# Networking Questions

## 1. What is Computer Networking?

It is the process of creating and using wired or wireless networks for exchanging information, ideas, files and other electronic communication.

## 1. What is Peer to Peer network?

The P2P network is a distributed and decentralized network where individual nodes i.e. Peers in the networks act as both suppliers and consumers of the resources.

## 2. What is backbone network?

A backbone network is a centralized infrastructure that is designed to distribute different routes and data to various networks. It also handles management of bandwidth and various channels.

## 3. What is VPN?

VPN means Virtual Private Network, a technology that allows a secure tunnel to be created across a network such as the Internet. For example, VPNs allow you to establish a secure dial-up connection to a remote server.

**4. Briefly describe NAT.**

NAT is Network Address Translation. This is a protocol that provides a way for multiple computers on a common network to share single connection to the Internet.

**5. What does Protocol mean?**

Protocol is defined as the rules that connect two or more devices to transfer the information from one device to another. It helps to know how data is being transferred from one network to another network for communication.

**6. What is OSI reference model?**

OSI is a reference model that tells how information and data are communicated over a network. It is a conceptual framework that understands the relationships of transmission.

**7. What are the different layers of OSI model?**

Basically, there are 7 layers of OSI model. Each layer has its own functionality in the OSI model. They are:

Layer 1 – Physical
Layer 2 – Data Link Layer
Layer 3 – Network
Layer 4 – Transport
Layer 5 – Session
Layer 6 – Presentation
Layer 7- Application

**8. What is a Switch and why we are using Switches?**

Switch is used to receive the signal to create a frame. It forwards the packets between various LAN segments. It supports packet control when the data is sent to Data Link layer or Network layer of the OSI model. While sending packets, a signal gets enabled and gets accessed by reading the destination address and forwards the frame to appropriate frame, hence we use switches.

**9. What are Routers?**

Routing is the process to find the path on which the information or data can pass from the source to its destination. The device by which routing is done is called Routers.

**10. What is the difference between Switch, Routers, and Hub?**

Switch is used to receive the signal to create a frame. It forwards the packets between various LAN segments. It is the platform for packet

control when the data is sent at a Data Link layer or Network layer of the OSI model. It supports single broadcast domain and multiple collision domains.

Routers is a networking gateway device that is used to forward data packets to the computer networks. A router is connected by at least a single LAN with its IP address or with LAN or WAN. A router supports two broadcast domains.

Hub, if anything comes in its port then it sends it out to the others. It is less expensive and least complicated. It has a single collision domain and single broadcast domain.

**11. What is Half duplex and Full duplex?**

- In half-duplex, transmission of information or communication is from one direction only.

  Example: Walkie-talkie

- In full duplex, transmission of information or communication is from both the directions.
  Example: Talking on the telephone.

**12. What is the difference between LAN, MAN, and WAN?**

LAN, It is a local area network where computers and network devices are connected with each other, usually within the same area or building. Connections in LAN must be of high speed.
Example: Ethernet

MAN

It is metropolitan area network where the networks are connected widely within several buildings in the same city.
Example: The IUB Network

WAN

It is a wide area network where the networks are limited to one enterprise or organization and can be accessed by the public. It connects

several LANs. Connection in WAN is high speed and expensive too.
Example: Internet.

**13. Define IPv4 Address?**

Internet Protocol (IP Address) is a 32-bits to 128-bits identifier for a device on TCP/IP protocol. IP address of a device must be uniquely defined for communication.
It has 2 principal functions which include host and location address. And it has two versions which are IPv4 (32-bits) and IPv6 (128-bits).

**14. Define IPv6 Address**

An Ipv6 address uses 128 bits as opposed to 32 bits in IPv4. IPv6 addresses are written using hexadecimal, as opposed to dotted decimal in IPv4. Because an hexadecimal number uses 4 bits this means that an IPv6 address consists of 32 hexadecimal numbers. These numbers are

grouped in 4’s giving 8 groups or blocks. The groups are written with a : (colon) as a separator.

