

**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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