Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI EXAMINATION – WINTER 2015

Subject Code:160902 **Date:17/12/ 2015**

Subject Name: POWER ELECTRONICS-II

Time:2:30pm to 5:00pm **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 series single phase inverter with ckt. diagram and wave-form. What are the merits and demerits of it?	**07**
	(b)	Give comparison between series and parallel inverter.	**07**
Q.2	**(a)**	Explain half-bridge topology with resistive load.	**07**
	(b)	Derive Fourier Analysis of load voltage wave-form of Half wave Inverter topology.	**07**
		OR	
	(b)	Explain 120 degree mode of three phase bridge inverter with star connected resistive load.	**07**
Q.3	**(a)**	Explain 180 degree mode of operation for three phase bridge inverter with resistive load.	**07**
	(b)	Explain Sine wave PWM technique. What is the effect of modulation index on output? Explain its merit and demerit.	**07**
		OR	
Q.3	**(a)**	Explain Harmonic and Total harmonic distortion factor for inverter.	**07**
	(b)	What is the third harmonic injection method for PWM techniques? What are merits of it over sine wave PWM?	**07**
Q.4	**(a)**	Explain basics of single phase current source inverter with circuit diagram.	**07**
	(b)	Explain principle of integral cycle control for AC voltage controller.	**07**
		OR	
Q.4	**(a)**	Explain single phase full-wave AC controller with circuit diagram and wave form.	**07**
	(b)	Explain working of Matrix AC to AC converter.	**07**
Q.5	**(a)**	Explain constant V/F control with the help of block diagram for Induction motor.	**07**
	(b)	Explain rotor resistive control for induction motor using power electronics device.	**07**
		OR	
Q.5	**(a)**	What are the merits of HVDC? Explain working of HVDC with regards to power electronics.	**07**
	(b)	Explain working of Electronic Ballast? How power electronics play role in it? What are the merits of it over choke ballast?	**07**