Seat No.:		Enrolment No.	
		GUJARAT TECHNOLOGICAL UNIVERSITY	
		M.E –II st SEMESTER–EXAMINATION – JULY- 2012	
Subject code: 1722901 Date: 06/07			:012
Subject Name: Advanced Power Converters and Control			-0
Time: 10:30 am – 13:00 pm Total Ma			s: 70
Instr	ucti	ons:	
1. 2	Atte Mal	mpt all questions.	
2. 3.	Figu	res to the right indicate full marks.	
	0		
Q.1	(a)	Explain cascaded multi inverter with neat diagram.	07
	(b)	Discuss bidirectional switch topologies for matrix converter.	07
Q.2	(a)	Describe L type ZCS resonant converter with neat diagram and appropriate waveforms.	07
	(b)	The zero current switching quasi resonant buck converter has an input	07
		voltage of 12V. The values of resonant inductor and resonant capacitor are	
		2μ H and 79 nF respectively, the average output voltage is 9V across 9 ohm resistor. The output inductor and output capacitor are 10 mH and 100 μ E	
		respectively. Determine (i) the switching frequency fs (ii) the peak current	
		in resonant inductor (iii) the peak voltage across the resonant capacitor.	
		OR	
	(b)	The ZVS quasi resonant boost converter has an input voltage of 12V. The output voltage is 24 V across a resistive load of 6 ohm. The values of the resonant inductor and resonant conscience are 4 uH and 70 nF respectively.	07
		Determine (i) the switching frequency fs (ii) the peak resonant inductor current and (iii) the peak voltage across the resonant capacitor.	
03	(9)	Explain clamped voltage topology for dc-dc converter	07
Q.J	(b)	Compare AC and DC transmission lines. And discuss HVDC transmission.	07
		OR	
Q.3	(a)	Explain DC voltage balancing technique in multi level inverter circuit.	07
	(b)	Describe 12 pulse controlled converter with appropriate diagram.	07
0.4	(a)	Discuss pulse width modulation technique for matrix converter.	07
×	(b)	Explain resonant DC link inverter with ZVS.	07
		OR	
Q.4	(a)	Discuss current mode control of dc-dc converter.	07
	(b)	Explain comparator based control for rectifier system.	07
Q.5	(a)	Explain how averaged model is generated for buck type dc-dc converter.	07
· ·	(b)	Discuss about reactive power and active power for converters used in	07
		HVDC transmission.	
05	(\mathbf{a})	UR Discuss different transformer connections for multi-multe converter	07
Q.5	(a) (b)	Discuss application of multilevel converter for reactive power comparator.	07 07
