PVP 20

Code: 20EE4701C

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

POWER QUALITY
(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)	Enumerate the major reasons for concern of power quality issues.	L2	CO1	7 M
	b)	Categorize long duration and short duration voltage variations.	L4	CO4	7 M
		OR			
2	a)	Identify main sources of transients and how they are classified.	L2	CO1	7 M
	b)	Classify waveform distortion and describe Power frequency variations.	L4	CO4	7 M
		UNIT-II			
3	a)	Interpret the importance of equipment sensitivity in estimating voltage sag performance.	L3	CO2	7 M

	b)	Explain the sources of sags and Interruptions.	L3	CO2	7 M
OR					
4	a)	Explain the transmission system sag performance evaluation.	L3	CO2	7 M
	b)	Analyze the performance evaluation at utility distribution system considering faults on i) Same feeder ii) Parallel feeder.	L4	CO4	7 M
UNIT-III					
5	a)	Outline the fundamental principles of protection.	L3	CO3	7 M
	b)	Explain Ferro resonant transformers with neat diagram.	L4	CO4	7 M
OR					
6	a)	Explain in detail about magnetic synthesizers with neat block diagram.	L3	CO3	7 M
	b)	Analyze the importance of superconducting magnetic energy storage devices in voltage sag mitigation.	L4	CO4	7 M
UNIT-IV					
7	a)	Explain power system quantities under non-sinusoidal conditions.	L3	CO2	7 M
	b)	Explain in detail about Harmonic indices.	L4	CO4	7 M
OR					
8	a)	Infer the impact of Harmonic sources from commercial loads and industrial loads.	L3	CO3	7 M

	b)	Explain any two devices for controlling Harmonic Distortion.	L4	CO4	7 M
UNIT-V					
9	a)	Explain any two types of Distribution generation technologies.	L4	CO4	7 M
	b)	Explain various interfaces to the Utility system.	L3	CO2	7 M
OR					
10	a)	Explain about importance of power quality monitoring systems.	L3	CO2	7 M
	b)	Explain any two types of power quality measuring devices.	L3	CO2	7 M