**Networking Interview Questions**

1. Define Network?  
A network is a set of devices connected by physical media links. A network is recursively is a connection of two or more nodes by a physical link or two or more networks connected by one or more nodes.

2. What is Protocol?  
A protocol is a set of rules that govern all aspects of information communication.

3. What is a Link?  
At the lowest level, a network can consist of two or more computers directly connected by some physical medium such as coaxial cable or optical fiber. Such a physical medium is called as Link.

4. What is a node?  
A network can consist of two or more computers directly connected by some physical medium such as coaxial cable or optical fiber. Such a physical medium is called as Links and the computer it connects is called as Nodes.

5. What is a gateway or Router?  
A node that is connected to two or more networks is commonly called as router or Gateway. It generally forwards message from one network to another.

6.  Name the factors that affect the performance of the network?  
a.Number of Users  
b. Type of transmission medium  
c. Hardware  
d. Software

7. What is Round Trip Time?  
The duration of time it takes to send a message from one end of a network to the other and back, is called RTT.

8.  List the layers of OSI  
a. Physical Layer  
b. Data Link Layer  
c. Network Layer  
d. Transport Layer  
e. Session Layer  
f. Presentation Layer  
g. Application Layer

9.  Which layers are network support layers?  
a. Physical Layer  
b. Data link Layer and  
c. Network Layers

10. Which layers are user support layers?  
a. Session Layer  
b. Presentation Layer and  
c. Application Layer

11. What is Pipelining ?  
In networking and in other areas, a task is often begun before the previous task has ended. This is known as pipelining.

12. What is Piggy Backing?  
A technique called piggybacking is used to improve the efficiency of the bidirectional protocols. When a frame is carrying data from A to B, it can also carry control information about arrived (or lost) frames from B; when a frame is carrying data from B to A, it can also carry control information about the arrived (or lost) frames from A.

13.  What are the two types of transmission technology available?  
(i) Broadcast and (ii) point-to-point

14. What is Bandwidth?  
Every line has an upper limit and a lower limit on the frequency of signals it can carry. This limited range is called the bandwidth.

15. Explain RIP (Routing Information Protocol)  
It is a simple protocol used to exchange information between the routers.

16. What is subnet?  
A generic term for section of a large networks usually separated by a bridge or router.

17. What is MAC address?  
The address for a device as it is identified at the Media Access Control (MAC) layer in the network architecture. MAC address is usually stored in ROM on the network adapter card and is unique.

18. What is multiplexing?  
Multiplexing is the process of dividing a link, the phycal medium, into logical channels for better efficiency. Here medium is not changed but it has several channels instead of one.

19. What is simplex?  
It is the mode of communication between two devices in which flow of data is unidirectional. i.e. one can transmit and other can receive.  
E.g. keyboard and monitor.

20. What is half-duplex?  
 It is the mode of communication between two devices in which flow of data is bi-directional but not at the same time. ie each station can transmit and receive but not at the same time.  
E.g walkie-talkies are half-duplex system.

21.What is full duplex?  
 It is the mode of communication between two devices in which flow of data is bi-directional and it occurs simultaneously. Here signals going in either direction share the capacity of the link.  
E.g. telephone

22. What is sampling?  
It is the process of obtaining amplitude of a signal at regular intervals.

23. What is Asynchronous mode of data transmission?  
It is a serial mode of transmission.  
In this mode of transmission, each byte is framed with a start bit and a stop bit. There may be a variable length gap between each byte.

24. What is Synchronous mode of data transmission?  
It is a serial mode of transmission.In this mode of transmission, bits are sent in a continuous stream without start and stop bit and without gaps between bytes. Regrouping the bits into meaningful bytes is the responsibility of the receiver.

25. What are the different types of multiplexing?  
Multiplexing is of three types. Frequency division multiplexing and wave division multiplexing is for analog signals and time division multiplexing is for digital signals.

26. What are the different transmission media?  
The transmission media is broadly categorized into two types  
i)Guided media(wired)  
i)Unguided media(wireless)

27. What are the duties of data link layer?  
Data link layer is responsible for carrying packets from one hop (computer or router) to the next. The duties of data link layer include packetizing, adderssing, error control, flow control, medium access control.

28. .What are the types of errors?  
 Errors can be categorized as a single-bit error or burst error. A single bit error has one bit error per data unit. A burst error has two or more bits errors per data unit.

