

PRAGATI ENGINEERING COLLEGE: SURAMPALEM
(AUTONOMOUS)
IV B.Tech II Semester Supplementary Examinations, May - 2024

ELECTRIC POWER QUALITY
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 hours

Max. Marks: 70M

Answer ONE Question from each Unit
 All Questions Carry Equal Marks

Q. No.	Questions	BTL	CO	Marks
UNIT – I				
1.	a) Calculate the total harmonic distortion of a voltage waveform with following harmonic frequency makeup: Fundamental $V_1=114V$, $V_3=4V$, $V_5=2V$, $V_7=1.5V$, $V_9=1V$.	K3	CO1	7M
	b) Explain briefly about different power quality issues and how they can be reduced.	K2	CO1	7M
OR				
2.	a) Define power quality. Comment on the growing concern on the quality of electric power by both electrical utilities and end users?	K2	CO1	7M
	b) Explain brief about Short duration voltage variations.	K2	CO1	7M
UNIT – II				
3.	a) Discuss briefly about Non linear loads with some examples.	K2	CO2	7M
	b) Discuss briefly the Principles of over voltage protection	K2	CO2	7M
OR				
4.	a) List the common sources of Sag, Swell and interruption and explain each briefly.	K2	CO2	7M
	b) List the common sources of transient over voltages	K2	CO2	7M
UNIT – III				
5.	a) Explain the concept of Regulating utility voltage with distributed resources.	K2	CO3	7M
	b) Write notes on Static VAR compensations for power factor improvement.	K2	CO3	7M
OR				
6.	a) Define voltage flicker. What are the major flicker sources?	K2	CO3	7M
	b) Explain the concept of principles of regulating the voltage?	K2	CO3	7M
UNIT – IV				
7.	a) What are the differences between active and passive filters used for harmonic elimination?	K2	CO4	7M
	b) Explain how Fourier series can be used for harmonic analysis.	K2	CO4	7M
OR				
8.	a) Define Total harmonic distortion. Why is it an important index to measure harmonics?	K2	CO4	7M

	b)	Why PCC is important in grid connected systems? Explain briefly about PCC.	K3	CO4	7M
UNIT – V					
9.	a)	Explain the technologies of Distributed Generation,	K2	CO5	7M
	b)	How is power quality monitoring done? List the specifications of a power quality monitoring equipment.	K3	CO5	7M
OR					
10.	a)	Distinguish the relationship between distributed generation and power quality?	K3	CO5	7M
	b)	How is a power quality measuring instrument effective? Give some examples of some measuring instruments.	K3	CO5	7M