How to prepare for Networking Interview Questions in 2023?

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The knowledge of Networking is the most crucial requirement for every interview. Often, these questions seem really easy, but turn up to be confusing when you go on to answer them. In this article, you will be learning some of the most important Networking Interview Questions along with the answers.

To begin with, here are the ten most important Networking Interview Questions:

Q1. Differentiate between a router, a hub, and a switch.

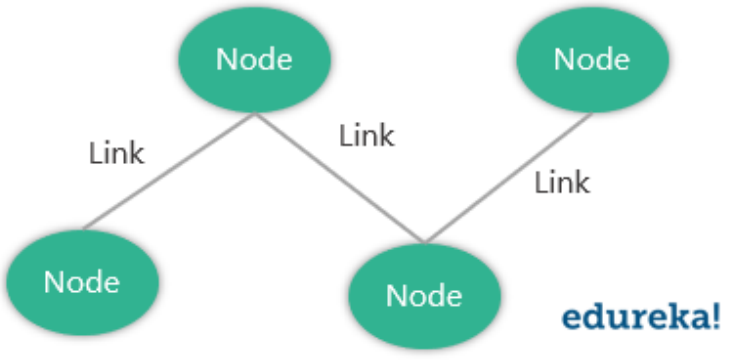
HUB	SWITCH	ROUTER
Connects two or more Ethernet devices	Connects two or more LAN devices	Can connect devices or a LAN and WAN
Does not perform filtering	Filters packets before forwarding them	Highly configured to filter and send packets
Least intelligent, least expensive and least complex	Similar to a hub, but more effective	Extremely smart and complex

Q2. What is a link?

A link basically is the connection between two or more computers or devices. It can be anything depending on whether it is a physical connection or a wireless one. Physical links include cables, hubs, switches, etc and wireless links wireless access points, routers, etc.

Q3. What do you mean by a Node?

The point of intersection in a network is called a Node. Nodes can send or receive data/ information within a network. For example, if two computers are connected to form a network, there are 2 nodes in that network. Similarly, in case there are computers, there will be three nodes and so on. It is not necessary for a node to be a computer, it can be any communicating device such as a printer, servers, modems, etc.



Q4. What does a backbone network mean?

In any system, backbone is the most principle component that supports all other components. Similarly, in networking, a

Ring Topology	Each node connects to exactly two other nodes
Mesh Topology	Each node is connected to one or more nodes
Tree Topology (Hierarchical Topology)	Similar to star topology and inherits the bus topology
Daisy Chain Topology	All nodes are connected linearly
Hybrid Topology	Nodes are connected in more than one topology styles
Point-to-Point Topology	Connects two hosts such as computers, servers, etc

Q6. Explain what is LAN?

A LAN or Local Area Network the network between devices that are located within a small physical location. It can be either wireless or wired. One LAN differs from another based on the following factors:

- Topology: The arrangement of nodes within the network
- Protocol: Refer to the rules for the transfer of data
- Media: These devices can be connected using optic fibers, twisted-pair wires, etc

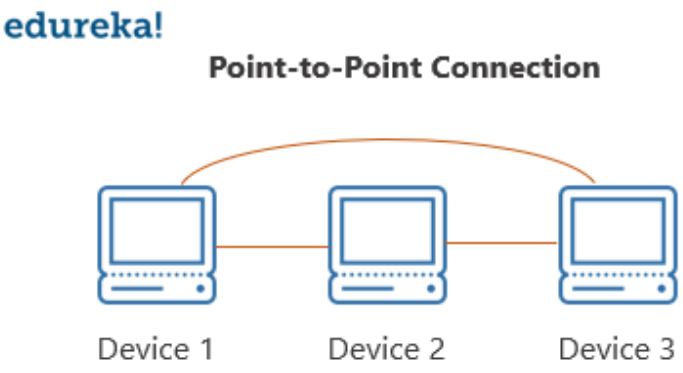
Q7. What are Routers?

A router is some device that transfers the data packets within a network. It basically performs the traffic directing functions within a network. A data packet can be anything such as an email, a web page, etc. Routers are located at the place where two or more networks meet or the gateways.