29. What do you mean by redundancy?  
Redundancy is the concept of sending extra bits for use in error detection. Three common redundancy methods are parity check, cyclic redundancy check (CRC), and checksum.

30. Define parity check.  
In parity check, a parity bit is added to every data unit so that the total number of 1s is even (or odd for odd parity).Simple parity check can detect all single bit errors. It can detect burst errors only if the total number of errors in each data unit is odd.In two dimensional parity checks, a block of bits is divided into rows and a redundant row of bits is added to the whole block.

31. Define cyclic redundancy check (CRC).  
C RC appends a sequence of redundant bits derived from binary division to the data unit. The divisor in the CRC generator is often represented as an algebraic polynomial.

32. What is hamming code?  
The hamming code is an error correction method using redundant bits. The number of bits is a function of the length of the data bits. In hamming code for a data unit of m bits, we use the formula 2r >= m+r+1 to determine the number of redundant bits needed. By rearranging the order of bit transmission of the data units, the hamming code can correct burst errors.

33.Define stop and wait ARQ.  
 In stop and wait ARQ, the sender sends a frame and waits for an acknowledgement from the receiver before sending the next frame.

34. What do you mean by network control protocol?  
Network control protocol is a set of protocols to allow the encapsulation of data coming from network layer protocol that requires the services of PPP

35. What do you mean by CSMA?  
To reduce the possibility of collision CSMA method was developed. In CSMA each station first listen to the medium (Or check the state of the medium) before sending. It can’t eliminate collision.

36. What do you mean by Bluetooth?  
 It is a wireless LAN technology designed to connect devices of different functions such as telephones, notebooks, computers, cameras, printers and so on.

37. What is IP address?  
The internet address (IP address) is 32bits that uniquely and universally defines a host or router on the internet.The portion of the IP address that identifies the network is called netid. The portion of the IP address that identifies the host or router on the network is called hostid.

38. What do you mean by ALOHA ?  
It is the method used to solve the channel allocation problem .It is used for:  
i)ground based radio broadcasting  
ii)In a network in which uncoordinated users are competing for the use of single channel.  
It is of two types:  
1.Pure aloha  
2.Slotted aloha

39. What is Firewalls?  
It is an electronic downbridge which is used to enhance the security of a network. It’s configuration has two components.  
i)Two routers  
ii)Application gateway  
the packets traveling through the LAN are inspected here and packets meeting certain criteria are forwarded and others are dropped.

40. What is Repeaters ?  
A receiver receives a signal before it becomes too weak or corrupted,regenerates the original bit pattern,and puts the refreshed copy back onto the link.It operates on phycal layer of OSI model.

41. What is Bridges?  
They divide large network into smaller components.They can relay frames between two originally separated LANs.They provide security through partitioning traffic.They operate on physical and data link layer of OSI model.

42. What is ICMP?  
ICMP is Internet Control Message Protocol, a network layer protocol of the TCP/IP suite used by hosts and gateways to send notification of datagram problems back to the sender. It uses the echo test / reply to test whether a destination is reachable and responding. It also handles both control and error messages.  
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43. What is FDM?  
FDM is an analog technique that can be applied when the bandwidth of a link is greater than the combined bandwidths of the signals to be transmitted.

44.  What is WDM?  
WDM is conceptually the same as FDM, except that the multiplexing and demultiplexing involve light signals transmitted through fiber optics channel.

45. What is TDM?  
TDM is a digital process that can be applied when the data rate capacity of the transmission medium is greater than the data rate required by the sending and receiving devices.

46.  List the steps involved in creating the checksum.  
a. Divide the data into sections  
b. Add the sections together using 1's complement arithmetic  
c. Take the complement of the final sum, this is the checksum.

47. Compare Error Detection and Error Correction:  
The correction of errors is more difficult than the detection. In error detection, checks only any error has occurred. In error correction, the exact number of bits that are corrupted and location in the message are known. The number of the errors and the size of the message are important factors.

48. What are the protocols in application layer ?  
 The protocols defined in application layer are  
• TELNET  
• FTP  
• SMTP  
• DNS

49. What are the protocols in transport layer ?  
The protocols defined in transport layer are  
• TCP  
• UDP

50. What do you mean by client server model ?  
 In client server model ,the client runs a program to request a service and the server runs a program to provide the service.These two programs communicate with each other. One server program can provide services to many client programs.

51. What is TELNET ?  
TELNET is a client –server application that allows a user to log on to a remote machine,giving the user access to the remote system. TELNET is an abbreviation of terminal  
Network.

