Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:160902 Date:29/05/2019

Subject Name: Power Electronics - 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)**	Explain single phase half bridge topology of inverter with Resistive load.	**07**
	(b)	Describe the basic principle of operation of a single phase to single phase bridge type cycloconverter for continuous conduction.	**07**
Q.2	**(a)**	Explain the working of three phase inverter for 180 degree mode with waveforms and all necessary equation	**07**
	(b)	Draw the power circuit of a series inverter and discuss its operation with all necessary waveforms.	**07**
		OR	
	(b)	Explain single phase current source inverter with waveform.	**07**
Q.3	**(a)**	Explain Sine wave PWM technique. What is the effect of modulation index on output? Explain its merit and demerit.	**07**
	(b)	Explain in brief: Matrix Converter.	**07**
		OR	
Q.3	**(a)**	Explain 120 degree mode of operation for three phase bridge inverter with resistive load.	**07**
	(b)	Explain principle of integral cycle control for AC voltage controller.	**07**
Q.4	**(a)**	Explain single phase full-wave AC controller with R load.	**07**
	(b)	Explain static Kramer system for slip power recovery.	**07**
		OR	
Q.4	**(a)**	Explain the operation of static DC circuit breaker.	**07**
	(b)	Enlist various speed control methods for Induction machine. Explain V/f control scheme with basic block diagram.	**07**
Q.5	**(a)**	Write a brief note on 1 phase AC voltage controller with PWM control with necessary waveforms.	**07**
	(b)	What are the merits of HVDC? Explain working of HVDC with regards to power electronics.	**07**
		OR	
Q.5	**(a)**	List various FACT's devices and explain any one in brief.	**07**
	(b)	Explain rotor resistive control for induction motor using power electronics device.	**07**

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