

Reg.No.:

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VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 80024

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – JAN. 2025

Sixth Semester

Electrical and Electronics Engineering

U19EEV12 – POWER QUALITY IN POWER SYSTEMS

(Regulation 2019)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Why is power quality important?	2	K1	CO1
2.	What are the various power quality issues?	2	K1	CO1
3.	Define voltage sag.	2	K1	CO2
4.	Distinguish over voltage and voltage swell.	2	K4	CO2
5.	Illustrate harmonic indices.	2	K2	CO3
6.	What is voltage and current distortion?	2	K1	CO3
7.	State the principles of controlling harmonics.	2	K1	CO4
8.	Mention the devices for controlling harmonic distortion.	2	K1	CO4
9.	What are the purposes of power quality monitoring system?	2	K1	CO5
10.	List the instruments used for the analysis of non-sinusoidal voltage and currents.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Explain Sources and Effects of power quality problems with suitable examples.	13	K2	CO1
	(OR)			
b)	Discuss about the CBEMA curves and explain the events described in the curve.	13	K4	CO1
12. a)	Discuss about the sources of sags and interruption with necessary diagram.	13	K4	CO2
	(OR)			
b)	Describe the mitigation of voltage sag.	13	K4	CO2
13. a)	Explain briefly about fundamentals of waveform distortion and the effects of harmonic distortion.	13	K2	CO3
	(OR)			
b) i.	Explain are the various instruments used for power quality Measurements.	7	K1	CO3
ii.	What are the factors to be considered when selecting the Instruments?	6	K1	CO3
14. a)	Explain the roles & types of active filters for harmonic control.	13	K2	CO4
	(OR)			
b)	What is harmonic resonance? Explain the phenomena of series and parallel harmonic resonance with neat diagrams.	13	K2	CO4
15. a)	Discuss in detail about the power quality issues of grid connected renewable energy sources.	13	K4	CO5
	(OR)			
b)	Write notes on harmonic spectrum analyser used for power quality measurements.	13	K4	CO5

PART – C

(1 x 15 = 15Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	Discuss the various categories of equipment that can be incorporated into an Overall Power Quality Monitoring System.	15	K4	CO5
	(OR)			
b)	Discuss the harmonic sources from industrial loads.	15	K4	CO3