52. What is Hypertext Transfer Protocol(HTTP) ?  
It is the main protocol used to access data on the World Wide Web .the protol transfers data in the form of plain text,hypertext,audio,video,and so on. It is so called because its efficiency allows its use in a hypertext environment where there are rapid jumps from one document to another.

53. What is World Wide Web ?  
Ans: World Wide Web is a repository of information spread all over the world and linked together.It is a unique combination of flexibility,portability,and user-friendly features .The World Wide Web today is a distributed client-server service,in which a client using a browser can access a service using a server.The service provided is distributed over many locations called web sites.

54. What is Beaconing?  
The process that allows a network to self-repair networks problems. The stations on the network notify the other stations on the ring when they are not receiving the transmissions. Beaconing is used in Token ring and FDDI networks.

55. What is RAID?  
A method for providing fault tolerance by using multiple hard disk drives.

56. What is NETBIOS and NETBEUI?  
NETBIOS is a programming interface that allows I/O requests to be sent to and received from a remote computer and it hides the networking hardware from applications.  
NETBEUI is NetBIOS extended user interface. A transport protocol designed by microsoft and IBM for the use on small subnets.

57. What is difference between ARP and RARP?  
The address resolution protocol (ARP) is used to associate the 32 bit IP address with the 48 bit physical address, used by a host or a router to find the physical address of another host on its network by sending a ARP query packet that includes the IP address of the receiver.  
The reverse address resolution protocol (RARP) allows a host to discover its Internet address when it knows only its physical address.

58. What is the minimum and maximum length of the header in the TCP segment and IP datagram?  
The header should have a minimum length of 20 bytes and can have a maximum length of 60 bytes.

59. What are major types of networks and explain?  
Server-based network: provide centralized control of network resources and rely on server computers to provide security and network administration  
Peer-to-peer network: computers can act as both servers sharing resources and as clients using the resources.

60. What are the important topologies for networks?  
BUS topology: In this each computer is directly connected to primary network cable in a single line.  
Advantages: Inexpensive, easy to install, simple to understand, easy to extend.

STAR topology: In this all computers are connected using a central hub.  
Advantages: Can be inexpensive, easy to install and reconfigure and easy to trouble shoot physical problems.  
  
RING topology: In this all computers are connected in loop.  
Advantages: All computers have equal access to network media, installation can be simple, and signal does not degrade as much as in other topologies because each computer regenerates it.

61. What is mesh network?  
A network in which there are multiple network links between computers to provide multiple paths for data to travel.

62. What is difference between baseband and broadband transmission?  
In a baseband transmission, the entire bandwidth of the cable is consumed by a single signal. In broadband transmission, signals are sent on multiple frequencies, allowing multiple signals to be sent simultaneously.

63. What is packet filter?  
Packet filter is a standard router equipped with some extra functionality. The extra functionality allows every incoming or outgoing packet to be inspected. Packets meeting some criterion are forwarded normally. Those that fail the test are dropped.

64.  What is traffic shaping?  
One of the main causes of congestion is that traffic is often busy. If hosts could be made to transmit at a uniform rate, congestion would be less common. Another open loop method to help manage congestion is forcing the packet to be transmitted at a more predictable rate. This is called traffic shaping.

65. What is multicast routing?  
Sending a message to a group is called multicasting, and its routing algorithm is called multicast routing.

66. What is Kerberos?  
It is an authentication service developed at the Massachusetts Institute of Technology. Kerberos uses encryption to prevent intruders from discovering passwords and gaining unauthorized access to files.

67. What is passive topology?  
When the computers on the network simply listen and receive the signal, they are referred to as passive because they don’t amplify the signal in any way. Example for passive topology - linear bus.

68. What are the advantages of Distributed Processing?  
a. Security/Encapsulation  
b. Distributed database  
c. Faster Problem solving  
d. Security through redundancy  
e. Collaborative Processing

69.  Name the factors that affect the reliability of the network?  
a. Frequency of failure  
b. Recovery time of a network after a failure

70. When a switch is said to be congested?  
It is possible that a switch receives packets faster than the shared link can accommodate and stores in its memory, for an extended period of time, then the switch will eventually run out of buffer space, and some packets will have to be dropped and in this state is said to congested state.

