PVP 20

Code: 20EE4601A

III B.Tech - II Semester – Regular / Supplementary Examinations
APRIL 2024

DISTRIBUTION SYSTEM PLANNING & AUTOMATION
(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 factors affecting load forecasting and how they categorized as short term or long term load forecasting?	L2	CO2	7 M
	b)	Discuss the distribution system planning for the future.	L2	CO2	7 M
OR					
2	a)	Explain Central role of the computer in distribution planning with a neat schematic diagram.	L2	CO2	7 M
	b)	What are the factors influence substation site selections? Also explain the concept of substation expansion.	L4	CO2	7 M

UNIT-II					
3	a)	What are the different distribution substation bus schemes? Explain them with a neat sketch.	L4	CO3	7 M
	b)	Discuss the requirements of substation location. Also list the rules for ideal location for a substation.	L2	CO3	7 M
OR					
4	a)	Describe how rating of a distribution substation can be done? Explain it by considering square shaped distribution substation service area.	L4	CO3	7 M
	b)	Compare the four and six feeder patterns. Also describe how much percentage of excessive loads can be carried by six feeder patterns when compared to four feeder patterns.	L3	CO3	7 M
UNIT-III					
5	a)	With a neat sketch describe the operation of loop type primary feeder.	L3	CO3	7 M
	b)	Discuss the different architectures of radial type primary feeders in detail.	L2	CO3	7 M
OR					
6	a)	What are the factors affecting the design loading of a feeder? Discuss them in brief.	L2	CO3	7 M
	b)	Derive the expression for total series voltage drop of a radial feeder with non-uniformly distributed load.	L3	CO3	7 M

UNIT-IV					
7	a)	Explain the different problems exist for distribution system.	L2	CO4	7 M
	b)	Discuss the functions of distribution automation.	L2	CO4	7 M
OR					
8	a)	What is the purpose of Remote Terminal Unit (RTU) in distribution automation? Explain in detail.	L2	CO4	7 M
	b)	Explain in detail how the voltage profile can be improved in distribution system.	L4	CO5	7 M
UNIT-V					
9	a)	What is SCADA? Explain its operation with a simple block diagram.	L4	CO4	7 M
	b)	Why should Distribution Automation (DA) be integrated with SCADA? Explain its advantages.	L4	CO4	7 M
OR					
10	a)	Define communication protocol and explain Remote Procedure Call in detail.	L4	CO5	7 M
	b)	What is the requirement and feasibility of SCADA to distribution automation? Discuss in detail.	L2	CO4	7 M