H1 T1112 **Pages: 2**

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE (HONS.) EXAMINATION, MAY 2019

Course Code: EE464

Course Name: Flexible AC Transmission Systems

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks. Marks

1		Derive the expression for steady state power flow in a transmission line	(5)
2		What are the objectives of shunt compensation of a transmission line	(5)
3		Draw the configuration and explain the V/I characteristics of TSR and TCR	(5)
4		What is the functional difference between TCVR and TCPAR	(5)
5		Compare the V-I operating region of STATCOM with SVC	(5)
6		What is the basic principle of Static Synchronous series compensator	(5)
7		What is the versatility of UPFC as a FACTS device?	(5)
8		Draw general equivalent circuit of UPFC, STATCOM, SSSC and IPFC	(5)

PART B

Answer any two full questions, each carries 10 marks.

9		What are the cconstraints of maximum transmission line loading? Explain.	(10)
10	a)	What is the principle of series compensation?	(2)
	b)	Derive the modified power transfer equation with series compensation. Explain the change in power transfer capability with the help of power transfer plot.	(8)
11		How the transient stability limit is increased for enhanced power transmission by series compensation of line reactance?	(10)

PART C

Answer any two full questions, each carries 10 marks.

12		The maximum possible delay in switching a capacitor bank is one full cycle of the applied ac voltage for transient free switching. Why? Explain with wave forms.	(10)
13		Expalin the two methods of achieving discreet level control of tap changers for TCVR and TCPAR.	(10)
14	a)	How a FC-TCR can generate continuously variable capacitve VAR? Explain	(7)

with schematic and graph.

b) Draw the V-I operating region of FC-TCR (3)

PART D

Answer any two full questions, each carries 10 marks.

15 Compare the operation of SSSC in voltage control and reactance control modes (10)

16 How UPFC can control different power transmission parameters? Explain with phasor diagrams. (10)

17 a) Draw the schematic of implementation of IPFC and explain its features as a FACTS device. (7)

b) Differentiate between IPFC and SSSC (3)

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