# Networking Advanced

**1. How many numbers of addresses are usable for addressing in a Class C network?**

a. 256

b. 255

c. 254

d. 258

Answer: c. 254

The number of addresses usable for addressing specific hosts in each network is always 2 power N - 2 (where N is the number of rest field bits, and the subtraction of 2 adjusts for the use of the all-bits-zero host portion for network address and the all-bits-one host portion as a broadcast address. Thus, for a Class C address with 8 bits available in the host field, the number of hosts is 254

Class A 0.0.0.0 - 127.255.255.255

Class B 128.0.0.0 - 191.255.255.255

Class C 192.0.0.0 - 223.255.255.255

Class D 224.0.0.0 - 239.255.255.255

Class E 240.0.0.0 - 247.255.255.255

**2. How are the data units at Application layer is called?**

a. Message

b. Datagram

c. User Datagram

d. Signals

Answer:a.Message

The data unit created at the application layer is called a message, at the transport layer the data unit created is called either a segment or an user datagram, at the network layer the data unit created is called the datagram, at the data link layer the datagram is encapsulated in to a frame and finally transmitted as signals along the transmission media

**3. What protocol is used by DNS name servers? Justify.**

a. TCP

b. SNMP

c. UDP d. It can use any routing protocol

Answer:c. UDP

DNS uses UDP for communication between servers. It is a better choice than TCP because of the improved speed a connectionless protocol offers. Of course, transmission reliability suffers with UDP

**4. Which of the following is used to direct a packet inside an internal networks?**

a. Routers

b. Modem

c. Gateway

d None of the above

Answer: a.Routers

Routers are machines that direct a packet through the maze of networks that stand between its source and destination. Normally a router is used for internal networks while a gateway acts a door for the packet to reach the outside of the internal network

# Latest Networking Questions with Answers

**1. Define Network?**

A network is a set of devices connected by physical media links. A network is recursively is a connection of two or more nodes by a physical link or two or more networks connected by one or more nodes.

**2. What is the criteria to check the network reliability?**

A network Reliability is measured on following factors.

**a) Downtime:** The time it takes to recover.

**b) Failure Frequency:** The frequency when it fails to work the way it is intended.

**3. What do you mean by Bandwidth?**

Every Signal has a limit of its upper range and lower range of frequency of signal it can carry. This range of limit of network between its upper frequency and lower frequency is termed as Bandwidth.

**4. What is a Link?**

At the lowest level, a network can consist of two or more computers directly connected by some physical medium such as coaxial cable or optical fiber. Such a physical medium is called as Link.

**5. What is a node?**

A network can consist of two or more computers directly connected by some physical medium such as coaxial cable or optical fiber. Such a physical medium is called as Links and the computer it connects is called as Nodes.

**6. What is a gateway or Router?**

A node that is connected to two or more networks is commonly called as router or Gateway. It generally forwards message from one network to another.

**7. What is DNS?**

DNS stands for Domain Name System. It is a Naming System for all the resources over Internet which includes Physical nodes and Applications. DNS is a way to locate to a resource easily over a network and serves to be an essential component necessary for the working of Internet.

**8. What is point-point link?**

If the physical links are limited to a pair of nodes it is said to be point-point link.

**9. What is DHCP scope?**

A scope is a range, or pool, of IP addresses that can be leased to DHCP clients on a given subnet.

**10. What is FQDN?**

An FQDN contains (fully qualified domain name) both the hostname and a domain name. It uniquely identifies a host within a DNS hierarchy

**11. What is the DNS forwarder?**

DNS servers often must communicate with DNS servers outside of the local network. A forwarder is an entry that is used when a DNS server receives DNS queries that it cannot resolve locally. It then forwards those requests to external DNS servers for resolution.

**12. Give a brief description of PAN, LAN, HAN, SAN, CAN, MAN, WAN, GAN.**  
   
**a) PAN** (Personal Area Network)

It is a connection of Computer and Devices that are close to a person VIZ., Computer, Telephones, Fax, Printers, etc. Range Limit 10 meters.

**b) LAN**(Local Area Network)

LAN is the connection of Computers and Devices over a small Geographical Location Office, School, Hospital, etc. A LAN can be connected to WAN using a gateway (Router).

**c) HAN** (House Area Network)

HAN is LAN of Home which connects to homely devices ranging from a few personal computers, phone, fax and printers.

**d) SAN** (Storage Area Network)

SAN is the connection of various storage devices which seems local to a computer.

