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Question Paper Code : 40938

10/05/18

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B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

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. Define electromagnetic compatibility.
2. List the three aspects of the EMC problem to form the basic framework of any EMC design.
3. List the three basic objectives of signal grounding.
4. What are the ways to prevent interference ?
5. Define EM shielding.
6. Write the types of EMI filters.
7. What are the classes of EMC requirements imposed on electronic systems ?
8. List the three objectives of EMI standards.
9. Write the purposes of the LISN.
10. Why are shielding problems difficult to handle ?

PART – B

(5×16=80 Marks)

11. a) Distinguish between conducted EMI and radiated EMI. (16)

(OR)

- b) i) How do you break the transfer of electromagnetic energy with regard to the prevention of interference ? Explain. (8)

- ii) List the equipment to equipment effects and equipment to human effects with regard to EM Interference. (8)



12. a) i) Compare radiated DM coupling and radiated CM coupling. (8)
ii) Explain the separation of conducted emissions into common and differential mode currents for diagnostic purposes. (8)
- (OR)
- b) i) Write the principle behind EFT and Surge. What are the typical modes of noise coupling? List the basic elements of EMI situations? (11)
ii) Explain the relation between Ground Loops and Subsystem Decoupling. (5)
13. a) i) List the important techniques to control EMI at source point. Explain about the shielding effectiveness for far-field sources. (3+8)
ii) Explain the effect of filter elements on common-and differential mode currents. (5)
- (OR)
- b) Explain the features of power supply filters. Describe about shielding effectiveness for near-field sources. (8+8)
14. a) Explain about the measurement of radiated and conducted emissions for verification of compliance. (16)
- (OR)
- b) i) List out the emission and susceptibility requirements of MIL-STD-461E. (8)
ii) List the requirements for commercial products marketed in the United States. (8)
15. a) Explain the applications of spectrum analyzers in EMI/EMC area. Distinguish between intentional antennas and unintentional antennas. (14+2)
- (OR)
- b) i) Write the purpose and methodology for EMC system. (4.5)
ii) Explain the significance of shielding effectiveness tests. Write the application of current probes. (10+1.5)