Routers can either be stand-alone devices or virtual. Stand-alone routers are traditional devices where as virtual routers are actually softwares that act like physical ones.

Q8. What is a Point-to-Point Network?

A Point-to-Point network refers to a physical connection between two nodes. It can be between any device of a network such as a computer, printer, etc.



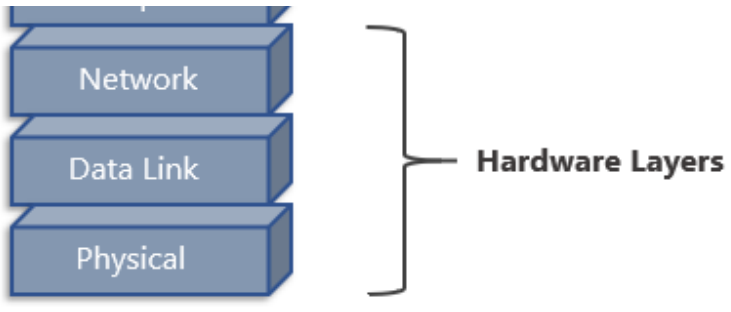
For example, as you can see in the above diagram, all the nodes are connected to each other i.e Device 1 is connected to Device 2 and Device 3 , Device 2 is connected to Device 3 and Device 1 and Device 3 is connected to Device 2 and Device 1 using physical links.

Q9. What is OSI Model?

OSI stands for Open Systems Interconnection. It is a conceptual model that standardizes communication functions of telecommunication. It has 7 layers which are:

1. Physical Layer
2. Data Link Layer
3. Network Layer
4. Transport Layer

5. Session Layer
6. Presentation Layer
7. Application Layer



Q10. Give a brief about each layer in the OSI Model.

Layer Name	Protocol	Description
Physical Layer	Symbol	Transfers raw bits of data over a physical link
Data Link Layer	Frame	Reliable transmission of data frames between nodes connected by the physical layer
Network Layer	Packet	Structures and manages a network with multiple nodes including addressing, routing and traffic control
Transport Layer	Segment, Datagram	Reliable Transmission of data packets between the different points of a network
Session Layer	Data	Manages the communication sessions
Presentation Layer	Data	Transmission of data between the service device and the application
Application Layer	Data	Specifies the shared communication protocols and the interface methods

To learn about Network Programming in Java and Python in detail refer to the following blogs:

- Socket Programming in Java
- Socket Programming in Python

Q11. What do you mean by anonymous FTP?

An anonymous FTP is a way of allowing a user to access data that is public. The user does not need to identify himself to the server and has to log in as anonymous.

So in case you are asked to use anonymous ftp, make sure you add “anonymous” in place of your user id. Anonymous FTPs are very effective while distributing large files to a lot of people, without having to give huge numbers of usernames and password combinations.

Q12. What is the meaning of Network?

A network is a connection between different devices. These devices communicate with each other using physical or wireless connections. Physical connections include twisted pair cables, optic fibers, and coaxial cables..wireless networks can be established with the help of waves such as radio waves infrared waves and microwaves
Networks basically serve many purposes such as:

