Q1) What are the different types of networks?

Ans The different types of network are:

1) Personal Area Network (PAN).....
2) Local Area Network (LAN).....
3) Wireless Local Area Network (WLAN)....
4) Campus Area Network (CAN).....
5) Metropolitan Area Network (MAN)....
6) Wide Area Network (WAN).....
7) Storage - Area Network (SAN).....
8) System - Area Network (also known as SAN).....
9) Passive Optical Local Area Network (POLAN).....
10) Enterprise Private Network (EPN).....
11) Virtual Private Network (VPN).....

Q2 Explain the Shielded Twisted pair (STP) and Unshielded Twisted pair (UTP)?

Ans Shielded Twisted Pair Cables are cables that have been twisted

together and enclosed in some sort of shield, whether it be foil or mesh. These shield project the wires from electromagnetic interference. Shielded cables are particularly adept at eliminating most crosstalk.

UTP stands for Unshielded Twisted Pair cable .... This makes the cable small in diameter but unprotected against electrical interference. The twist helps to improve its immunity to electrical noise and EMI. UTP cable is a 100 ohm copper cable that consist of 2 to 1800 unshielded twisted pairs surrounded by an outer jacket. They have no metallic shield.

Q3) What is difference between baseband and broadband transmission?

Ans Difference between baseband and broadband transmission:

Technology

A baseband transmission is a single, fixed signal that uses the entire available bandwidth and uses the transmission medium as a single-channel device meaning only one station can transmit at a time, and all stations must transmit and receive the same type of signals. A broadband transmission, on the other hand, is a digital electrical transmission in which signals are modulated as radio frequency along waves that we different frequency ranges. Each transmission is assigned a portion of the total allocated bandwidth, therefore, multible transmission can be possible at the same time.

Communication

With baseband systems, communication is bi-directional which means the same channel is used to transmit and receive signals and each device shares the same channel. When one node transmit data, all the other nodes on the network must wait until the transmission ends before they can start sending data. Broadband communication, on the other hand, is undirectional meaning two different channels are needed in order to send and receive signals - one for sending and the other for receiving. Through frequency division multiplexing (FDM), multible independent channels can carry analog or digital information, depending on the interfaces.

Capacity

Baseband implies a single-channel digital system and this single channel carries information in packet or frames specified by the LAN standard in use. Baseband LANs are inexpensive and less complicated. The shielded twisted-pair cable offer more capacity than the twisted-pair baseband, but it's more expensive. The problem with baseband LANs is their limited capacity over a limited distance which is more than a couple milies. Broadband, on the other hand, LANs span much longer distances than baseband but the broadband system are generally more enpensive because of the additional hardware involved.

Q4) What is the difference between a hub, modem, router and

a switch?

Ans The differences between a modem, a router, a Switch and a hub:

Device	What is does
Modem:	Stands for "modulating-demodulating"; modems are hardware devices that allows a computer on another device, such as 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 point 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, router today will perform the functionally of both a router

and a switch- that is, the router will have multible 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.

Q5) When you move the NIC cards from one PC to another PC, does the MAC address get transferred as well?

Ans Yes, that is because MAC addresses are held-wired into the NIC circuitry, not the PC. This also means that a PC can have a different MAC address when the NIC cards was replace by another one.

Q6) While troubleshooting Computer networks problems, what common hardware-related problem can occur?

Ans A large percentage of a network ~~problems~~, is made up of

hardware. Problems in these areas can range from malfunctioning hard drives, broken NICs, and even hardware startups.

Q7) In a network that contains two servers and twenty workstations, where is the best place to install an Anti-virus program?

Ans The best solution is to install anti-virus on all the Computers in the network. This will protect each device from the other in case some malicious user tries to insert a virus into the servers or legitimate users.

Q8) Define Static IP and Dynamic IP? Discuss the difference between IPV4 and IPV6?

Ans When a device is assigned a static IP address, the address does not change. Most device use dynamic IP addresses, which are assigned by the network when they connect and change over time.

IPV4 and IPV6 are internet protocol version 4 and internet protocol version 6, IP version 6 is the new version of Internet Protocol, which is way better than IP version 4 in terms of complexity and efficiency.

Difference between IPV4 and IPV6

	IPV4	IPV6
1)	IPV4 has 32-bit address length.	IPV6 has 128-bit address length.

	IPV4	IPV6
2)	It supports Manual and DHCP address configuration.	It supports Auto and renumbering address configuration.
3)	In IPV4 end to end connection integrity is Unachievable.	In IPV6 end to end connection integrity is Achievable.
4)	It can generate 4.29×10^9 address space.	Address space of IPV6 is quite large it can produce 3.4×10^{38} address space.
5)	Security feature is dependent on application.	IPSEC inbuilt security feature in the IPV6 protocol.
6)	Address representation of IPV4 is in decimal.	Address Representation of IPV6 is in hexadecimal.
7)	In IPV4 checksum field is available.	In IPV6 checksum field is not available.

