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Question Paper Code: 1068091

B.E. / B.Tech. DEGREE EXAMINATIONS, NOV / DEC 2024

Eighth Semester

Electronics and Communication Engineering

EC8072 – ELECTROMAGNETIC INTERFERENCE AND COMPATIBILITY
(Regulation 2017)

Time: Three Hours

Maximum: 100 Marks

Answer ALL questions

PART – A

(10 x 2 = 20 Marks)

1. Why is EMI a vital problem?
2. List the testing strategies in EMC.
3. List the three basic objectives of signal grounding.
4. What are the ways to prevent interference?
5. Formulate the shielding effectiveness of E and H fields.
6. Specify the role of EMI gaskets.
7. Analyze the key for Conducted Emission (CE) EMC standards.
8. Interpret the need for EMI standards.
9. Illustrate the significance of narrow-band testing.
10. Write down the advantage of OAT.

PART – B

(5 x 13 = 65 Marks)

11. (a) (i) Distinguish between the features of conducted EMI and radiated EMI. (7)
- (ii) Explain the different sources of EMI in detail. Give examples. (6)

(OR)

- (b) Discriminate time domain and frequency domain EMI. Why does analysis is made in frequency approach analysis, design and location of high voltage equipments? (13)

12. (a) (i) Compare radiated DM coupling and radiated CM coupling. (7)
(ii) Explain the separation of conducted emissions into common and differential mode currents for diagnostic purposes. (6)

(OR)

- (b) (i) Write the principle behind EFT and Surge. What are the typical modes of noise coupling? List the basic elements of EMI situation. (7)
(ii) Explain the relation between Ground Loops and Subsystem Decoupling. (6)

13. (a) Explain in detail how filters control EMI. (13)

(OR)

- (b) Explain about the various types of shielding techniques. (13)

14. (a) Discuss the sources of noise in electronic circuits and explain how noise from relays and switches can affect circuit performance. (13)

(OR)

- (b) Explain the importance of PCB layout techniques in controlling EMI. Describe the role of trace impedance, grounding, and routing in minimizing EMI. (13)

15. (a) Briefly explain the following standards: (7 + 6)
(i) CISPR.
(ii) CENELEC

(OR)

- (b) What do you understand from TEM cell? Discuss any one measurement using TEM cell. (13)

PART – C

(1 x 15 = 15 Marks)

16. (a) Discuss the significance of EMC in electronic systems and explain the key standards associated with EMC compliance. (15)

(OR)

- (b) Explain the importance of calibration, measurement uncertainty, and test setup in ensuring accurate and reliable results. (15)