Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– II (Old course)• REMEDIAL EXAMINATION – SUMMER 2015

Subject Code: 1722901 Date: 12/05/2015

Subject Name: Advanced Power Converters and Control

Time: 02:30 pm to 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 used have usual meaning.**

Q.1	**(a)**	Explain in brief, How switching stress can be reduced on Power switch using ZCS and ZVS topologies?	**07**
	(b)	Explain high frequency link integral half cycle converter with neat diagram.	**07**
Q.2	**(a)**	Explain cascaded multilevel inverter with neat diagram.	**07**
	(b)	Discuss 18-pulse AC-DC converter topology with relevant transformer connections.	**07**
		OR	
	(b)	Explain 12-pulse AC-DC converter with neat diagram and compare its performance with 6 ï pulse AC-DC converter in all respect.	**07**
Q.3	**(a)**	Explain Flying capacitor type multilevel inverter circuit with switching control strategy.	**07**
	(b)	Write a short note on reactive power drawn by the converters in HVDC system.	**07**
		OR	
Q.3	**(a)**	Discuss clamped voltage topology for DC-DC converter with illustration.	**07**
	(b)	Explain how averaged model is generated for buck type dc-dc converter.	**07**
Q.4	**(a)**	Discuss bidirectional switch topologies for matrix converter.	**07**
	(b)	Describe zero current switch topology for DC-DC buck converter with neat diagram.	**07**
		OR	
Q.4	**(a)**	Write a short note on DC-link capacitor voltage balancing in multi-level inverter circuit.	**07**
	(b)	Discuss pulse width modulation technique for matrix converter.	**07**
Q.5	**(a)**	Explain voltage control mode of DC-DC converters	**07**
	(b)	Discuss different converter configurations for HVDC transmission.	**07**
		OR	
Q.5	**(a)**	Write a brief note on protection issues for matrix converter.	**07**
	(b)	Compare AC transmission system with DC transmission system in all respect. Explain basic concept of HVDC transmission.	**07**

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