APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER

Q. P. Code : PE0819242A - I **(Pages: 2)** **Name: .....**

Reg. No:.....

SECOND SEMESTER M.TECH. DEGREE EXAMINATION APRIL 2019

Branch: Electrical and Electronics Engineering **Specialization: Power Electronics**

08EE6242(A) FACTS AND CUSTOM POWER DEVICES

Time:3 hours **Max. marks: 60**

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q.no.	Module 1	Marks
1.a	What are the advantages of using Sine PWM in three phase Inverters ?	3
	Answer b or c	
b	(i) What are the Advantage of using FACTS controllers in Transmission Line?	3
	(ii) Explain the Classification of FACTS Controllers	3
c	(i) Explain the concept of Programmed harmonic elimination technique.	3
	(ii) A three phase inverter is working under Sine PWM control with amplitude modulation index (m_a) of 0.85.The RMS Value of fundamental output AC voltage is 325 V. Find the value of input DC Voltage applied to the inverter.	3

Q.no.	Module 2	Marks
2.a	Describe the current control techniques used in Inverters.	3
	Answer b or c	
b	(i) Explain any one PWM scheme used in Multilevel inverters	3
	(ii) What are the drawbacks of Flying Capacitor multilevel inverter	3

c	With neat circuit diagram and waveform, Explain the working of five level Flying Capacitor Multilevel Inverter	6

Q.no.	Module 3	Marks
3.a	Why Continues control of impedance is not possible in Thyristor switched capacitor (TSC)?	3
	Answer b or c	
b	Explain the working of Thyristor Controlled Reactor (TCR) and Thyristor Switched Capacitor (TSC) with neat waveforms.	6
c	Compare Variable impedance type static shunt Compensators	6

Q.no.	Module 4	Marks
4.a	Explain any one internal control scheme of Static Synchronous Series Compensator (SSSC)	3
	Answer b or c	
b	Explain the working of GTO Thyristor Controlled Series Capacitor (GCSC)	6
c	With neat circuit diagram and waveform, Explain the working Thyristor Controlled voltage Regulator (TCVR)	6

Q.no.	Module 5	Marks
5.a	What are the advantages of using NGH –SSR Damping Scheme?	4
	Answer b or c	
b	Explain the working of Unified Power Flow Controller (UPFC)	8
c	Explain the control scheme of Interline Power Flow Controller (IPFC)	8

Q.no.	Module 6	Marks
6.a	What are the causes of power quality issues in distribution system?	4
	Answer b or c	
b	Explain various power quality issues related to distribution system.	8
c	Explain the working and compensation of power quality issues using Dynamic Voltage Restorer (DVR).	8