Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject code: 1724505 **Date: 05-06-2013**

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 for the following related with Power quality. (i) Voltage imbalance (ii) Under voltage (iii) Over voltage (iv) Frequency variation (v) DC offset, (vi) Inter harmonics, (vii)Voltage flicker	**07**
	(b)	Explain reason for grounding & problem associated with grounding.	**07**
Q.2	**(a)**	What are the parameters all to be considered while choosing the mitigation techniques and solution to reduce flicker.	**07**
	(b)	Discuss about the computer Business Equipment Manufactures Associations (CBEMA).	**07**
		OR	
	(b)	List the device used for the voltage regulation & explain any two briefly.	**07**
Q.3	**(a)**	Explain the principle of protection and solutions at the end user level.	**07**
	(b)	Explain the principle of protection and solutions at the Source level.	**07**
		OR	
Q.3	**(a)**	What are the different voltage sag mitigation techniques? Explain in details.	**07**
	(b)	Explain the following causes of sags. (i)Voltage sag due to motor sag (ii)Voltage sag due to single line to ground fault.	**07**
Q.4	**(a)**	Explain the harmonic effects on power system equipments briefly.	**07**
	(b)	Explain for the following: (i) Harmonic sources from industrial loads. (ii) Harmonic sources from residential loads.	**07**
		OR	
Q.4	**(a)**	How will you find the harmonic sources from point of common coupling? Give the identification procedure on the basis of voltage indices.	**07**
	(b)	Explain the power system response characteristics under the presence of harmonics.	**07**
Q.5	**(a)**	What are the parameters to be Consider while choosing transducer & explain them briefly?	**07**
	(b)	Explain the steps involved in power quality monitoring. What are the information from monitoring site surveys.	**07**
		OR	
Q.5	**(a)**	Explain in detail about Flicker meter.	**07**
	(b)	Explain the harmonic analyzer and disturbance analyzer.	**07**

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