PVP 20

Code: 20EE4703A

IV B.Tech - I Semester – Regular Examinations - DECEMBER 2023

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)	Discuss about any four elements of smart grid components.	L2	CO1	7 M
	b)	Illustrate about the computational intelligence feature in smart grid.	L3	CO2	7 M
OR					
2	a)	Distinguish between Traditional Grid and Smart Grid.	L2	CO2	7 M
	b)	Summarize the stakeholders in smart grid.	L2	CO1	7 M
UNIT-II					
3	a)	Explain the role of Wide Area Monitoring Systems (WAMS) in power system.	L2	CO1	7 M
	b)	Distinguish between Conventional Metering and Smart Metering.	L2	CO2	7 M
OR					

4	a)	Discuss the operation of phasor measurement unit.	L2	CO1	7 M
	b)	Explain multi-agent system architecture (MAS).	L2	CO2	7 M
		UNIT-III			
5	a)	Demonstrate about contingencies in smart grid.	L3	CO3	7 M
	b)	Explain Newton Raphson load flow method.	L2	CO3	7 M
		OR			
6	a)	Explain the challenges of load flow studies in smart grid.	L2	CO3	7 M
	b)	Illustrate the performance indices in smart grid and explain external system equivalents.	L3	CO3	7 M
		UNIT-IV			
7	a)	Explain decision support tools.	L2	CO1	7 M
	b)	Classify optimization techniques in smart grid.	L2	CO4	7 M
		OR			
8	a)	Discuss the steps involved in applying Heuristic optimization techniques.	L2	CO1	7 M
	b)	Describe particle swarm optimization technique.	L2	CO4	7 M
		UNIT-V			
9	a)	Explain smart grid network interoperability.	L4	CO5	7 M
	b)	Summarize the benefits and challenges of	L2	CO5	7 M

		interoperability in smart grid.			
		OR			
10	a)	Illustrate the cyber security concerns associated with AMI.	L3	CO5	7 M
	b)	Analyze the mitigation approach to cyber security risks.	L4	CO5	7 M