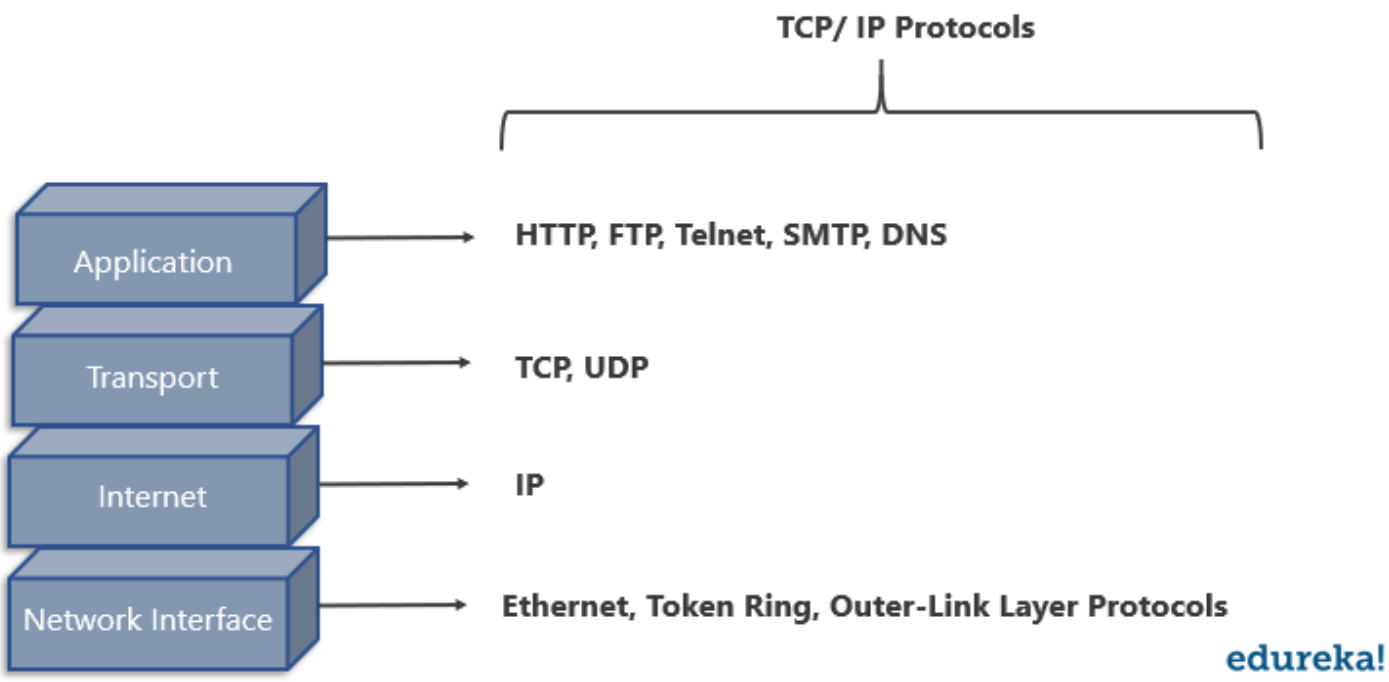
- Sharing hardware devices such as printers, input devices, etc
- Help in communications in many ways such as audios videos emails messages etc
- Help in sharing data and information using virtual devices

network and to the broadcast address, and this is why they cannot be assigned to any host.

Q14. Give a brief description of the TCP/ IP Model.

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

1. Process(Application Layer)
2. Host-to-Host(Transport Layer)
3. Internet Layer (Network Layer)
4. Network Access(Combination of Physical and Data Link Layer)



Q15. What is the difference between the OSI Model and TCP/ IP Model?

TCP/ IP Model	OSI Model
Has four layers	Has seven layers
More reliable	Less reliable
No strict boundaries	Has strict boundaries
Horizontal Approach	Vertical Approach

Q16. What is a UTP cable?

A UTP cable is a 100 ohms cable made up of copper. It consists of 2-1800 unshielded twisted pairs that are surrounded by a non-metallic case. These twists provide immunity to electrical noise and EMI.

Q17. What is the maximum length allowed for a UTP cable?

The maximum length allowed for a UTP cable is 100m. This includes 90 m of solid cabling and 10m of standard patch cable.

Q18. Explain what is HTTP and which port does it use?

HTTP or HyperText Transfer Protocol allows communication over the Internet. This protocol basically defines how messages are to be transmitted and formatted over the world wide web. HTTP is a TCP/ IP protocol and it uses the port number 80.

Features of HTTP Protocol:

- It is connection-less
- Does not depend on the type of connecting media
- Stateless

broken down into packets that can be delivered over a network. It also sends and receives packets to and from the network layer and is in charge of flow control, etc.

Q21. Give a brief explanation about UDP?

UDP or the User Datagram Protocol is used to create a low-latency and loss-tolerating communications between applications connected over the internet. UDP enables process-to-process communication and communicates via datagrams or messages.

