Q1. 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.

Q2. 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.

Q3. What is IEEE?

IEEE stands for Institute of Electrical and Electronics Engineer. It is the world's largest technical professional society and is devoted to advancing innovation and technological excellence.

Q4. 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.

Q5. 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.

Q6. 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.

Q7. 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

Q8. 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 being transmitted over interconnected networks.

Q9. What is Round Trip Time?

Round Trip Time or Round Trip Delay Time refers to the time taken for a signal to be sent and the ACK of that signal to be received.

Q10. What is DHCP?

DHCP or Dynamic Host Configuration Protocol is a network management protocol. It is used on the UDP/IP networks and it automatically assigns IP addresses to the devices on the network. This, in turn, reduces the need of a network admin to manually assign IP addresses thereby reducing errors.

Q11. 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.

Q12. 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.

Q13. 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**

Q14. 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.

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Server

Client   Client
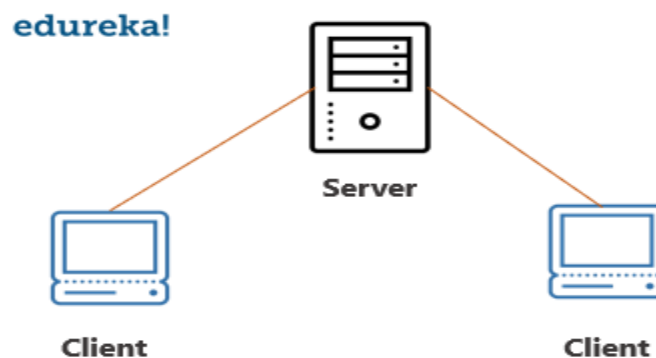
Q15. In a network that contains two servers and twenty workstations, where is the best place to install an Anti-virus program?

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.

Q16. 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.

Q17.What is SLIP?

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

Q18. What is the difference between CSMA/CD and CSMA/CA?

CSMA/ CD	CSMA/ CA
The effect is after a collision	The effect is before a collision
Minimizes the recovery time	Reduces the possibility of a collision
Usually used in wired networks	Usually used in wireless networks

Q19. Briefly explain what is tunnel mode?

Tunnel mode is used to encrypt the whole IP packet including the headers and the payload. It is basically used in a Site-to-Site VPN to secure communications between security gateways, firewalls, etc.

Q20. 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.

Q21. 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.

Q22. 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.

Q23. 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.

Q24. 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.

Q25. 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**