Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER IV (NEW) – • EXAMINATION – WINTER 2016

Subject Code: 2740704 **Date: 26/10/2016**

Subject Name: Power Quality

Time:02:30 pm to 05:00 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 following terms related to power quality. (1) Grounding (2) Noise (3) Notch.	**07**
	(b)	Discuss the common power frequency disturbances with suitable examples.	**07**
Q.2	**(a)**	What do you understand about power quality issues? Discuss all the power quality issues in brief.	**07**
	(b)	Explain the cause and effect with respect to power quality point of view? What is an immunity of the equipment? Discuss the treatment criteria for a machine.	**07**
		OR	
	(b)	What are CBEMA and ITIC graphs? Draw and discuss the ITIC graph in detail.	**07**
Q.3	**(a)**	Define and describe following terms: (1) Linear loads (2) Inrush current (3) Voltage swell (4) Voltage sag	**07**
	(b)	Explain effects of harmonics on power system.	**07**
		OR	
Q.3	**(a)**	What is harmonic? Give classification of it according to their rotating phase sequences.	**07**
	(b)	What is the importance of the value of earth's resistance? Describe the fall of potential methods for measurement of earth's resistance.	**07**
Q.4	**(a)**	Explain signal reference grounding with typical computer and communication facility data center grounding and bonding.	**07**
	(b)	With a case study explain the fatal effect which may result due to loss of Grounding.	**07**
		OR	
Q.4	**(a)**	Explain various EMI mitigation techniques in detail.	**07**
	(b)	Explain method of improvement for power factor.	**07**
Q.5	**(a)**	What is an electromagnetic interference? Discuss the essential elements of EMI.	**07**
	(b)	Explain (i) Atmospheric phenomena and (ii) Switching of capacitor banks, which creates the transients in power systems.	**07**
		OR	
Q.5	**(a)**	Which are power quality measurement devices? Discuss about number of test locations & test duration for power quality measurement	**07**
	(b)	Explain single point & multi point grounding.	**07**

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