**e) CAN** (Campus Area Network)

CAN is the connection of devices, printers, phones and accessories within a campus which Links to other departments of the organization within the same campus.

**f) MAN** (Metropolitan Area Network)

MAN is the connection of loads of devices which spans to Large cities over a wide Geographical Area.

**g) WAN** ( Wide Area Network)

WAN connects devices, phones, printers, scanners, etc over a very wide geographical location which may range to connect cities, countries and ever continents.

**h) GAN**(Global Area Network)

GAN connects mobiles across the globe using satellites.

**13. What is POP3?**

POP3 stands for Post Office Protocol Version3 (Current Version). POP is a protocol which listens on port 110 and is responsible for accessing the mail service on a client machine. POP3 works in two modes such as Delete Mode and Keep Mode.

**a) Delete Mode:**A mail is deleted from the mailbox after successful retrieval.  
**b) Keep Mode:** The Mail remains Intact in the mailbox after successful retrieval.

**14. How would you recommend we support our mobile workers?**

Look for answers that talk about bandwidth availability, user experience, and traffic security. Its also interesting to see if candidates ask what sort of applications mobile workers use and then tailor their answers to reflect the way the network will be used.

**15. Whats your experience of configuration management?**

This question probes candidates' thoughts and experiences of the structure and governance that surrounds networking. You want someone with deep technical knowledge and domain experience, but also someone who isnt a maverick who will make changes without following the proper protocols.

**16. What do you mean by MAC address? Does it has some link or something in common to Mac OS of Apple?**

MAC stands for Media Access Control. It is the address of the device identified at Media Access Control Layer of Network Architecture. Similar to IP address MAC address is unique address, i.e., no two device can have same MAC address. MAC address is stored at the Read Only Memory (ROM) of the device.

MAC Address and Mac OS are two different things and it should not be confused with each other. Mac OS is a POSIX standard Operating System Developed upon FreeBSD used by Apple devices.  
Thats all for now. We will be coming up with another articles on Networking series every now and then. Till then, dont forget to provide us with your valuable feedback in the comment section below.

**17. How will check ip address on 98?**

Start ==> Run ==> command ==> winipcfg  
How will you make partition after installing windows?  
My computer ==> right click ==> manage ==> disk management ==>   
select free space ==> right click ==> New partition

**18. What is IP?**

It's a unique 32 bits software address of a node in a network.

**19. What is private IP?**

Three ranges of IP addresses have been reserved for private address and they are not valid for use on the Internet. If you want to access internet with these address you must have to use proxy server or NAT server (on normal cases the role of proxy server is played by your ISP.).If you do decide to implement a private IP address range, you can use IP addresses from any of the following classes:

**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

**20. What is public IP address?**

A public IP address is an address leased from an ISP that allows or enables direct Internet communication.

**21. What's the benefit of subnetting?**

1. Reduce the size of the routing tables.
2. Reduce network traffic. Broadcast traffic can be isolated within a single logical network.
3. Provide a way to secure network traffic by isolating it from the rest of the network.

**22. What are the differences between static IP addressing and dynamic IP addressing?**

With static IP addressing, a computer (or other device) is configured to always use the same IP address. With dynamic addressing, the IP address can change periodically and is managed by a centralized network service.

**23. What is APIPA?**

Automatic private IP addressing (APIPA) is a feature mainly found in Microsoft operating systems. APIPA enables clients to still communicate with other computers on the same network segment until an IP address can be obtained from a DHCP server, allowing the machine to fully participate on the network. The range of these IP address are the 169.254.0.1 to 169.254.255.254 with a default Class B subnet mask of 255.255.0.0.

**24. What are the LMHOSTS files?**

The LMHOSTS file is a static method of resolving NetBIOS names to IP addresses in the same way that the HOSTS file is a static method of resolving domain names into IP addresses. An LMHOSTS file is a text file that maps NetBIOS names to IP addresses; it must be manually configured and updated.

**25. When were OSI model developed and why its standard called 802.XX and so on?**

OSI model was developed in February1980 that why these also known as 802.XX Standard

(Note : 80 means ----> 1980, 2means ----> February)

**26. What is Full form of ADS?**

Active Directory Structure

**27. How will you register and activate windows?**

If you have not activated windows XP, you can do so at any time by clicking the windows Activation icon in the system tray to initiate activation. Once you have activated windows XP, this icon disappears from the system tray.

