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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: EE464 Course Name: Flexible AC Transmission Systems

Max. Marks: 100 Duration: 3 Hours

Duration. 5 Hours				
	PART A Answer all questions, each carries 5 marks.	Marks		
1	What is FACTS? Name different FACTS devices.	(5)		
2	How reactive power compensation can be achieved in a radial line? Explain with	(5)		
	the help of voltage profile plots.			
3	What are the methods for controllable static VAR generation?	(5)		
4	What is the basic concept of voltage and phase angle regulator? How they differ	(5)		
	in function?			
5	What is the basic principle of operation of STATCOM?	(5)		
6	Draw the functional schematics and phasor diagram of SSSC and Series	(5)		
	capacitor compensation. What is the advantage of SSSC over Series capacitor			
	compensation?			
7	What are the power transmission parameters that can be controlled using UPFC?	(5)		
8	Explain the working principle of a IPFC with schematic of basic two-converter	(5)		
	Interline Power Flow Controller scheme.			
PART B				
	Answer any two full questions, each carries 10 marks.			
9	How series capacitor can be used for power flow control through a transmission line? Derive the power transfer equation and explain the influence with power angle curve	(10)		
10	angle curve. Compare between Static converter based and Passive Impedance based var	(10)		
	generators			
11	Transient stability limit can be is increased for enhanced power transmission by shunt compensation. How?	(10)		

PART C

Answer any two full questions, each carries 10 marks.

With schematic explain the following variable impedance type VAR Generators (10) and draw their VI characteristics -TCR , TSC and FC-TCR

13	a)	Draw the schematic of a 3 phase PAR with thyristor tap changers having ternary	(7)		
		proportioned winding sections for discrete level voltage control and Explain the			
		working			
	b)	Also draw the phasor diagram of the 3 phase PAR	(3)		
14	a)	How a TCSC can be implemented? Explain with Schematics.	(4)		
	b)	Draw the V-I operating region of TCSC in voltage and reactance control modes	(6)		
		PART D			
	Answer any two full questions, each carries 10 marks.				
15	a)	Explain the direct control of SSSC with neat Schematic	(10)		
16	a)	Draw the schematic of implementation of a UPFC.	(4)		
	b)	What are the functions of series converter, shunt converter and DC link in the	(6)		
		UPFC?			

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Compare STATCOM and SVC