1. **What are the different types of networks?**

Answer:- There are Four types of newtwork

- LAN(Local Area Network)
- PAN(Personal Area Network)
- MAN(Metropolitan Area Network)
- WAN(Wide Area Network)

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

Answer:-

UTP	STP
UTP stands for Unshielded Twisted Pair.	STP stands for Shielded Twisted Pair.
In UTP grounding cable is not necessary.	While in STP grounding cable is required.
Data rate in UTP is slow compared to STP.	Data rate in STP is high.
The cost of UTP is less.	While STP is costlier than UTP.
In UTP much more maintenance is not needed.	While in STP much more maintenance is needed.
In UTP noise is high compared to STP.	While in STP noise is less.

UTP	STP
In UTP the generation of crosstalk is also high compared to STP.	While in STP generation of crosstalk is also less.
In UTP, attenuation is high in comparison to STP.	While in STP attenuation is low.
In UTP, speed offered is about 10 to up to 1000 Mbps.	While in STP speed offered is about 10 to up to 100 Mbps.
Inexpensive and eaasy to install.	Expensive than UTP and difficult to install.
Maximum number of nodes 1024.	Maximum number of nodes are 270.
It is used for data transmission within short distance such as for home and office networks.	Generally used for connecting organizations over a long distance.
Electromagnetic interference is more in Unshielded Twisted Pair cable compared to Shielded Twisted Pair cable.	Shielded Twisted Pair cable reduces Electromagnetic interference because of the protective sheath.
UTP cables categories as specified by EIA- Category-1, Category-2, Category-3, Category-4, Category-5, Category-5e, Category-6, Category-6a and Category-7.	Shielded cables have commonly these configurations- Foil Shielded and Braid Shielded.

3. What is difference between baseband and broadband transmission?

Answer:- Here, you will learn about the key differences between Baseband and Broadband Transmission. Some of the main differences between Baseband and Broadband Transmission are as follows:

1. Baseband transmission is a data transmission technique in which one signal needs the whole bandwidth of the channel to transfer the data. In contrast, broadband transmission is a transmission technology in which many signals with different frequencies send data across a single channel at the same time.
2. Manchester and differential Manchester encoding are used in baseband. In contrast, broadband transmission does not utilize any digital encoding, but it utilizes the PSK (Phase shift keying) encoding.
3. Baseband transmission signals travel over shorter distances because attenuation is most noticeable at higher frequencies, which causes a signal to travel short distances without losing power. In contrast, the signals in broadband transmissions may travel across larger distances.
4. The baseband transmission utilizes digital signalling for signal transmission. In contrast, broadband transmission utilizes analog signalling for transmitting analog signals.
5. Another distinction between broadband and baseband transmission is the direction of signal transmission. Baseband transmission allows signals to be sent in both directions simultaneously. In contrast, broadband transmission allows signals to be sent in only one way.
6. Baseband transmission utilizes the bus topology. In contrast, broadband transmission utilizes both bus and tree topologies.
7. Baseband transmission utilizes time division multiplexing. In contrast, broadband transmission utilizes frequency division multiplexing.
8. Baseband transmission is simple and easy to install and maintain. In contrast, broadband transmission is complex to install and maintain.
9. Baseband transmission is less expensive to design. In contrast, broadband transmission is costly to design.

10. Baseband transmission contains a 50-ohm impedance. In contrast, broadband transmission contains a 70-ohm impedance.

4. What is the difference between a hub, modem, router and a switch?

Answer:-

Modem:	Stands for "modulating-demodulating": modems are hardware devices that allow a computer or another device, such as a router or switch, to connect to the Internet. They convert or "modulate" an analog signal from a telephone or cable wire to digital data (1s and 0s) that a computer can recognize. Simply send traffic from point A to piont B without further manipulation.
Routers:	Are responsible for sending data from one network to another. Work at Layer 3 (Network) of the OSI model, which deals with IP addresses. Typically, routers today will perform the functionality of both a router and a switch - that is, the router will have multiple ethernet ports that devices can plug into.
Switches:	They use the MAC address of a device to send data only to the port the destination device is plugged into. Work at Layer 2 (Data Link) of the OSI model, which deals with MAC addresses.
Hubs:	Unlike switches, hubs broadcast data to all ports, which is inefficient, so hubs are basically a multiport repeaters.

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

Answer:- Yes, that's because MAC addresses are hard-wired into the NIC circuitry, not the PC. This also means that a PC can have a different MAC address when the NIC card was replace by another one.

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

Answer:- Some network problems can arise from faulty hardware, such as routers, switches, firewalls, and even from unexpected usage patterns, like network bandwidth spikes, changes in app configuration, or security breaches

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

Answer:- 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.

Answer:-

Key	Static IP Address	Dynamic IP Address
Provider	Internet Service Provider, ISP provides the static IP Address.	DHCP (Dynamic Host Configuration Protocol) is used to generate dynamic IP Address.
Changes	Static IP address does not get changed with time.	Dynamic IP address can be changed any time.
Security	Static IP Address is less secured.	Dynamic IP address being volatile in nature is less risky.
Designation	Static IP address is difficult to assign or reassign.	Dynamic IP address is easy to assign and reassign.

Device tracking	Device using static IP address can be traced easily.	Device using dynamic IP address is difficult to trace.
Stability	Static IP address is highly stable.	Dynamic IP address is less stable than static IP address.
Cost	Static IP address is costly to maintain.	Dynamic IP address is cheaper to use and maintain than static IP address.

