Reg. No. :

Question Paper Code : 43059

M.E. DEGREE EXAMINATION, MAY/JUNE 2015.

Third Semester

Applied Electronics

AP 7301 — ELECTROMAGNETIC INTERFERENCE AND COMPATIBILITY

(Common to M.E. Communication Systems, M.E. Communication and Networking M.E. Electronics and Communication Engineering M.E. Medical Electronics and M.E. VLSI Design)

(Regulation 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How many types of EMI exist?
2. What the basic differences are between conducted and radiated emissions?
3. Define the term cross talk.
4. Define ground coupled interference.
5. What is shielding? How is effective the shielding for EMI?
6. What are the advantages of multi point grounding?
7. Define PCB trace impedance with respect to EMI.
8. How does cable routing avoid EMI?
9. List the possible errors in EMI testing.
10. What are class A devices with respect to FCC?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Compare time domain EMI with Frequency domain EMI. (8)

(ii) Explain ESD in detail. What are all the remedial measures? (8)

Or

(b) How do electrostatic discharges occur? Explain in detail EMI radiation hazards.

12. (a) How do cable coupling, near and far coupling of EM fields produced can be reduced? Discuss on methods to enhance immunity of circuits/equipments systems.

Or

(b) What is radiated differential mode coupling? In what way this is different from the radiated common mode coupling? Explain this with equations.

13. (a) Filters may be designed with two different types of components. What are they? Discuss all the techniques for designing filters.

Or

(b) Explain about the various types of non – solid shielding techniques.

14. (a) Discuss how component selection and mounting control EMI.

Or

(b) (i) Discuss about the various factors to be considered for EMC Design of PCB. (8)

(ii) Explain in detail about VIA's connection and termination. (8)

15. (a) (i) What is the need for EMI Standards? Explain. (8)

(ii) Discuss briefly on FCC Regulations. (8)

Or

(b) Discuss open area test site and its procedure. What are its limitations? How to address them in testing?