Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME- SEMESTER II– EXAMINATION – SUMMER 2015

Subject Code: 2722910 **Date:26/05/ 2015**

Subject Name: POWER CONVERTER-II

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.**
4. **Notations/ symbols used have usual meanings.**

Q.1	**(a)**	Describe M type ZCS resonant converter with neat diagram and appropriate waveforms.	**07**
	(b)	Discuss parallel resonant circuit for load resonant inverter.	**07**
Q.2	**(a)**	The ZCS resonant converter has an input voltage of 18V. The output voltage is 12V ,resonant frequency 1MHz and P_o= 12 W. Determine (i) The values of the resonant inductor and resonant capacitor (ii) the peak switch current and (iii) the peak voltage across the resonant capacitor.	**07**
	(b)	Discuss Five-level multilevel inverter with diode-clamped topology with necessary diagrams and waveforms.	**07**
		OR	
	(b)	Explain cascaded multi inverter with neat diagram.	**07**
Q.3	**(a)**	Explain series loaded resonant DC-DC converter with unidirectional switches.	**07**
	(b)	Discuss asynchronous modulation for multilevel converter.	**07**
		OR	
Q.3	**(a)**	Discuss various transformer connections for multi-pulse converter.	**07**
	(b)	Discuss venturini control method for matrix converter in brief.	**07**
Q.4	**(a)**	Describe 12 pulse controlled converter with appropriate diagram	**07**
	(b)	Discuss usage of Matrix converter in motor control application.	**07**

OR

Q.4	**(a)**	Discuss the basic concept of multi pulse converter. Explain how the number of pulses can be increased from available three phase supply.	**07**
	(b)	Discuss pulse width modulation technique for matrix converter.	**07**
Q.5	**(a)**	Explain how averaged model is generated for buck type dc-dc converter.	**07**
	(b)	Discuss voltage mode control of DC-DC converters in closed loop.	**07**

OR

Q.5	**(a)**	What is need of small signal model? Explain small signal model of a converter circuit.	**07**
	(b)	Write note on: - Adaptive control.	**07**

****