For registration

Start ==> Run ==> regwiz /r

**28. Where do we use cross and standard cable?**

Computer to computer ==> cross

Switch/hub to switch/hub ==>cross

Computer to switch/hub ==>standard

**29. What is RAID?**

A method for providing fault tolerance by using multiple hard disk drives.

**30. What is NETBIOS and NETBEUI?**

NETBIOS is a programming interface that allows I/O requests to be sent to and received from a remote computer and it hides the networking hardware from applications.   
NETBEUI is NetBIOS extended user interface. A transport protocol designed by Microsoft and IBM for the use on small subnets.

**31. What is redirector?**

Redirector is software that intercepts file or prints I/O requests and translates them into network requests. This comes under presentation layer.

**32. What is Beaconing?**

The process that allows a network to self-repair networks problems. The stations on the network notify the other stations on the ring when they are not receiving the transmissions. Beaconing is used in Token ring and FDDI networks.

**33. How will enable sound service in 2003?**

By default this service remain disable to enable this service  
Start -------->administrative tools ---------> service -----------> windows audio ----------> start up type -------->automatic

**34. How will enable CD burning service in 2003?**

By default this service remain disable to enable this service  
Start --------> administrative tools --------> service -------->IMAPI CD burning com service --------> start up type --------> automatic

**35. What types of network do you have experience with?**

This should be one of the first things you ask. It might be critical to you that the candidate has prior experience with the type of network model you use, but even candidates that don't could be good fits, assuming they are willing to learn and have other critical skills. In fact, candidates with lots of experience on networks very similar to yours could be too set in their ways to adapt to the way your business does things.

**36. What can you tell me about the OSI Reference Model?**

The OSI Reference Model provides a framework for discussing network design and operations. It groups communication functions into 7 logical layers, each one building on the next. This question will demonstrate whether candidates have the theoretical knowledge to back up their practical skills.

**37. What are the use of cross and standard cables? Where do you find their usages?**

A Network cable may be crossover as well as straight. Both of these cables have different wires arrangement in them, which serves to fulfill different purpose.

**a) Area of application of Straight cable**

1. Computer to Switch
2. Computer to Hub
3. Computer to Modem
4. Router to Switch

**b) Ares of application of Crossover cable**

1. Computer to Computer
2. Switch to Switch
3. Hub to Hub

**38. What monitoring tools or approaches do you rate?**

You can extend this to ask about what tools candidates have used in other jobs. Hopefully they will be able to give you a range of products and techniques, and the rationale for their favorites. This can tell you about the depth of their experience and also whether their choices of tools are a good fit for your architecture.

**39. Describe 802.3 standards**

1. IEEE 802      :   LAN/MAN
2. IEEE 802.1   : Standards for LAN/MAN bridging and management and remote media access                          control bridging.
3. IEEE 802.2   : Standards for Logical Link Control (LLC) standards for connectivity.
4. IEEE 802.3   : Ethernet Standards for Carrier Sense Multiple Access with Collision Detection                          (CSMA/CD).
5. IEEE 802.4   : Standards for token passing bus access.
6. IEEE 802.5   : Standards for token ring access and for communications between LANs and                            MANs
7. IEEE 802.6   : Standards for information exchange between systems.
8. IEEE 802.7   : Standards for broadband LAN cabling.
9. IEEE 802.8   :  Fiber optic connection.
10. IEEE 802.9   : Standards for integrated services, like voice and data.
11. IEEE 802.10 : Standards for LAN/MAN security implementations.
12. IEEE 802.11 : Wireless Networking "WiFi".
13. IEEE 802.12 : Standards for demand priority access method.
14. IEEE 802.14 : Standards for cable television broadband communications.
15. IEEE 802.15.1 : Bluetooth
16. IEEE 802.15.4 : Wireless Sensor/Control Networks "ZigBee"
17. IEEE 802.16    : Wireless Networking "WiMAX"

**40. What is virtual path?**

Along any transmission path from a given source to a given destination, a group of virtual circuits can be grouped together into what is called path.

**41. What is virtual channel?**

Virtual channel is normally a connection from one source to one destination, although multicast connections are also permitted. The other name for virtual channel is virtual circuit.

**42. What is logical link control?**

One of two sublayers of the data link layer of OSI reference model, as defined by the IEEE 802 standard. This sublayer is responsible for maintaining the link between computers when they are sending data across the physical network connection.

**43. Why should you care about the OSI Reference Model?**

It provides a framework for discussing network operations and design.

