

- 1) What are the three types of IPv4 addresses, and how are they used?
- 2) How does network segmentation improve network performance?
- 3) What problem in IPv4 Addressing led to develop IPv6?
- 4) What are main components of IPv6 Address format?
- 5) Explain the difference b/w static and dynamic IP Addressing.
- 6) What is the difference b/w IPv4 unicast, broadcast & multicast?
- 7) What role does DHCP play in Assigning IP Address in network.
- 8) How does Network Address Translation (NAT) work in a network boundary.
- 9) What is the primary function of gateway in connecting different networks.
- 10) How does IPv6 improve upon the limitations of IPv4.

① The three types of IPv4 addresses are:-

- 1) unicast
- 2) multicast
- 3) Broadcast

Refers to one-to-one communication. unicast.

Refers to one-to-all communication Broadcast.

Refers to one-to-many communication multicast.

2) Network segmentation improve the performance in the network by breaking large networks into smaller manageable networks.
→ Allows more efficient traffic management.
It is very helpful while we want to understand easily.

③ The problem in IPv4 is

→ There is no limited address ^{space} to store.

→ Due to more connection of devices to IPv4 it is running slowly.

→ less security

4) The main components of IPv6 are

→ 128-bit-length :- Divided into the 16-blocks.

→ Identify the new part of address in from first. 64 bits.

→ last 64-bits identify interface identifiers.

5) static:- manually Assigned and constant

→ suitable for servers, Router etc

Dynamic:- It is not manually Assigned.

→ not suitable for servers, Router etc easily.

→ Automatically Assigned by DHCP.

6) Difference b/w IPv4 unicast, broadcast, multicast.

Unicast:- Data sent from one source to Destination. (PC to specific server).

Broadcast:- Data sent from one to different Destinations. (A message to different users).

multicast:- Data sent from one to many Destinations. (streaming videos to multiple users).

7) DHCP (Dynamic Host Configuration Protocol)

→ Prevent IP conflicts

→ like subnet mask, gateway

→ It will not allow other IP Address while one is in Active.

8) NAT is a technique used to ~~transfer~~ Transfer Private IP Address into unique Public IP Address -ss. And it allows multiple devices to network for sharing internet connection.
(Network Address Translation (NAT))

9) A gateway connects different networks by translating the communication b/w different protocols.

→ It acts as entry & exit point

→ Allowing the traffic from one n/w (nw) flow to another.

10) The IPv6 improves upon the limitations of IPv4 by overcoming the disadvantages & best features then IPv4 and getting better version then IPv4