

1. What type of network covers a large geographical area, typically spanning cities or even countries?

- a) LAN
- b) MAN
- c) WAN
- d) Internet

Answer: c) WAN

Explanation: WAN (Wide Area Network) is designed to cover large geographical areas, connecting multiple LANs and MANs across cities or countries.

2. Which device connects different network segments at the data link layer and operates using MAC addresses?

- a) Router
- b) Bridge
- c) Switch
- d) Hub

Answer: b) Bridge

Explanation: A bridge connects different network segments at the data link layer and operates using MAC addresses to forward data between them.

3. Which protocol resolves IP addresses to MAC addresses on a local network?

- a) ARP
- b) RARP
- c) ICMP
- d) DNS

Answer: a) ARP

Explanation: ARP (Address Resolution Protocol) resolves IP addresses to MAC addresses on a local network.

4. What is the purpose of subnetting in IP networking?

- a) To reduce network congestion
- b) To improve security
- c) To divide a large network into smaller, manageable subnetworks
- d) To encrypt data packets

Answer: c) To divide a large network into smaller, manageable subnetworks

Explanation: Subnetting allows for the division of a large network into smaller subnetworks, which helps in better network management and addressing.

5. What is the primary function of ICMP messages in TCP/IP networks?

- a) Address resolution
- b) Error reporting
- c) Data encryption
- d) Packet forwarding

Answer: b) Error reporting

Explanation: ICMP (Internet Control Message Protocol) is primarily used for error reporting and diagnostic functions in TCP/IP networks.

6. Which addressing scheme allows multiple devices to share a single public IP address?

- a) CIDR
- b) NAT

- c) VLAN
- d) Supernetting

Answer: b) NAT

Explanation: NAT (Network Address Translation) allows multiple devices within a private network to share a single public IP address for communication over the internet.

7. What is the purpose of DNS in computer networks?

- a) To assign IP addresses dynamically
- b) To resolve domain names to IP addresses
- c) To establish secure connections
- d) To route data packets between networks

Answer: b) To resolve domain names to IP addresses

Explanation: DNS (Domain Name System) is used to resolve domain names to IP addresses, translating human-readable domain names into IP addresses that computers can understand.

8. Which protocol is used for automatic configuration of IP addresses in a network?

- a) DHCP
- b) TCP
- c) UDP
- d) HTTP

Answer: a) DHCP

Explanation: DHCP (Dynamic Host Configuration Protocol) is used for automatic configuration of IP addresses in a network, assigning IP addresses dynamically to devices.

9. Which protocol is responsible for the delivery of packets across interconnected networks in

the TCP/IP protocol suite?

- a) HTTP
- b) FTP
- c) IP
- d) SMTP

Answer: c) IP

Explanation: IP (Internet Protocol) is responsible for the delivery of packets across interconnected networks in the TCP/IP protocol suite.

10. Which protocol allows communication between different VLANs in a network?

- a) ICMP
- b) VLAN Trunking Protocol (VTP)
- c) IPsec
- d) Inter-VLAN Routing

Answer: d) Inter-VLAN Routing

Explanation: Inter-VLAN Routing allows communication between different VLANs in a network by routing traffic between them.

11. What is the purpose of CIDR (Classless Inter-Domain Routing)?

- a) To allocate IP addresses based on classes
- b) To allocate IP addresses hierarchically
- c) To divide IP addresses into subnets
- d) To provide secure communication between domains

Answer: c) To divide IP addresses into subnets

Explanation: CIDR (Classless Inter-Domain Routing) is used to divide IP addresses into smaller subnets, allowing for more efficient use of IP address space.

12. Which type of NAT translates multiple private IP addresses to a single public IP address using different port numbers?

- a) SNAT
- b) DNAT
- c) PAT
- d) NAT64

Answer: c) PAT (Port Address Translation)

Explanation: PAT (Port Address Translation) translates multiple private IP addresses to a single public IP address using different port numbers to distinguish between connections.

