

## CCA-102: Data Communications

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

- Personal Area Network (PAN)
- Local Area Network (LAN)
- Metropolitan Area Network (MAN)
- Wide Area Network (WAN)
- Wireless LAN (WLAN)
- Virtual Private Network (VPN)
- Storage Area Network (SAN)
- Enterprise Internal Private Network.
- Campus Area Network.
- System Area Network.

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

The difference between UTP and STP is **UTP (Unshielded twisted pair)** is a cable with wires that are twisted together to reduce noise and crosstalk. On the contrary, **STP (Shielded twisted pair)** is a twisted pair cable confined in foil or mesh shield that guards the cable against electromagnetic interference.

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

The prior difference between baseband transmission and broadband transmission is that in the baseband transmission the whole bandwidth of the cable is utilized by a single signal. Conversely, in the broadband transmission, multiple signals are sent on multiple frequencies simultaneously using a single channel.

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

#### Hub

Hub is commonly used to connect segments of a LAN (Local Area Network). A hub contains multiple ports.

#### Switch

A switch operates at the data link layer (layer 2) and sometimes the network layer (layer 3) of the OSI (Open Systems Interconnection) Reference Model and therefore support any packet protocol.

## Router

A router is connected to at least two networks, commonly two LANs or WANs (Wide Area Networks) or a LAN and its ISP.s (Internet Service Providers) network.

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

**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?

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 start-ups. Incorrectly hardware configuration is also one of those culprits to look into.

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

Antivirus software on the servers and at the endpoint workstations. This software should be centrally managed to keep end users updated constantly and to minimize user meddling with the settings. Good antivirus will also protect email clients.

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

Dynamic means "constantly changing." The prefix dyna means power; however, dynamic IP addresses aren't more powerful, but they can change (or be changed).

Static means staying the same. Static. Stand. Stable. Yes, static IP addresses don't change.

IPv4	IPv6
IPv4 has 32-bit address length	IPv6 has 128-bit address length
It Supports Manual and DHCP address configuration	It supports Auto and renumbering address configuration

**9. Discuss TCP/IP model in detail.**

- The TCP/IP model was developed prior to the OSI model.
- The TCP/IP model is not exactly similar to the OSI model.
- The TCP/IP model consists of five layers: the application layer, transport layer, network layer, data link layer and physical layer.
- The first four layers provide physical standards, network interface, internetworking, and transport functions that correspond to the first four layers of the OSI model and these four layers are represented in TCP/IP model by a single layer called the application layer.
- TCP/IP is a hierarchical protocol made up of interactive modules, and each of them provides specific functionality.

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

A web browser is a software program that allows a user to locate, access, and display web pages. In common usage, a web browser is usually shortened to "browser."

e.g. google chrome, Firefox, Microsoft edge

**11. What is a search engine? Give example.**

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.**

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

The internet is a **globally connected network system** that uses TCP/IP to transmit data via various types of media.

The uses of internet in our daily life are very important. We use the internet for almost everything, especially in online education, sharing a moment with a friend by sending a photo through instant messaging, order a pizza or buy a television, etc.

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

ISPs are companies that provide Internet access to its customers like any company, mobile user etc.

e.g. airtel, Jio, BSNL

**14. Discuss the difference between MAC address, IP address and Port 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 four-byte (IPv4) or six-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.

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

- Select Settings > Privacy, search, and services.
- Under Clear browsing data, select Choose what to clear.
- Choose a time range from the Time range drop-down menu.
- Select Clear now.