Interview Questions

IPV4 Addressing

Q1. What are the different particular IP addresses? **(Cisco)**

Answer: Below are multiple unique IP addresses and Their roles:

IP Address	Description
127.0.0.1	Loopback Address
0.0.0.0	Non-routable addresses describing invalid or unknown destinations
255.255.255.255	Limited Broadcast address
xxx.255.255.255 xxx.xxx.255.255 xxx.xxx.xxx.255	Directed broadcast address

Q2. What is a private IP? What is the range set for private IP? **(Dell)**

Answer: A dedicated IP address is a series of non-Internet IP addresses used on the internal network. Private IP addresses are provided by network devices (such as routers) through network address translation. The range for private IP addresses are:
Class A: 10.0.0.0 — 10.255.255.255
Class B: 172.16.0.0 — 172.31.255.255
Class C: 192.168.0.0 — 192.168.255.255

Q3. How is Public IP different from private IP? Can we access other networks Using their public IP? **(Cisco)**

Answer: Your private IP address exists in the specified remote IP address range reserved by the Internet Assigned Numbers Authority and should not appear on the Internet. There are millions of private networks globally, and all of these networks contain devices assigned personal IP addresses within these ranges. Yes, that is how the Internet works; we access other systems using their public IPs.

Q4. What is Ping utility? What protocol does ping work on and on which layer of the OSI model? **(Arista)**

Answer: Ping is a command-line utility used on almost any operating system with a network connection to test whether it can access networked devices. The ping command sends a request to a specific device over the network. A successful ping will cause the computer to ping the original computer to respond. Ping works using ICMP protocol and works on layer 3.

Q5. What is the Process of DHCP? How does it work?

Answer: Dynamic Host Configuration Protocol (DHCP) is a network management protocol used to automatically configure devices on an IP network, allowing them to use network services, such as DNS, NTP, and any communication protocol based on UDP or TCP. The DHCP server dynamically assigns IP addresses and other network configuration parameters to each device on the network to communicate with other IP networks.
The following factors can measure the reliability of a network:

- **Discover:** The client discovers DHCP
- **Offers:** The DHCP server provides a set of IPs for the client to choose any
- **Request:** The client selects an IP and asks for a DHCP confirmation
- **Acknowledgment:** The DHCP server sends a DHCP ACK execution confirmation to the client.

Q6. Your router has the following IP address on Ethernet0: 172.16.2.1/23. Which of the following can be a valid host ID on the LAN interface connected to the router? **(Wipro)**

Answer: 172.16.2.255. The IP address of the E0 interface router is 172.16.2.1/23, which is 255.255.254.0. This makes the block size of the third octet 2. The router interface is on

subnet 2.0, and the broadcast address is 3.255 because the next subnet is 4.0. The valid host range is 2.1 to 3.254. The router is using the first valid host address in the content.

Q7. What is the maximum number of IP addresses assigned to a host on the local subnet using a subnet mask of 255.255.255.224? **(TCS)**

Answer: 30. A / 27 (255.255.255.224) has 3 bits on and 5 bits off. This provides eight subnets, each with 30 hosts. Is it essential to use this mask with class A, B, or C network addresses? Not at all. The number of host bits will never change.

Q8. How many subnets and hosts do the network address 172.16.0.0/19 provide? **(Infosys)**

Answer: 8 subnets, 8,190 hosts each. The CIDR address of /19 is 255.255.224.0. This is a Class B address, so it has only three subnet bits, but it provides 13 host bits or eight subnets, each with 8,190 hosts.