Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

ME Semester –II Examination Dec. - 2011

Subject code: 1720707 **Date: 16/12/2011**
Subject Name: Flexible AC Transmission System (Power Group)
Time: 02.30 pm – 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.**

Q.1	**(a)**	Which are the conventional voltage control mechanisms? Describe Automatic Generation Control in detail.	**07**
	(b)	Explain significance of reactive power control. Also Compare Series and Shunt Capacitor compensators.	**07**
Q.2	**(a)**	What is mean by System Compensation? Explain distributed series and shunt compensation in brief.	**07**
	(b)	Explain FC-TCR Static Var Compensator in detail.	**07**
		OR	
	(b)	Explain role of phase shifting transformer in FACTS technology.	**07**
Q.3	**(a)**	Draw TCSC controller module and explain it's basic principle.	**07**
	(b)	Explain modeling of SVC for load flow studies considering SVC operations within and outside the control range.	**07**
		OR	
Q.3	**(a)**	Discuss improvements in system stability and system damping using TCSC.	**07**
	(b)	Give a comparison of different SVCs.	**07**
Q.4	**(a)**	Discuss principle of operation and V-I characteristics of STATCOM with suitable power circuit diagram.	**07**
	(b)	Discuss applications of SVCs. Also discuss merits and demerits of SVCs.	**07**
		OR	
Q.4	**(a)**	Enumerates advantages and areas of applications of STATCOM related to power system.	**07**
	(b)	Explain TSC–TCR Static Var Compensator in detail.	**07**
Q.5	**(a)**	Describe Unified Power Flow Controller (UPFC) principle of operation and it's implementation using back to back VSCs.	**07**
	(b)	Describe Selective Harmonics Elimination Modulation (SHEM) technique using 3 levels BVSI STATCOM.	**07**
		OR	
Q.5	**(a)**	Describe SSSC as Power flow controller.	**07**
	(b)	With the help of phasor diagrams discuss UPFC for power flow control function. Also brief it's applications.	**07**

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