

Q1. What is an IP address? How does an IP address work? What is the difference between static IP addresses and dynamic IP addresses.

Ans. An IP (Internet Protocol) address is a unique number that identifies a device or network connected to the internet.

- IP addresses are used to communicate between devices and networks and to transfer data efficiently.

→ Working:

1. Identification:

- An IP address is a unique identifier for a device or domain that connects to the internet.

2. Routing:

- IP addresses are used to route data packets to the correct destination.

3. Connection:

- When you try to connect to the internet, your computer is automatically assigned an IP address by your ISP.

4. Location:

- Your IP address can reveal your location, which can be used to profile your online activity.

	Static IP address	Dynamic IP address
1.	It is provided by ISP (Internet Service Provider).	1. while it is provided by DHCP (Dynamic Host Protocol configuration Protocol).

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2. Difficult to designate

2. Easy to designate

3. More stable than dynamic IP address.

3. Less stable than static IP address.

4. It is used where computational data is less confidential.

4. where it is used where data is more confidential and needs more security.

Q2. Discuss difference between switch and router.

Ans.

Switch

Router

- The main objective of switch is to connect various devices simultaneously.

- The main objective of router is to connect various networks simultaneously.

- It works in data link layer.

- It works in network layer.

- ~~Router~~ switch is used only by LAN.

- Router is used by LAN as well as MAN.

- Through switch, data is sent in the form of frame.

- Through router, data is sent in the form of packets.

- Cheaper than router.

- Much more expensive than switch.

- Switch needs at least single network to connect.

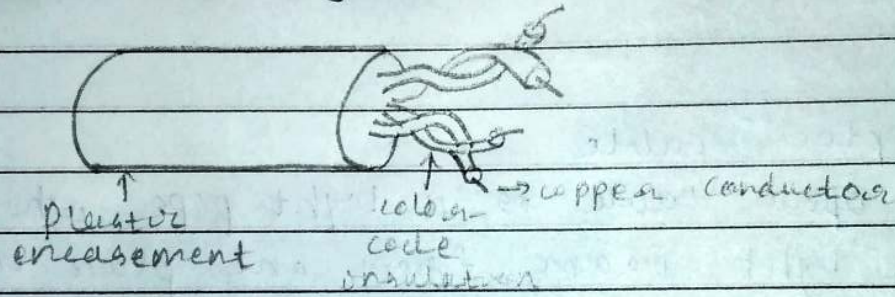
- Router needs at least two networks to connect.

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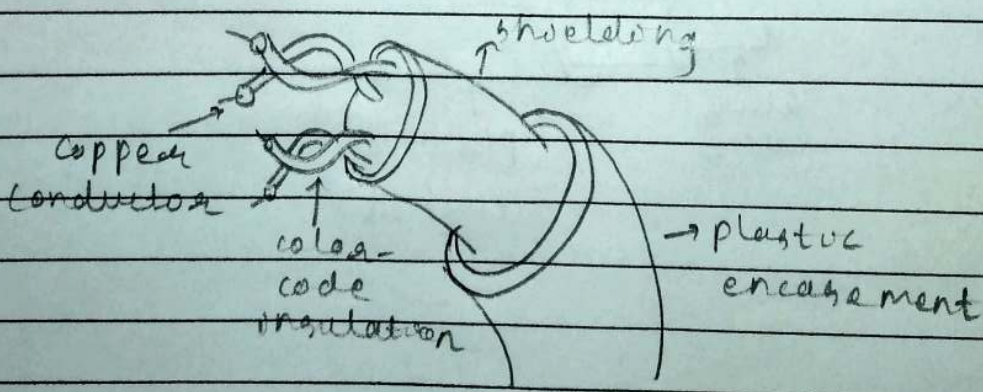
Q3. What are the different types of network cables?

Exp Discuss on Coaxial.

- Ans. i) Twisted pair cable
- A Twisted Pair (TP) consists of two insulated copper wires arranged in a regular spiral pattern.
 - i) Unshielded Twisted Pair (UTP) cable:
 - UTP is a set of twisted pairs of cable without a plastic sheet.
 - UTP are commonly used on computer networks.

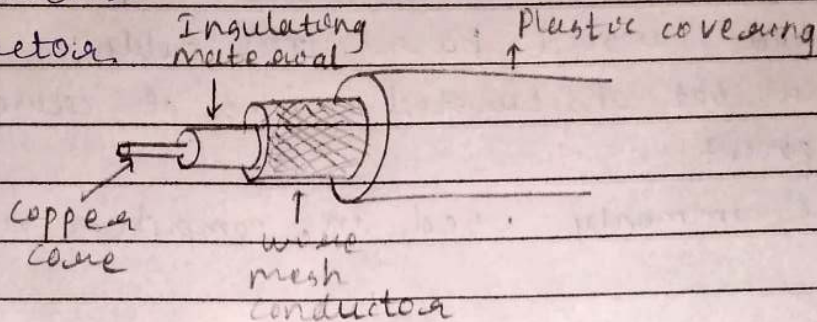


- ii) Shielded Twisted Pair (STP) cable
- STP provides a protective sheathing around the copper wire.
 - STP provides better performance at lower data rates.
 - They are not commonly used on networks.



2. ~~Copper~~ Co-axial cable

- It is made up of two conductors that share the common axis.
- It consists of a hollow outer cylindrical conductor that surrounds a single inner wire conductor.



3. Fibre optic cable

- A fibre optic cable is a light pipe which is used to carry a light beam from one place to another.
- Light is an electromagnetic signal and can be modulated by information.
- Since the frequency of light is extremely high hence it can accommodate wide ~~the~~ bandwidths of information, also higher ~~the~~ data rate can be achieved with excellent reliability.

