Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI (NEW).EXAMINATION – WINTER 2016

Subject Code: 2161708 **Date: 24/10/2016**

Subject Name: Power Electronics

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 IGBT structure, Static & Dynamic Characteristics in detail.	**07**
	(b)	Give the difference between power MOSFET & power BJT. Explain MOSFET structure and its switching characteristics.	**07**
Q.2	**(a)**	Write a short note on buck-boost converter.	**07**
	(b)	Explain operation of six step inverter.	**07**
		OR	
	(b)	Explain operation of Quasi square wave inverter with necessary waveforms.	**07**
Q.3	**(a)**	Explain working of three phase half wave controlled rectifier with load voltage waveforms at firing angle of $\alpha=0°$,$\alpha=30°$.	**07**
	(b)	Explain the constructional details, working and characteristics of an SCR.	**07**
		OR	
Q.3	**(a)**	Explain single phase full wave bridge rectifier in detail.	**07**
	(b)	Write a short note on TRIAC and explain its characteristics.	**07**
Q.4	**(a)**	Explain half - controlled bridge rectifier for RL load with waveforms. What are the advantages of using flywheel diode?	**07**
	(b)	What is the use of snubber circuit? Explain TURN-ON snubber.	**07**
		OR	
Q.4	**(a)**	Explain gate drive requirement of MOSFET. Also explain any two drive circuit for it.	**07**
	(b)	Discuss the operation of the capacitor input filter.	**07**
Q.5	**(a)**	Explain the Chopper with DC motor load with all necessary diagrams.	**07**
	(b)	Explain operation of Push-Pull Converter.	**07**
		OR	
Q.5	**(a)**	Explain operation of half bridge inverter.	**07**
	(b)	Explain Flyback Converter with necessary waveforms.	**07**

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