Q22. Differentiate between TCP and UDP.

Factor of comparison	TCP	UDP
Connection	Connection made before application messages are exchanged	Connection not made before application messages are exchanged
Use	For applications needing more reliability and less speed	For applications needing more speedy and less reliability
Use by Protocols of the Application Layer	File transfer, e-mail, etc	Multimedia, DNS
Reliability	Messages will be delivered in order and without errors	No guarantee that the messages will be delivered in order and without errors
Data Segments	Data segments rearranged in required order	All segments are independent, therefore has no inherent order specification
Acknowledgment	ACK is received	ACK is not received
Flow Control	Has the congestion control mechanism	No flow control option
Check for Errors	Resends erroneous segments	Discards Erroneous segments

Q23. What is RIP?

RIP (Routing Information Protocol) is a dynamic routing protocol. It makes use of hop count as its primary metric to find the best path between the source and the destination. It works in the application layer and has an AD (Administrative Distance) value of 120.

Q24. Explain what is a firewall?

A firewall is a network security system which is used to monitor and control the network traffic based on some predefined rules. Firewalls are the first line of defense and establish barriers between the internal and external networks in order to avoid attack from untrusted external networks. Firewalls can be either hardware, software or sometimes both.

WAN

Q25. Explain what is NOS?

A Network Operating System (NOS) is an Operating System that is designed to support workstations, databases, personal computers, etc over a network. Some examples of NOS are MAC OS X, Linux, Windows Server 2008, etc. These Operating Systems provide various functionalities such as processor support, multiprocessing support, authentication, Web services, etc.

Q26. Explain what is Denial of Service (DoS)?

Denial of Service (DoS) is a kind of attack that prevents a legitimate user from accessing data over a network by a hacker or an attacker. The attacker floods the server with unnecessary requests in order to overload the server thereby preventing the legitimate users from accessing its services.

Q27. What is the full form of ASCII?

ASCII stands for American Standard Code for Information Interchange. It is a character encoding standard used in the electronic communication field. The ASCII codes basically represent text.

Q28. What is IEEE?

IEEE stands for **I**nstitute of **E**lectrical and **E**lectronics **E**ngineer. It is the world's largest technical professional society and is devoted to advancing innovation and technological excellence.

Q29. What is a MAC address and why is it required?

MAC or Media Access Control address is a computer's unique number assigned to a Network Interface Controller (NIC). It is a 48-bit number that identifies each device on a network and is also referred to as the physical address. MAC addresses are used as a network address for communications within a network such as an Ethernet, Wi-Fi, etc.

Q30. What is piggybacking?

During transmission of data packets in two-way communication, the receiver sends an acknowledgment (control frame or ACK) to the receiver after receiving the data packets. However, the receiver does not send the acknowledgment immediately, but, waits until its network layer passes in the next data packet. Then, the ACK is attached to the outgoing data frame. This process of delaying the ACK and attaching it to the next outgoing data frame is known as piggybacking.

Q31. Explain what is DNS?

DNS or Domain Name System is a naming system for devices connected over the internet. It is a hierarchical and decentralized system that translates domain names to the numerical IP Addresses which is required to identify and locate devices based on the underlying protocols.

All devices connected to the internet have unique IP addresses which are used to locate them on the network. The process involves conversion on hostnames into IP addresses. For example, in case the user wants to load some web page (xyz.com), this hostname is converted into an IP address that can be understood by the computer in order to load that web page.

Q32. Differentiate between Domain and a Workgroup.

Domain	Workgroup
Has one or more computer acting as a server	All computers are peers
Has a centralized database	Each computer has its own database
Computers can be on different LANs	All computers are on the same LAN

Q33. What is OSPF?

OSPF stands for Open Shortest Path First. It is basically a routing protocol that is used to find the best path for packets that are

assign IP addresses thereby reducing errors.

Q36. Briefly explain what is ICMP?

ICMP stands for Internet Control Message Protocol and is a part of the Internet Protocol Suite. It is basically a supporting protocol to the Internet protocol and is used to send error messages and information regarding the success or failure of communication with another IP address. For example, if a service is not available an error is reported.

