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Question Paper Code : 80322

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Seventh Semester

Electronics and Communication Engineering

EC 6011 – ELECTRO MAGNETIC INTERFERENCE AND COMPATIBILITY

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the differences between conducted and radiated emission?
2. What are the three criteria required for a system to be electromagnetically compatible?
3. List the drawbacks of various coupling mechanisms.
4. What are the factors that influence grounding scheme?
5. What is an opto-isolator?
6. Classify EMI filters.
7. What are the FCC limits for conducted and radiated emissions for class A equipments?
8. What is the purpose of EMC standards?
9. Why is shielded chamber needed for EMI testing?
10. List some commonly used test antenna and the useful frequency range for each.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the various mechanisms in which electromagnetic interference can travel from its source to the receptor. (16)

Or

- (b) (i) Discuss on the strong sources of atmospheric noise. (8)
(ii) Discuss how lightning discharges affect the transmission line communications. (8)
12. (a) Discuss the impact of radiated common mode and differential mode coupling. Also explain how the surges on main power supply affect appliances and how it can be avoided with appropriate design. (16)

Or

- (b) Explain Common mode, Differential mode and ground loop coupling. (16)
13. (a) Explain about the various types of shielding techniques. (16)

Or

- (b) Discuss on the grounding strategies for (i) large systems (ii) mixed signal systems. (16)
14. (a) Explain the civilian standards FCC, CISPR and IEC in detail. (16)

Or

- (b) Discuss in detail the specifications for emissions and susceptibility given in MIL461E standard. (16)
15. (a) Give a detailed account on anechoic chamber used for EMI measurement and explain the procedure for RE and RS measurement. (16)

Or

- (b) Give a detailed account on EMI test receivers and EMI test wave simulators. (16)