**44. What is the difference between routable and non- routable protocols?**

Routable protocols can work with a router and can be used to build large networks. Non-Routable protocols are designed to work on small, local networks and cannot be used with a router

**45. What is MAU?**

In token Ring , hub is called Multistation Access Unit(MAU).

**46. Explain 5-4-3 rule**

In a Ethernet network, between any two points on the network, there can be no more than five network segments or four repeaters, and of those five segments only three of segments can be populated.

**47. What is the difference between TFTP and FTP application layer protocols?**

The Trivial File Transfer Protocol (TFTP) allows a local host to obtain files from a remote host but does not provide reliability or security. It uses the fundamental packet delivery services offered by UDP.

The File Transfer Protocol (FTP) is the standard mechanism provided by TCP / IP for copying a file from one host to another. It uses the services offered by TCP and so is reliable and secure. It establishes two connections (virtual circuits) between the hosts, one for data transfer and another for control information.

**48. What is the minimum and maximum length of the header in the TCP segment and IP datagram?**

The header should have a minimum length of 20 bytes and can have a maximum length of 60 bytes.

**49. What is difference between ARP and RARP?**

The address resolution protocol (ARP) is used to associate the 32 bit IP address with the 48 bit physical address, used by a host or a router to find the physical address of another host on its network by sending a ARP query packet that includes the IP address of the receiver.   
The reverse address resolution protocol (RARP) allows a host to discover its Internet address when it knows only its physical address.

**50. What is ICMP?**

ICMP is Internet Control Message Protocol, a network layer protocol of the TCP/IP suite used by hosts and gateways to send notification of datagram problems back to the sender. It uses the echo test / reply to test whether a destination is reachable and responding. It also handles both control and error messages.

**51. What is terminal emulation, in which layer it comes?**

Telnet is also called as terminal emulation. It belongs to application layer.

**52. What is frame relay, in which layer it comes?**

Frame relay is a packet switching technology. It will operate in the data link layer.

**53. What do you meant by "triple X" in Networks?**

The function of PAD (Packet Assembler Disassembler) is described in a document known as X.3. The standard protocol has been defined between the terminal and the PAD, called X.28; another standard protocol exists between hte PAD and the network, called X.29. Together, these three recommendations are often called "triple X".

**54. What is SAP?**

Series of interface points that allow other computers to communicate with the other layers of network protocol stack.

**55. What is subnet?**

A generic term for section of a large networks usually separated by a bridge or router.

**56. What is subnet mask?**

It is a term that makes distinguish between network address and host address in IP address. Subnet mask value 0 defines host partition in IP address and value 1 255 defines Network address.

**57. 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.

**58. What is anonymous FTP?**

Anonymous FTP is a way of granting user access to files in public servers. Users that are allowed access to data in these servers do not need to identify themselves, but instead log in as an anonymous guest.

**59. What is subnet mask?**

A subnet mask is combined with an IP address in order to identify two parts: the extended network address and the host address. Like an IP address, a subnet mask is made up of 32 bits.

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

A single segment of UTP cable has an allowable length of 90 to 100 meters. This limitation can be overcome by using repeaters and switches.

**61. What is data encapsulation?**

Data encapsulation is the process of breaking down information into smaller manageable chunks before it is transmitted across the network. It is also in this process that the source and destination addresses are attached into the headers, along with parity checks.

**62. Describe Network Topology**

Network Topology refers to the layout of a computer network. It shows how devices and cables are physically laid out, as well as how they connect to one another.

**63. 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.

**64. 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.

**65. How does a network topology affect your decision in setting up a network?**

Network topology dictates what media you must use to interconnect devices. It also serves as basis on what materials, connector and terminations that is applicable for the setup.

**66. What is RIP?**

RIP, short for Routing Information Protocol is used by routers to send data from one network to another. It efficiently manages routing data by broadcasting its routing table to all other routers within the network. It determines the network distance in units of hops.

**67. What are different ways of securing a computer network?**

There are several ways to do this. Install reliable and updated anti-virus program on all computers. Make sure firewalls are setup and configured properly. User authentication will also help a lot. All of these combined would make a highly secured network.

**68. 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.

**69. What is the importance of the OSI Physical Layer?**

The physical layer does the conversion from data bits to electrical signal, and vice versa. This is where network devices and cable types are considered and setup.

**70. How many layers are there under TCP/IP?**

There are four layers: the Network Layer, Internet Layer, Transport Layer and Application Layer.