Seat No.:		Enrolment No		
		GUJARAT TECHNOLOGICAL UNIVERSITY		
		ME – SEMESTER II (OLD) – • EXAMINATION – SUMMER 2016		
Subject Code: 1724505			Date: 19/05/2016	
Subject Name: Power Quality Time:10:30 am to 01:00 pm Instructions:  Total		0:30 am to 01:00 pm Total Marks:	Marks: 70	
	1. 2.	Attempt all questions.  Make suitable assumptions wherever necessary.  Figures to the right indicate full marks.		
Q.1	(a)	Define and technically describe following terms: (1)linear loads (2)voltage sag (3)power factor (displacement) (4)voltage swell (5)flicker	07	
	(b)	What is an arc furnace? Explain with suitable diagrams arc furnace can produce large voltage sags in electrical network. Also explain starting /stopping of capacitors banks in conjunction with an arc furnace operation.	07	
Q.2	(a) (b)	Explain different power quality issues in detail. What is harmonic? Give classification of it according to their rotating phase sequences.	07 07	
	(b)	OR Explain single point & multi point grounding.	07	
Q.3	(a) (b)	Write short note on static VAR compensators.  Explain various EMI mitigation techniques in brief.	07 07	
Q.3	(a) (b)	OR Enlist a power quality related standards supplied from various organizations. Write short note on true RMS meter.	07 07	
Q.4	(a) (b)	Explain different challenges against distributed generation With a case study explain the fatal effect which may result due to loss of grounding.	07 07	
Q.4	(a)	OR List various power quality measuring devices and discuss the main features of power quality analyzer? Explain instrument setup procedure to measure power quality events.	07	
	<b>(b)</b>	Discuss in detail about the CBEMA curve.	07	
Q.5	(a) (b)	Prove that third harmonic is in phase and have zero displacement angle between them.  Illustrate the importance of power quality monitoring and assessment.	07 07	

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**(b)** Explain the role of active & passive filter to mitigate harmonics.

Q.5

distortion.

OR

(a) Explain how commercial and industrial loads are responsible for harmonic

**07** 

**07**