
		OR	
Q.5	**(a)**	Give classification of multilevel inverter.	**03**
	(b)	Give merits of multilevel inverter technology.	**04**
	(c)	Explain the McMurray-Bedford half-bridge inverter with circuit diagram and Waveforms.	**07**

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