

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2013****Subject code: 1723106****Date: 05-06-2013****Subject Name: Electromagnetic Compatibility****Time: 10.30 am – 01.00 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 the need of EMC. Briefly discuss the different methods of eliminating interference. **07**
- (b) Prove that At low frequencies the noise pickup in the shielded cable is the same as for an unshielded cable, however at frequencies above shield cut off frequency the shielding effectiveness increases. **07**
- Q.2** (a) Prove that To prevent radiation of a magnetic field from a conductor grounded at both ends, the conductor should be shielded, and the shield should be grounded at both ends. **07**
- (b) Explain the concept of safety ground. **07**
- OR**
- (b) Briefly discuss single point and multipoint ground systems. **07**
- Q.3** (a) Explain the grounding of cable shields for a circuit with an ungrounded source and grounded amplifier. **07**
- (b) Explain the concept of near fields and far fields. **07**
- OR**
- Q.3** (a) Discuss the low frequency analysis of common mode choke. **07**
- (b) Explain the absorption loss and reflection loss. **07**
- Q.4** (a) Explain contact protection networks for inductive loads. **07**
- (b) Discuss EMI induced failures in power electronic circuits. **07**
- OR**
- Q.4** (a) Explain glow discharge and arc discharge. How they differ? **07**
- (b) Explain circuit design and board layout from ESD point of view. **07**
- Q.5** (a) Discuss various noise sources in SMPS. **07**
- (b) What is power line filter? Why it is required for the equipment? **07**
- OR**
- Q.5** (a) Write a short note on insertion loss of power line filter. **07**
- (b) What is LISN? How it works? **07**
