Code: 20EE4703A

IV B.Tech - I Semester – Regular / Supplementary Examinations OCTOBER 2024

SMART GRID TECHNOLOGIES
(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
		UNIT-I			
1	a)	Explain the benefits derived through the smart grid.	L2	CO2	7 M
	b)	Illustrate role of various stake holders in smart grid.	L3	CO2	7 M
		OR			
2	a)	Distinguish between Micro Grid and Smart Grid.	L3	CO2	7 M
	b)	Explain the functions of smart grid components.	L2	CO2	7 M
		UNIT-II			
3	a)	Explain in detail about wide area monitoring systems with neat diagrams.	L2	CO2	7 M
	b)	Compare between Conventional Metering and Smart Metering.	L3	CO2	7 M

		OR			
4	a)	Explain Phasor measurement units in smart grids with diagram.	L2	CO2	7 M
	b)	Explain the functionality of Advanced Metering Infrastructure.	L3	CO2	7 M

UNIT-III

5	a)	Explain load flow in smart grid design.	L3	CO3	7 M
	b)	Explain about contingency analysis in smart grid.	L3	CO3	7 M
		OR			
6	a)	Explain the challenges of load flow studies in smart grid.	L3	CO3	7 M
	b)	Recall the performance indices in smart grid with suitable equations.	L3	CO3	7 M

UNIT-IV

7	a)	Recall analytical hierarchical programming by drawing a neat block diagram.	L3	CO4	7 M
	b)	Describe particle swarm optimization technique.	L4	CO4	7 M
		OR			
8	a)	List the steps involved in applying Heuristic optimization techniques.	L2	CO4	7 M
	b)	Describe genetic algorithm with neat sketch of genetic algorithm cycle.	L4	CO4	7 M

		UNIT-V			
9	a)	Analyze the benefits and challenges of interoperability.	L4	CO5	7 M
	b)	Illustrate the model for interoperability in smart grid.	L4	CO5	7 M
		OR			
10	a)	Analyze the cyber security concerns associated with AMI.	L4	CO5	7 M
	b)	Distinguish the threats faced by traditional system and smart grid relevant to interoperability.	L4	CO5	7 M