## CHIARAT TECHNOLOGICAL UNIVERSITY

oject code: 1720707 Date: 05-12-2014 Diject Name: Flexible AC Transmission System				
-		pm - 05:00 pm Total Marks: 70		
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	Attempt all questions.			
2.		Make suitable assumptions wherever necessary.		
3.	Figu	res to the right indicate full marks.		
Q.1	(a)	What are conventional voltage control mechanisms? Explain any one of them.	07	
	(b)	Explain the working of a Thyristor Controller Reactor (TCR), showing all operating waveforms with firing delay angle control.	07	
0.0	(-)	Fundamental of accretion of a LIDEC (Unified Power flow	07	
Q.2	(a)	Explain principle of operation of a UPFC (Unified Power flow Controller) and its implementation using back to back VSC's.	07	
	(b)	How does a phase shifting transformer help in FACTS technology?  OR	07	
	<b>(b)</b>	Discuss mid-point shunt compensation on a transmission line.	07	
Q.3	(a)	Explain parallel operation of two SVC's for load sharing for both the cases i.e. with and without current droop.	07	
	(b)	Discuss operation of a Thyristor switched capacitor (TSC) showing associated waveforms and hence show its V-I characteristic.  OR	<b>07</b>	
Q.3	(a)	How does a basic TSC-TCR type static var generator help in controlling the VAR demand by switching the capacitor banks in and	07	
	(b)	out within one cycle of the applied voltage.  Explain use of an SVC as a voltage regulator.	07	
Q.4	(a)	Explain how an SSSC is used as a power flow controller and how SSR mitigation is attained using it.	07	
	(b)	Discuss advantages of a STATCOM. Also list its areas of application.  OR	07	
Q.4	(a)	Discuss the principle of operation and V-I characteristic of a STATCOM with its power circuit diagram.	07	
	(b)	Explain with basic operating circuit, the operating principle of a TSSC.	07	
Q.5	(a)	Prove as to how series compensation in a line increases the active and	07	
	(b)	reactive power transfer capability of the line.  Discuss the inductive vernier control mode for a TCSC.	07	
Q.5	(a)	OR How is enhancement in transient stability margin attained using an	07	
	(b)	SVC. Discuss operation of an FC-TCR.	07	
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