Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – WINTER • 2013

Subject code: 1724505 **Date: 02-01-2014**

Subject Name: Power Quality

Time: 10.30 am – 01.00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	(a)	Explain the purpose of grounding. describe some typical power quality problems that are due to inadequacies in the wiring and grounding of electrical systems.	07
	(b)	What is Power Quality?With a waveform sketch, explain the terms (i)Voltage sag (ii)Voltage interruption (iii)Voltage swells.	07
Q.2	(a)	What are transient over voltages? Explain the different types of transient over voltages.	07
	(b)	Enlist and Explain various devices used for voltage regulation.	07
		OR	
	(b)	Discuss various causes of voltage flicker and their effects. Suggest various means to reduce flickers.	07
Q.3	(a)	Explain the principle of DVR operation used for sag mitigation.	07
	(b)	Explain in detail about various methods to mitigate voltage swells.	07
		OR	
Q.3	(a)	What do you mean by CBEMA curve? What are the Solutions at the End-User Level for improving the overall voltage sag performance?	07
	(b)	Explain the various causes and effects of voltage sags.	07
Q.4	(a)	Discuss the basic features and explain the operation of passive and active filters with diagram.	07
	(b)	Give name of two most commonly used indices for measuring the harmonic content of a waveform. Explain each in detail.	07
		OR	
Q.4	(a)	Explain Effects of Harmonic Distortion in detail.	07
Q.4	(b)	Explain Principles for Controlling Harmonics	07
Q.5	(a)	What do you mean by PCC? Explain in detail about general procedure for harmonic distortion Evaluation for the utility systems.	07
	(b)	Bring out the significance of Power quality monitoring. What are the important power quality monitoring objectives?	07
		OR	
Q.5	(a)	Write short notes on power quality measurement system. What are the characteristics of power quality measurement equipments?	07
	(b)	Discuss in detail about the instruments used for analyzing non sinusoidal voltage and currents.	07

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