

1. List out the EMI Coupling methods.

1. Radiated Coupling
2. Conducted Coupling
3. Inductive Coupling
4. Capacitive Coupling
5. Magnetic Coupling

2. What is radiated Coupling?

In this type of coupling, when the source and victim are separated by a long distance typically more than a wavelength.

The source radiates the signal which may be wanted or unwanted and the victim receives it in a way that disturbs its performance.

3. What is inductive Coupling?

This coupling occurs when a varying magnetic field exists between two parallel conductors, including a change in voltage along the receiving conductors and it is also called as magnetic coupling.

4. Define cross talk.

Cross talk may be partially controlled by the electric or magnetic fields of one telecommunication signal in adjacent circuit.

5. Define transient Coupling.

- Electrical transients and other disturbances are induced in power lines as a result of natural EM phenomena and from the variety of equipment.
- Lightning can produce transients on power supply either by direct strike or by strike or nearby structure.

6. Define Coupling.

Coupling is a combination of electric and magnetic fields affecting a circuit Simultaneously.

Depending on the distance between source and receptor, the electric field E and magnetic field H will varies.

7.What is LISN?

- LISN is a line impedance stabilization network.
- It present constant impedance 50Ω between phase conductor and neutral conductor.
- To prevent external conducted noise on the power system net from Contaminating the measurement.

8.How to reduce ground loop coupling?

1. Use and isolation transformer or an optical isolator.
2. Use feed thro capacitors.
- 3.Use balanced circuit or balanced drivers and receivers.

9. Define Near-field coupling

This coupling occurs by changing electric or magnetic field that is at closer distance than one-sixth of wavelength.

10. List the types of coupling to cables.

- 1.Parallel electric field coupling.
2. Aperture coupling.
- 3.Electric field Coupling.
4. Near and far-end Coupling.

11. Define ESD.

- ESD is a natural phenomenon in which accumulated static electric charges are discharged.
- This discharge produces electromagnetic interference.

12.What is electromagnetic pulse(EMP)?

A nuclear explosion results in generation of EMP Which is highly intense compared to any natural source.

Nuclear EMP leads to generation of EMI in severe form.

13.How to prevent cross talk?

- Cross talk can be partially controlled by using shielded data cables. Covered in protective material.
- Power supplies are also shielded to prevent EMI.

14. What is pigtail effect?

- Pigtail effect used to connect the outer conductor of a co-axial line to a shielded box.
- It causes the shield current to be concentrated on one side of the shield and liable to degrade shielding effectiveness.

15. How to reduce common-mode coupling?

1. Reduce ground loop area.
2. Reduce cable length.
3. Reduce average cable height.
4. Shield an entire susceptible area.

16. How to reduce differential mode-coupling?

For balanced lines

1. Use Twisted wire pairs.
2. Add a single braided shield.

For unbalanced line.

1. select coaxial cable with lower transfer impedance.