9. Discuss TCP/IP model in detail.

Answer:- TCP/IP stands for Transmission Control Protocol/Internet Protocol and is a suite of communication protocols used to interconnect network devices on the internet. TCP/IP is also used as a communications protocol in a private computer network (an intranet or extranet).The entire IP suite -- a set of rules and procedures -- is commonly referred to as TCP/IP. TCP and IP are the two main protocols, though others are included in the suite. The TCP/IP protocol suite functions as an abstraction layer between internet applications and the routing and switching fabric.

TCP/IP specifies how data is exchanged over the internet by providing end-to-end communications that identify how it should be broken into packets, addressed, transmitted, routed and received at the destination. TCP/IP requires little central management and is designed to make networks reliable with the ability to recover automatically from the failure of any device on the network.

The two main protocols in the IP suite serve specific functions. TCP defines how applications can create channels of communication across a network. It also manages how a message is assembled into smaller packets before they are then transmitted over the internet and reassembled in the right order at the destination address.

IP defines how to address and route each packet to make sure it reaches the right destination. Each gateway computer on the network checks this IP address to determine where to forward the message.

A subnet mask tells a computer, or other network device, what portion of the IP address is used to represent the network and what part is used to represent hosts, or other computers, on the network.

Network address translation (NAT) is the virtualization of IP addresses. NAT helps improve security and decrease the number of IP addresses an organization needs.

Common TCP/IP protocols include the following:

- Hypertext Transfer Protocol (HTTP) handles the communication between a web server and a web browser.
- HTTP Secure handles secure communication between a web server and a web browser.
- File Transfer Protocol handles transmission of files between computers.

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

Answer:- A web browser is a type of software that allows you to find and view websites on the Internet. Even if you didn't know it, you're using a web browser right now to read this page! There are many different web browsers, but some of the most common ones include Google Chrome, Safari, and Mozilla Firefox.

11. What is a search engine? Give example.

Answer:- A search engine is a web-based tool that enables users to locate information on the World Wide Web. Popular examples of search engines are Google, Yahoo!, and MSN Search. Search engines utilize automated software applications (referred to as robots, bots, or spiders) that travel along the Web, following links from page to page, site to site. The information gathered by the spiders is used to create a searchable index of the Web.

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

Answer:- The Internet is a global network of billions of computers and other electronic devices. With the Internet, it's possible to access almost any information, communicate with anyone else in the world, and do much more.

You can do all of this by connecting a computer to the Internet, which is also called going online. When someone says a computer is online, it's just another way of saying it's connected to the Internet.

The World Wide Web—usually called the Web for short—is a collection of different websites you can access through the Internet. A website is made up of related text, images, and other resources. Websites can resemble other forms of media—like newspaper articles or television programs—or they can be interactive in a way that's unique to computers.

The purpose of a website can be almost anything: a news platform, an advertisement, an online library, a forum for sharing images, or an educational site like us!

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

Answer:- The term “internet service provider (ISP)” refers to a company that provides access to the internet to both personal and business customers. ISPs make it possible for their customers to surf the web, shop online, conduct business, and connect with family and friends—all for a fee.

ISPs may also provide other services, including email services, domain registration, web hosting, and browser packages. An ISP may also be referred to as an information service provider, a storage service provider, an internet network service provider (INSP), or any combination of these three based on the services offered by the company.

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

Answer:-

S.NO	MAC Address	IP Address
1.	MAC Address stands for Media Access Control Address.	IP Address stands for Internet Protocol Address.
2.	MAC Address is a six byte hexadecimal address.	IP Address is either a four-byte (IPv4) or a sixteen-byte (IPv6) address.
3.	A device attached with MAC Address can retrieve by ARP protocol.	A device attached with IP Address can retrieve by RARP protocol.
4.	NIC Card’s Manufacturer provides the MAC Address.	Internet Service Provider provides IP Address.
5.	MAC Address is used to ensure the physical address of a computer.	IP Address is the logical address of the computer.
6.	MAC Address operates in the data link layer.	IP Address operates in the network layer.

S.NO	MAC Address	IP Address
7.	MAC Address helps in simply identifying the device.	IP Address identifies the connection of the device on the network.
8.	MAC Address of computer cannot be changed with time and environment.	IP Address modifies with the time and environment.
9.	MAC Addresses can’t be found easily by a third party.	IP Addresses can be found by a third party.
10.	It is a 48-bit address that contains 6 groups of 2 hexadecimal digits, separated by either hyphens (-) or colons(.). Example: 00:FF:FF:AB:BB:AA or 00-FF-FF-AB-BB-AA	IPv4 uses 32-bit addresses in dotted notations, whereas IPv6 uses 128-bit addresses in hexadecimal notations. Example: IPv4 192.168.1.1 IPv6 FFFF:F200:3204:0B00

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

Answer:- Step 1: Open the browser and click on the three dots and then History.

Step 2: Clicking on this will open up your browsing history, with the most recent pages you have visited first. You can scroll down the list.

Step 3: From this list you can click on any page displayed to revisit it. Alternatively if you click on the three buttons in the corner you get the options to Open history page or Clear browsing data.

Step 4: If you select Open history page you can search the history using a keyword in the Search box, or choose a date range. This is useful if you can remember the namke of the site, or approximately when you visited it.