

DATA COMMUNICATION

1. What are the different types of networks?

Personal area network (PAN) Local area network (LAN) Wireless local area network (WLAN) Campus area network (CAN) Metropolitan area network (MAN) Wide area network (WAN) Storage area network (SAN) System area network (SAN) Passive optical local area network (POLAN) Enterprise private network (EPN) Virtual private network (VPN).

2. Explain the shielded twisted pair (STP) and unshielded twisted pair (UTP)?

Shielded twisted pair (STP) has the individual pairs of wires wrapped in foil, which then wrapped again for double protection. Unshielded twisted pair (UTP) has each pair of wires twisted together. Those wires are then wrapped in tubing without any other protection. UTP cables are less expensive and a more popular type of cabling.

3. What is the difference between baseband and broadband transmission?

Baseband transmission	Broadband transmission
Digital signaling	Analog signaling
Frequency division multiplexing is not possible	Frequency division multiplexing is possible
Baseband is bi-directional transmission	Transmission of data is unidirectional
Short distance signal travelling	Signal travelling distance is long
Entire bandwidth is for single signal transmission	Simultaneously transmission of multiple signals over different frequencies.

Example: ethernet is using basebands for LAN	Example: used to transmit cable TV to premises
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4. What is the difference between a hub, modem, router and a switch?

Hub	Modem	Router	Switch
Connects a network of personal computers together so they can be joined through a central hub	Modems like routers connects home PCs to the internet	Joins multiple area networks (CAN and WAN) serving as “middle man” or intermediate destinations for network traffic. Using the IP they forward data to specific destination	Joins several computers together within one local area network. They cannot join multiple networks and are incapable of sharing an internet connection
Device type: passive device	Device type: internetworking device	Device type: networking device	Device type: active device
Network used is LAN	Network used is LAN and WAN	Network used is LAN and WAN	Network used is LAN
Sophistication level is low	Sophistication level is high	Sophistication level is high	Sophistication level is medium

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

Yes, it moves because the 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 another one replaced the NIC card.

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

A large percentage of a network is made up of hardware. Problems in these areas can range from malfunctioning hard drives, broken NICS and even hardware startups.

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

The best solution is to install antivirus on all the computers in the network.

8. Discuss static IP and dynamic IP? Discuss the difference between IPV4 and IPV6?

Static IP address is provided by internet service provider and remains fixed till the system is connected to the network.

Dynamic IP address is provided by DHCP, generally a company gets a single static IP address and then generates the dynamic IP address for its computers within the organizations network.

IPV4	IPV6
IPV4 has a 32-bit address length	IPV6 has a 128-bit address length
In IPV4 end to end connection integrity is unachievable	In IPV6 end to end connection integrity is achievable
Address representation of IPV4 is in decimal	Address representation of IPV6 is in hexadecimal
In IPV4 checksum field is available	In IPV6 checksum field is not available
IPV4 has a header of 20-60 bytes	IPV6 has a header of 40 bytes fixed

Encryption and authentication facility not provided	Encryption and authentication facility are provided
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9. Discuss TC/IP model in detail?

The TCP/IP model is a compressed version of the OSI model. This model contains 4 layers unlike the OSI model which are:

- Process (application layer)
- Host to host (transport layer)
- Internet layer (network layer)
- Network access (combination of physical and data link layer)

Protocols for application layer HTTP, FTP, Telnet, SMTP, DNS

Transport layer: TCP, UDP

Internet: IP

Network interface: Ethernet, Token ring, outer link layer protocols.

10. What is a web browser (browser)? Give some examples of browsers.

A web browser or simply a 'browser' is an application used to access and view websites. Common web browsers include Microsoft internet explorer, google chrome, Mozilla Firefox and apple safari. The primary function of a web browser is to render HTML, the code used to design or "markup" web pages.

11. What is search engine? Give example.

A search engine is a platform on which a user can search the internet content. Google, Yahoo, Bing, Baidu and DuckDuckGo are

popular search engines. Google is one of the most used search engines worldwide that is used with the chrome browser.

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

The internet is the network of connected computers that the web works on, as well as what emails and files travel across.

The world wide web or web for short are the pages you see when you are at a device and you are online. The world wide web contains the things you see on the roads like houses and shops.

Importance of internet

- Use of internet in education.
- It is used to speed up daily tasks.
- Use of the internet for shopping.
- Internet for research and development.
- Digital transactions.
- Money management.
- Tour and travel.

13. What is an internet service provider? Give some examples of ISP in India?

An internet service provider is a company that provides you with access to the internet, usually for a free. The most common way to connect an ISP are by using a phone line (dial up) or broadband connection.

Example: Hathway, BSNL, Tata teleservices, Verizon reliance jio, ACT fiber net and many more.

14. Discuss the difference between MAC address, IP address and port address?

MAC address	IP address	Port address
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It is a 6-byte hexadecimal address	It is a 4-byte (IPV4) or 8-byte (IPV6) address	The port number is 16 bits
MAC address is used to ensure the physical address of a computer	IP address is the logical address of the computer	Port address is the logical address of each application
MAC address operates in the data link layer	IP address operates in the network layer	Port address operates in the application or transport layer
MAC address sharing is not allowed	In IP address multiple clients can share IP address	Port sharing can be configured to distribute HTTP requests across multiple z/OS connect EE servers in a single LPAR

15. How to view my internet browsers history?

- Open google chrome.
- In the upper right corner, tap the icon.
- Select history from the dropdown menu.
- Clicking on the history will take you to the search history.
- Review your browsing history. You can scroll down your browsing history to items from earlier in your history.