Q37. What is a Ping?

A ping is a computer program that is used to test the reachability of a host and check if can accept requests on an IP network. It works by sending an ICMP (Internet Control Message Protocol) Echo to some computer on the network and waits for a reply from it. It can also be used for troubleshooting.

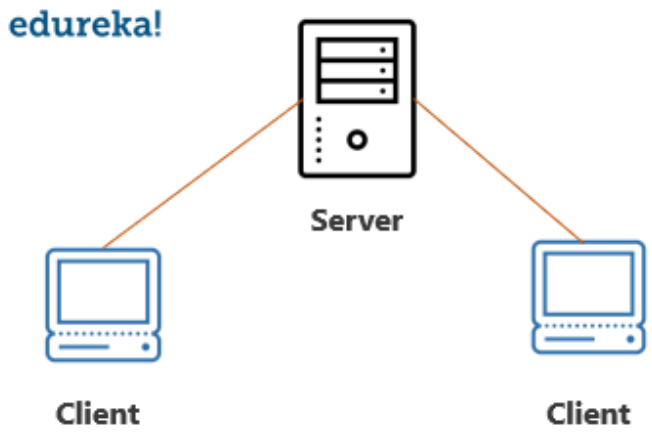
Q38. What are the advantages of optic fibers?

Optic fibers have a number of advantages such as:

- Greater bandwidth than other metal cables
- Low power loss allows longer transmission distances
- Optic cables are immune to electromagnetic interference
- Lesser production rates
- Thin and light
- The optical fiber cable is difficult to tap

Q39. What is a client/ server network?

A client/ server network is a network where one computer behaves as a server to the other computers. The server is usually more powerful than the clients and serves the clients.



Q40. In a network that contains two servers and twenty workstations, where is the best place to install an Anti-virus program?

The best solution is to install anti-virus on all the computers in the network. This will protect each device from the other in case some malicious user tries to insert a virus into the servers or legitimate users.

Q41. What do you mean by Ethernet?

Ethernet is a network technology used in LAN, MAN and WAN that connects devices using cables for the transmission of data. It provides services on the Physical and Data Link layers of the OSI Model.

Q42.What is SLIP?

SLIP stands for Serial Line Internet Protocol which allows a user to access the internet using the modem.

Q43. What is the difference between CSMA/CD and CSMA/CA?

CSMA/ CD	CSMA/ CA

Q45. What do you mean by IPv6?

IPv6 stands for Internet Protocol version 6 and is the latest version of the Intenet Protocol. The IP address length is 128 bits which resolves the issue of approaching shortage of network addresses.

Q46. Explain the RSA algorithm briefly.

RSA is a cryptosystem used to secure data transmission named after Ron Rivest, Adi Shamir and Len Adleman. This algorithm has a public key for encryption while the decryption key is kept secure or private. The encryption key is created using two large prime numbers and is published along with an auxiliary value. Anybody can make use of this public key for encryption but only someone with the knowledge of the prime numbers can decrypt it. However, this algorithm is considered to be slow and for the same reason, it is not used very often to encrypt data.

Q47. What is an encoder?

An encoder is a program, circuit or a device that converts data from one format to another. Encoders convert analog signals into digital ones.

Q48. What is a decoder?

A decoder is a program, circuit or a device that converts the encoded data into its actual format. Decoders convert digital signals to analog ones.

Q49. What is sneakernet?

Sneakernet is the unofficial term for the transfer of electronic information by physically moving media which can be anything such as a Floppy disk, USB flash, optical disks, etc.

Q50. What are the components of a Protocol?

Protocols are a set of rules that govern communication. The key elements of a Protocol are as follows:

Name	Description
Syntax	Refers to the structure and format of data
Semantics	Refers to the meaning of each portion of bits
Timing	Refers to when data should be sent and received

This brings us to the end of this article on Networking Interview Questions. I hope you are clear with all that has been shared with you. ***Make sure you practice as much as possible and revert your experience.***

Got a question for us? Please mention it in the comments section of this "Networking Interview Questions" blog and we will get back to you as soon as possible.