Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject code: 1723106 **Date: 23-06-2014**

Subject Name: Electromagnetic Compatibility

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)**	Derive the equation of magnetic coupling for shielded receiver conductor when shield is grounded at both ends.	**07**
	(b)	Derive the capacitive coupling equation when center conductor is extended beyond the shield on receiver side and shield is not grounded.	**07**
Q.2	**(a)**	What is the difference between magnetic coupling and capacitive coupling? How they are actually represented through electric circuits?	**07**
	(b)	What are the three necessary elements to produce an interface problem? Explain types of noise sources with examples. Explain concept of typical noise path.	**07**
		OR	
	(b)	Explain types of capacitor with construction and material used.	**07**
Q.3	**(a)**	Define hybrid ground. Draw their circuits and Give reason for their behavior.	**07**
	(b)	Define CMRR. Derive the equation of CMRR for Unbalance source resistance. Give any example of such situation.	**07**
		OR	
Q.3	**(a)**	What is a parasitic effect? Explain concept of parasitic effect with any circuit.	**07**
	(b)	Derive the equation of CMRR for Unbalance load resistance. Give any example of such situation.	**07**
Q.4	**(a)**	Explain various noises in circuits operating at high frequency with necessary circuits.	**07**
	(b)	How to ground the shield when an ungrounded amplifier is connected to the grounded source. Which one is best connection and why?	**07**
		OR	
Q.4	**(a)**	Explain networks that used across the load to minimize the inductive kick produced by an Inductor.	**07**
	(b)	How internal noise source cause disturbances to Digital circuit? Explain it with any circuit.	**07**
Q.5	**(a)**	Write a short note on Near field measurements.	**07**
	(b)	Explain Intrinsic noise sources. How it can be calculated?	**07**
		OR	
Q.5	**(a)**	Explain methods of Noise Factor measurements.	**07**
	(b)	Write a short note on ferrites.	**07**

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