Q9) Discuss TCP/IP model in detail.

Ans TCP/IP Reference Model is a four-layered suit of communication protocols. It was developed by the DOD (Department of Defence) in the 1960s. It is named after the two main protocols that are used in the model, namely, TCP and IP. TCP stands for Transmission Control Protocol and IP stands for Internet Protocol.

The four layers in the TCP/IP protocol suite are -

1) Host-to-Network Layer

It is the lower layer that is concerned with the physical transmission of data. TCP/IP does not specifically define any protocol here but supports all the standard protocols.

2) Internet Layer

It defines the protocols for logical transmission of data over the network. The main protocol in this layer is Internet Protocol (IP) and it is supported by the protocols ICMP, IGMP, RARP and ARP.

3) Transport Layer

It is responsible for error-free end-to-end delivery of data. The protocols defines here are Transmission Control Protocol (TCP) and User Datagram Protocol (UDP).

4) Application Layer

This is the topmost layer are defines the interface of host programs with the transport layer services. This layer includes all high-level protocols like Telnet, DNS, HTTP, FTP, SMTP, etc.

Q10) What is a Web Browser (Browser)? Give some examples of Browser?

Ans A web browser, or browser for short, is a computer

software application that enables a person to locate, retrieve, and display content such as webpages, images, videos, as well as other files on the World Wide Web.

Browser work because every web page, image and video on the web has its own unique Uniform Resource Locator (URL), allowing the browser to identify the resource and retrieve it from the web server.

Examples:

The most popular web browsers are Google Chrome Microsoft Edge (formerly Internet Explorer), Mozilla Firefox and Apple's Safari. If you have a windows computer, Microsoft Edge (or its older counterpart, Internet Explorer) are already installed on your computer.

Q11) What is a search engine? Give example.

Ans A search engine is a web-based tool that enables users to locate information on the World Wide Web. Popular examples of search engine are Google, Yahoo! and MSN Search.... The information gathered by the spiders is used to create a searchable index of the web.

Q12) What is the internet and WWW? What are the uses of internet in our daily life?

Ans 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..... Once you are connected to the Internet, you can access and view websites using a type of application called a Web Browser.

Uses of Internet In Our Daily Life

1) Uses of Internet in Education

The internet is the great platform for students to learn throughout their lifetime. They can use the internet to learn new things and even acquire degrees through online education programs. Teachers can also use the internet to teach students around the world.

2) Use of the Internet for Shopping

With the help of the internet, anybody can order products online. The increase in online shopping has also resulted in companies offering a huge discount for their customers.

3) Internet for Research and Development

The internet plays a pivotal role in research and Development as it is propelled through internet research. The benefit of the internet is enjoyed by small businessman to big universities

4) Communication

Without a doubt, the internet is the most

powerful medium of communication. It connects people across different parts of the world free and fast.

5) Digital Transactions

The internet facilitates internet banking, and e-wallets. Since all digital transactions are stored in a database, it helps the government to track income tax or income report in the ITR.

Q13) What is an Internet Service Provider? Give some example of ISP in India.

Ans An Internet Service Provider (ISP) is a company such as AT and T, Version, Comcast, or Spectrum that provide internet access to companies, families, and even mobile users. ISPs use fiber-optics, satellite, copper wire, and other form to provide Internet access to its customers.

The type of internet access varies depending on what the customer requires. For home use, cable or DSL (digital subscriber line) is the perfect, affordable choice. The price of home use can range anywhere from free to roughly $120 a month. The amount of bandwidth is usually what drives the price. Bandwidth is the amount of data that can be sent through an internet connection in a given amount of time. The speed for home use usually varies from 14 kilobits per second to 100 megabytes per second. For large companies and organizations, their bandwidth requirements may be 1 to 10 gigabits per second, which is

both insanely fast and expensive!

The examples of some internet service providers are BSNL, Hathway, Tata teleservices, Verizon, Reliance Jio, ACT Fibernet and many more working in India as well as worldwide. Internet service providers or ISP are responsible for providing services for using the Internet.

Q14) Discuss the difference between MAC address, IP address and Port address.

Ans The difference between MAC address and IP address:

	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 bytes hexadecimal address.	IP Address is either four byte (IPv4) or eight 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.

	MAC Address	IP Address
5)	MAC Address is used to ensure the physical address of 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.
7)	MAC address help in simply identifying the device.	IP address identifies the connection of the device on the network.
8)	MAC address of Computer cannot be changed ~~the~~ with time and environment.	IP address modifies with the time and environment.
9)	MAC address can't be found easily by third party.	IP address can be found by third party.

Q15) How do we view my internet browser's history?

Ans In any chrome window, use the keyboard shortcut Ctrl+H, or navigate to the URL chrome://history. Or, click the Menu button, which is located near the top-right side of the browser window, and choose History, the History again.