**15. What is the difference between static IP addressing and dynamic IP addressing?**

Static IP addresses are reserved and they don't change over time while dynamic IP addresses can be changed each time you connect to the internet. Static IP addresses are given manually while dynamic IP addresses are provided by DHCP server.

**16. In how many ways can data be transferred in CCNA?**

Ans: Data can be transferred in 3 ways:

- Simplex
- Half-duplex
- Full-duplex

## 17. What is the difference between Unicast, Multicast, Broadcast, and Anycast?

Unicast: It is the exchange of messages between a single source and a single destination. In Unicast, while sending packets from a sender, it contains data address of the receiver so that it can go there directly.

Broadcast: It is the exchange of messages between one sender to possible multiple receivers. It works only on a local network. Broadcasting of data can't be done on the public internet due to a massive amount of unrelated and unnecessary data.

Multicast: It is the exchange of messages between one sender and multiple receivers. In multicast, the network settings determine your receiving clients and sort of broadcasting.

Anycast: It is the exchange of messages between one host to another host. It uses TCP and UDP

protocol. Copy of each data packet goes to every host that requests it.

### 18. What is NIC?

NIC is short for Network Interface Card. This is a peripheral card that is attached to a PC in order to connect to a network. Every NIC has its own MAC address that identifies the PC on the network.

### 19. What are the different types of network in CCNA?

There are two types of network:

- Server-based network
- Peer-to-Peer network

### 20. What is a Network subnet?

Ans: It is the subdivision of an IP address which is divided into two parts such as the network prefix and the host identifier.

**21. Can IP address be assigned to Layer 2?**

No, IP addresses cannot assign to Layer2.

**22. What is PING used for?**

PING is packet Internet groper. It is used to test the reachability of a host on an Internet protocol (IP) network. When any data is sent via the network through the IP addresses, then it will PING the receiver to receive the data from the sender.

**23. What are the different class and ranges of IP address?**

There are 5 different classes of IP address:

| Class | Range |
|---|---|
| A | 1-126 |
| B | 127-191 |
| C | 192-223 |
| D | 224-239 |

E 240-254

**24. What is Private IP and Public IP? Range of Private IP address.**

Private IP used within the local LAN and Public IP used across the Internet.

- Class-A: 10.0.0.0/8 IP addresses: 10.0.0.0 – 10.255.255.255
- Class-B: 172.16.0.0/12 IP addresses: 172.16.0.0 – 172.31.255.255
- Class-C: 192.168.0.0/16 IP addresses: 192.168.0.0 – 192.168.255.255

**25. Define Network Topology.**

It is an arrangement of elements in a specific order. The various types of Topology include:

- Bus
- Star
- Mesh
- Ring

- Hybrid
- Tree

**26. Define MAC Address.**

MAC address is Media Access Control address. It is stored in ROM and is uniquely defined. It is identified as Media Access Control layer in the network architecture.

**27. What does 10Base-T mean?**

The 10 refers to the data transfer rate, in this case is 10Mbps. The word Base refers to base band, as oppose to broad band. T means twisted pair, which is the cable used for that network.

**28. What is NOS?**

NOS, or Network Operating System, is specialized software whose main task is to provide network connectivity to a computer in

order for it to be able to communicate with other computers and connected devices.

### 29. What is DoS?

DoS, or Denial-of-Service attack, is an attempt to prevent users from being able to access the internet or any other network services. Such attacks may come in different forms and are done by a group of perpetuators. One common method of doing this is to overload the system server so it cannot anymore process legitimate traffic and will be forced to reset.

### 30. What are firewalls?

Firewalls serve to protect an internal network from external attacks. These external threats can be hackers who want to steal data or computer viruses that can wipe out data in an instant. It also prevents other users from

external networks from gaining access to the private network.