Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. SEMESTER III–EXAMINATION (Remedial)– WINTER 2015

Subject code: 734502 **Date: 07/12/2015**

Subject Name: EMC in Power Electronics

Time: 2:30 PM to 5:00 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 spectrum analyzers in detail.	**07**
	(b)	Discuss the sources of EMI generation in detail.	**07**
Q.2	**(a)**	Explain basic terms and conducted EMI references with reference to EMI measurement.	**07**
	(b)	Explain Laplace transform root calculation method.	**07**
		OR	
	(b)	Derive the equations of insertion loss of two port network in terms of Z parameters and ABCD parameters.	**07**
Q.3	**(a)**	Describe shielded transformers with necessary equivalent circuit.	**07**
	(b)	Draw equivalent circuit for determining the capacitive current of noise suppression and explain it with necessary equation.	**07**
		OR	
Q.3	**(a)**	Describe series injection method of worst-case insertion loss test method.	**07**
	(b)	Explain the application of RC- Snubber to power semiconductors.	**07**
Q.4	**(a)**	Explain the method for measuring interference current.	**07**
	(b)	Write a short note on damped EMI filter for low current ratings.	**07**
		OR	
Q.4	**(a)**	Describe impulse voltage withstand test with necessary diagram.	**07**
	(b)	Explain feed through capacitor and feed through filter.	**07**
Q.5	**(a)**	Explain the method for calculating energy content of transient disturbances.	**07**
	(b)	Briefly explain the surge protection devices.	**07**
		OR	
Q.5	**(a)**	Explain circuit balancing method of reduction of electromagnetic coupling reduction.	**07**
	(b)	Explain wiring layout method to reduce EMI coupling.	**07**

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