

Code: 20EE6502

**III B.Tech - I Semester – Regular Examinations - DECEMBER 2022****REACTIVE POWER CONTROL IN ELECTRIC SYSTEMS****(HONORS in ELECTRICAL & ELECTRONICS ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.

2. All parts of Question must be answered in one place.

BL – Blooms Level

CO – Course Outcome

			BL	CO	Max. Marks
<b>UNIT-I</b>					
1	a)	Explain the reactive power characteristics.	L3	CO2	7 M
	b)	What are reactive characteristics of ideal load compensator? Discuss its objectives.	L3	CO2	7 M
<b>OR</b>					
2	a)	Explain how load compensators act as a voltage regulator for phase balancing of unsymmetrical load.	L3	CO2	7 M
	b)	Explain the method of power factor correction of unsymmetrical loads.	L3	CO2	7 M
<b>UNIT-II</b>					
3	a)	Explain in detail about the shunt compensation in transmission lines.	L3	CO2	7 M
	b)	List the FACTS devices used for reactive compensation and explain about SVC(Static	L4	CO3	7 M

		VAR compensator).			
<b>OR</b>					
4	a)	Distinguish between an uncompensated line and compensated line.	L3	CO2	7 M
	b)	Explain in detail about the series compensation in transmission lines.	L3	CO2	7 M
<b>UNIT-III</b>					
5	a)	Explain how electromagnetic interference occurs in transmission lines.	L3	CO4	7 M
	b)	Discuss the transmission benefits to consumer and supplier after improvement of system by adopting reactive power strategy.	L3	CO4	7 M
<b>OR</b>					
6	a)	Distinguish between reactive power compensation and reactive power coordination.	L3	CO4	7 M
	b)	Discuss various kinds of disturbances that will occur in Transmission line.	L4	CO3	7 M
<b>UNIT-IV</b>					
7	a)	Describe the objectives of reactive power planning.	L3	CO4	7 M
	b)	Explain the types of load shaping methods.	L3	CO2	7 M
<b>OR</b>					
8	a)	Explain the methods of loss reduction in demand side management.	L3	CO4	7 M
	b)	What are the various load patterns? Explain.	L3	CO2	7 M

**UNIT-V**

9	a)	Explain the purpose of using capacitors for reactive power management.	L3	CO4	7 M
	b)	Explain user side reactive power management and mention the significance of reactive power for domestic purpose.	L4	CO3	7 M

**OR**

10	a)	Explain various deciding factors for user side reactive power management.	L3	CO4	7 M
	b)	Discuss the advantages and disadvantages of using capacitors in reactive power management.	L3	CO2	7 M