Professional Elective- II
Electromagnetic Interference and Compatibility (EC-17312)
B.Tech. VII Sem. (Electronics & Communication Engg.)

Home Assignment-1

1. What are the basic mechanisms of EMI generation? Explain the conducted EMI with an example.

2. How EMI occurs? Explain the following term related to EMI generation:
(i) E-Field Coupling
(ii) H-Field Coupling
(iii) Near & Far Field Coupling

3. What do you mean by the signal grounds? Draw and analyze an equivalent circuit of common ground system.

4. Define the following terms related to EMI/EMC:
(a) Sources of Noise
(b) Susceptibility
(c) Conducted EMI
(d) EMC regulations

5. Draw and explain the following with the suitable diagram:
(a) Connection of cable shield, when amplifier is grounded
(b) Connection of cable shield, when source is grounded

6. How EMI can be tackled systematically?

7. What are the possible strategies that could be adopted to meet EMI/EMC requirements of electrical equipment?

8. Discuss the issues of designing for Electromagnetic Compatibility.

9. What is the need for EMI tests? Explain the different categories of EMI testing.
(i) Compliance tests
(ii) Engineering tests
(iii) Audit tests

10. Draw a circuit of the differential amplifier to minimize the effect of common mode voltage.

11. Write the short note on the following:
(a) Guard Shields
(b) Digital Grounds
(c) Isolation and Neutralizing Transformers

(d) Regulations and Designing issues in EMC
(e) High frequency Ground method
(f) Low frequency Ground method

12. List the various methods of eliminating interference between electronic circuits. Describe the shielding and grounding techniques for reducing interference.

13. What is the effect of ground noise voltage on digital circuits? Draw and explain an exploded view of a digital circuit.

14. What do you mean by the chassis grounds? Draw and analyze single ground reference for a circuit when two grounds are used.

15. Explain the EMC regulations correspond to different field emission and susceptibility limit specification.

16. What are various methods of breaking ground loops? Explain an opto-coupling method to break the ground loop between the electronic circuits.