Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME SEMESTER II EXAMINATION – SUMMER 2017

Subject Code: 2722910 **Date:25/05/2017**

Subject Name: POWER CONVERTERS-II

Time:02:30 PM to 05:00 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 used have usual meanings**

Q.1	(a)	Describe single switch Fly back converter with neat diagram and appropriate waveforms.	07
	(b)	Explain capacitor clamped multi-level inverter. State its areas of applications.	07
Q.2	(a)	A ZVS buck converter operates in half-wave mode with input dc voltages of 35 Volts, output dc voltage of 24Volts , resonant frequency of 500kHz and output power of 24 Watts. Determine values of resonant components L and C, peak voltage rating of the resonant capacitor and charging period of capacitor.	07
	(b)	Explain hysteresis control for the controller. State its advantages.	07
		OR	
	(b)	Discuss PID controller with appropriate block diagram.	07
Q.3	(a)	What are the features of multi-level inverter circuits? Discuss cascaded multi-level inverter circuit.	07
	(b)	Describe principle of the Matrix Converter. State its advantages.	07
		OR	
Q.3	(a)	Discuss synchronous modulation for multilevel converter.	07
	(b)	Discuss PWM matrix converter in detail.	07
Q.4	(a)	Describe six- pulse controlled converter with appropriate diagram.	07
	(b)	Discuss different transformer connections for multi-pulse converter.	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)	Write brief note on Electronics switches used in matrix converters.	07
Q.5	(a)	What is need of small signal model? Explain small signal model of a Converter.	07
	(b)	List the application of multilevel inverter and explain one in detail.	07
		OR	
Q.5	(a)	Write note on: - Classical average model	07
	(b)	Describe L- type ZCS resonant converter with neat diagram and appropriate waveforms.	07

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