Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – III • EXAMINATION – SUMMER • 2014

Subject code: 734502 Date: 05-06-2014

Subject Name: EMC in Power Electronics

Time: 02:30 pm - 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)**	Describe Electromagnetic Disturbances by Frequency Content.	**07**
	(b)	Design a worst case EMI filter to provide at least 40 dB insertion loss at 150 kHz.	**07**
Q.2	**(a)**	Write a short note on measuring the interference voltage.	**07**
	(b)	Describe Electromagnetic Disturbances by Transmission Mode.	**07**
		OR	
	(b)	Write a short note on measuring the interference current.	**07**
Q.3	**(a)**	Derive the equations of insertion loss of two port network in terms of Z parameters and ABCD parameters.	**07**
	(b)	Explain insertion loss test under heavy load current.	**07**
		OR	
Q.3	**(a)**	Explain inductive noise coupling mode of electromagnetic coupling.	**07**
	(b)	Explain Laplace transform root calculation method.	**07**
Q.4	**(a)**	Describe series injection method of worst-case insertion loss test method.	**07**
	(b)	Derive the formula for calculation of worst case insertion loss.	**07**
		OR	
Q.4	**(a)**	Write a note on EMI from semiconductor.	**07**
	(b)	Write a note on EMI from Rectifier circuits.	**07**
Q.5	**(a)**	Explain feedthrough capacitor and feedthrough filter.	**07**
	(b)	Write a short on measuring HF characteristics of EMI Filter Elements.	**07**
		OR	
Q.5	**(a)**	What are the different classes of EMS test as per IEC specifications?	**07**
	(b)	Explain high frequency disturbance test.	**07**

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