Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME- SEMESTER II– EXAMINATION – SUMMER 2015

Subject Code: 2720726 **Date:03/06/ 2015**

Subject Name: DIGITAL SIGNAL PROCESSING FOR POWER ELECTRONICS

Time: 2:30 PM – 5:00 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 are the desirable characteristics for power electronics device used for inverter application?	**07**
	(b)	Why the Snubber circuit is used in power electronics application? Explain it with circuit diagram.	**07**
Q.2	**(a)**	Explain working of Buck converter with wave-form.	**07**
	(b)	Explain working of step-up DC-DC converter with waveform.	**07**
		OR	
	(b)	Explain how can you design inductor for step-up and step down DC-DC converter.	**07**
Q.3	**(a)**	What is the difference between half- bridge and full bridge topology used for single phase inverter?	**07**
	(b)	Explain 180 degree operation of inverter.	**07**
		OR	
Q.3	**(a)**	Explain PWM switching technology used for inverter. Give its merits.	**07**
	(b)	Explain sine triangular method used for switching in inverter.	**07**
Q.4	**(a)**	Explain space vector PWM technique used for inverter. What is advantage of it over other method?	**07**
	(b)	Explain hysteresis control strategy used for inverter.	**07**
		OR	
Q.4	**(a)**	Explain architecture for TI 2000 DSP.	**07**
	(b)	Explain different addressing mode for DSP.	**07**
Q.5	**(a)**	Explain function of CAPTURE and ADC in DSP.	**07**
	(b)	Explain how DSP is used for switching for DC/DC converter for PV cell.	**07**
		OR	
Q.5	**(a)**	Explain 120 degree operation for DC-AC converter.	**07**
	(b)	How can you design snubber circuit for power electronics devices?	**07**