1. What are the different types of networks?

Ans :- There are many different types of networks, including:

• Local Area Network (LAN): A network that is typically limited to a single office building or site. LANs are useful for sharing resources like printers and data storage.

• Metropolitan Area Network (MAN): A network that covers a city, college campus, or small region. MANs act as an intermediary between LANs and WANs.

• Wide Area Network (WAN): A network that can cover a large area, such as a country or the world. WANs can connect cities, countries, and even space.

• Personal Area Network (PAN): A network that is often found in homes.

• Campus Area Network (CAN): A network that connects multiple LANs within a campus or enterprise.

• Virtual Private Network (VPN): A type of network that can be used in WANs.

• Cloud network: A virtual network infrastructure that is made up of interconnected servers, storage, applications, and other resources.

• Bus topology: A network topology where all nodes connect to a single coaxial cable.

2. Explain the Shielded twisted pair (STP) and Unshielded twisted pair (UTP)

ANS: Shielded twisted pair (STP) and unshielded twisted pair (UTP) cables are both used to provide reliable connectivity to communications hardware, but they differ in design and cost:

• Shielded twisted pair (STP)

STP cables have an extra layer of shielding to protect against electromagnetic interference. This shielding is usually made of aluminum foil, metal-vaporized foil, or a metal braid. STP cables are heavier, more expensive, and harder to install than UTP cables.

• Unshielded twisted pair (UTP)

UTP cables are less expensive and more popular than STP cables. They are made up of wires and insulators, with each pair of wires twisted together and wrapped in tubing. The jacket and mechanical equipment of the cable protect the wires from outside influences. UTP cables are often used for Ethernet connections.

The choice between STP and UTP depends on the network environment and the need for protection against external interference

3. What is difference between baseband and broadband transmission?

Ans :The main differences between baseband and broadband transmission are:

- Signal type: Baseband uses digital signals, while broadband uses analog signals.
- Bandwidth: Baseband systems have less bandwidth than broadband systems.
- Number of channels: Baseband systems use a single data signal, while broadband systems use multiple channels.
- Direction of signal travel: In broadband systems, signals travel in one direction per channel, while baseband systems can send and receive data on the same wire.
- Applications: Baseband is used in local area networks like Ethernet, while broadband is used in technologies like DSL, cable modem, and fiber-to-the-home.
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4. What is the difference between a hub, modem, router and a switch?

Ans Differences Between Hubs, Switches, Routers, and Modems

Hubs operate at the physical layer, switches operate at the data link layer, routers operate at the network layer, and modems operate at the physical layer when converting digital signals to analog signals for transmission over communication channels.

5. When you move the NIC cards from one PC to another PC, does the MAC address gets transferred as well?

Ans Yes, the MAC Address Moves with the NIC Card. The MAC address is permanently embedded in the NIC circuitry, not the PC. When another NIC card is installed, the PC may have a different MAC address.

When troubleshooting computer network problems, what common hardware-related problems can occur?

Some common hardware-related problems that can occur when troubleshooting computer network problems include:

- Temperature: A sudden increase in temperature can cause hardware issues.
- Battery: A poor battery can cause hardware issues.
- Cables: Cable problems can cause hardware issues.

• Power supply: Problems with the power supply unit (PSU) can cause a lack of power or irregular power delivery.

• DNS problems: DNS problems can be caused by hardware failure on the host machine or network.

• IP address disputes: When two devices on your network share the same IP address, this can cause network connectivity problems.

7. In a network that contains two servers and twenty workstations, where is the best place to install an Anti-virus program?

In a network that contains two servers and twenty workstations, the best place to install an Anti-virus is on the server. This is because the server is the main port for all the network traffic, and so it is more important to ensure that the server is free of and virus other security risks

8. Define Static IP and Dynamic IP? Discuss the difference between IPV4 and IPV6

Ans ;The main difference between static and dynamic IP addresses is that a static IP address remains the same, while a dynamic IP address changes each time a device connects:

• Static IP address

A manually configured IP address that remains the same over time. Static IP addresses are used when permanent access is required, such as for servers, routers, and printers.

• Dynamic IP address

An IP address that is assigned by the network when a device connects and can change over time. Dynamic IP addresses are used when privacy is not the main priority.

Here are some other differences between static and dynamic IP addresses:

• Ease of tracing

It's easier to trace a device using a static IP address than a dynamic IP address.

• Security

Dynamic IP addresses are less risky than static IP addresses.

• Ease of assignment

It's easier to assign or reassign a dynamic IP address than a static IP address.

• Maintenance cost

Dynamic IP addresses have a lower maintenance cost than static IP addresses.

IPv4 and IPv6 are both connectionless protocols that use multi-packet routing to send data across the

internet. The main difference between IPv4 and IPv6 is how they represent addresses:

• IPv4

Addresses are represented in dot-decimal notation, consisting of four decimal numbers separated by dots.

• IPv6

Addresses are represented as eight groups of four hexadecimal digits. IPv6 was built with more security in mind, and fully integrates IP Security (IPSec).

9. Discuss TCP/IP model in detail.

Ans The Transmission Control Protocol/Internet Protocol (TCP/IP) model is a network communication framework that sends data in packets across the internet. The TCP/IP model is a global standard that is considered one of the most efficient ways to transfer data. Here are some details about the TCP/IP model:

10. What is a Web Browser (Browser)? Give some example of browsers

Ans A web browser is a software application that allows users to access and view websites on the internet. Some examples of web browsers include:

12. What is the Internet & WWW? What are the uses of internet in our daily life?

Ans The internet is a global network of computers and electronic devices that are connected to each other and use a set of protocols to communicate. The internet has many uses in daily life, including:

• Communication: Users can send and receive emails, communicate with others, and collaborate.

• Entertainment: Users can stream movies and TV shows, play games, and use social media.

• Shopping: Users can shop online, compare prices, read reviews, and get personalized recommendations.

• Banking: Users can make online payments, transfer funds, invest in global markets, and prevent fraud.

• Education: Users can access information and upskill.

• Business: Users can sell products and start new businesses

13. What is an Internet Service Provider? Give some example of ISP in India.

Ans An internet service provider (ISP) is a company that provides access to the internet. ISPs can provide this access through multiple means, including dial-up, DSL, cable, wireless and fiber-optic connections. A variety of companies serve as ISPs, including cable providers, mobile carriers, and telephone companies. In some cases, a single company may offer multiple types of service (e.g., cable and wireless), while in other cases, a company may focus on just one type of service (e.g., fiber-optic). Without an ISP, individuals and

businesses could not reach the internet and the opportunities it provides.

14. Discuss the difference between MAC address, IP address and Port address.

Ans The main difference between MAC addresses, IP addresses, and port addresses is their purpose and how they're used:

• MAC address

A device's unique identifier within a local area network (LAN). MAC addresses are hardware-based, and are usually fixed and permanent. They're used for local communication within a network

IP address

Identifies a device globally on the internet, or through its internet address. An IP address is also known as a logical address. Network administrators can manually change an IP address or use Dynamic Host Protocol Configuration (DHCP) to change it dynamically

15. How do we view my Internet browser's history?

Ans Browsing history is a list of recently visited web sites. The concern here is more about privacy than general security. If you do not delete your browsing history, then anyone with access to system may be able to see what sites you visited.