U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E. **Semester: VII**
Branch: ES – Cluster Elective **Duration: 3 hrs.**
Course Code: 19EE7CE2PQ **Max Marks: 100**
Course: ELECTRICAL POWER QUALITY **Date: 12.09.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1	a)	Define Power Quality. What are the issues that user is facing because of power quality.	**06**
	b)	Mention Power Quality Issues in Distributed Generation. Explain any one of these along with its solutions.	**06**
	c)	Discuss about the CBEMA curves. Explain about the events described in the curve	**08**

UNIT - II

2	a)	Explain about Power-Frequency Control in a power system.	**08**
	b)	What is risk of under of frequency Tripping?	**06**
	c)	What is Spinning reserve?	**06**

UNIT - III

3	a)	List the differences between Harmonics and Transients in power quality analysis	**05**
	b)	Explain voltage imbalance and voltage fluctuations	**05**
	c)	What are the disturbances coming under the term waveform distortion? Explain each with neat figures.	**10**

OR

4	a)	Define Harmonics and classify them with respect to its order.	**06**
	b)	Differentiate between Long-Duration and Short-Duration Voltage Variations. Also mention the classification between them	**06**
	c)	What are triplen harmonics? How triplen harmonics are generated in a power system?	**08**

UNIT - IV

5	a)	Interpret the Effect of harmonics distortions on Capacitors and Motors	**10**
	b)	Zig-Zag transformers are used in controlling harmonic distortions. Is this statement true? Justify your answer.	**05**
	c)	Discuss the reasons of grounding.	**05**

OR

6	a)	Define harmonic distortion and discuss its impact on Transformers	**08**
	b)	Determine the k rating of a transformer required to carry a load consisting of 500A of fundamental 200A of third harmonics 120A of fifth harmonics and 90A of seventh harmonics	**06**
	c)	With the help of magnetic ballast and electronic ballast, briefly explain about Fluorescent lighting	**06**

UNIT - V

7	a)	Classify the nonlinear loads based on the input supply and explain them with neat sketches.	**10**
	b)	Explain how Multimeters are used to measure power quality?	**10**

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