13. In which layer of the OSI model do routers primarily operate?

- a) Application Layer
- b) Transport Layer
- c) Network Layer
- d) Data Link Layer

Answer: c) Network Layer

Explanation: Routers primarily operate at the Network Layer (Layer 3) of the OSI model, handling the routing of packets between networks.

14. What is the purpose of VLAN tagging?

- a) To assign VLANs to specific ports
- b) To prioritize VLAN traffic

- c) To identify VLAN membership of frames
- d) To encrypt VLAN data

Answer: c) To identify VLAN membership of frames

Explanation: VLAN tagging is used to identify VLAN membership of frames, allowing switches to distinguish between different VLANs.

15. Which protocol is used for automatic assignment of IP addresses in IPv6 networks?

- a) ARP
- b) DHCPv6
- c) ICMPv6
- d) NDP

Answer: b) DHCPv6

Explanation: DHCPv6 (Dynamic Host Configuration Protocol for IPv6) is used for automatic assignment of IP addresses in IPv6 networks.

16. Which protocol is responsible for error detection and reporting in IPv6 networks?

- a) ICMPv6
- b) TCP
- c) UDP
- d) ARP

Answer: a) ICMPv6

Explanation: ICMPv6 (Internet Control Message Protocol version 6) is responsible for error detection and reporting in IPv6 networks.

17. What is the primary function of a firewall in a network?

- a) To provide secure remote access
- b) To filter and control network traffic
- c) To allocate IP addresses dynamically
- d) To resolve domain names to IP addresses

Answer: b) To filter and control network traffic

Explanation: A firewall is designed to filter and control network traffic, allowing or blocking specific connections based on predefined security rules.

18. Which type of addressing allows for more efficient use of IP address space by aggregating multiple contiguous blocks of IP addresses?

- a) Subnetting
- b) Supernetting
- c) CIDR
- d) NAT

Answer: b) Supernetting

Explanation: Supernetting allows for more efficient use of IP address space by aggregating multiple contiguous blocks of IP addresses into larger networks.

19. Which device operates at the Physical Layer of the OSI model and connects multiple devices within a local network?

- a) Router
- b) Switch
- c) Bridge
- d) Hub

Answer: d) Hub

Explanation: A hub operates at the Physical Layer (Layer 1) of the OSI model and connects multiple devices within a local network.

20. Which protocol resolves MAC addresses to IP addresses?

- a) ARP
- b) RARP
- c) DHCP
- d) DNS

Answer: b) RARP (Reverse Address Resolution Protocol)

Explanation: RARP resolves MAC addresses to IP addresses, allowing a device to discover its IP address when

only its MAC address is known.

21. Which type of addressing is used to uniquely identify devices within the same VLAN?

- a) IP addressing
- b) MAC addressing
- c) Subnet addressing
- d) NAT addressing

Answer: b) MAC addressing

Explanation: MAC addressing is used to uniquely identify devices within the same VLAN at the data link layer.

22. Which protocol is used to assign IP addresses to devices when they join a network for the first time?

- a) ARP
- b) DHCP
- c) TCP
- d) UDP

Answer: b) DHCP

Explanation: DHCP (Dynamic Host Configuration Protocol) is used to assign IP addresses to devices dynamically when they join a network for the first time.

23. What is the primary purpose of VLANs (Virtual Local Area Networks) in network infrastructure?

- a) To increase network bandwidth
- b) To improve network security
- c) To segment broadcast domains
- d) To establish secure VPN connections

Answer: c) To segment broadcast domains

Explanation: VLANs are used to segment broadcast domains, reducing network traffic and improving network performance.

24. Which protocol is responsible for translating domain names into IP addresses?

- a) HTTP
- b) DHCP
- c) DNS
- d) SMTP

Answer: c) DNS (Domain Name System)

Explanation: DNS is responsible for translating domain names into IP addresses, allowing users to access websites using human-readable names.

25. What is the purpose of NAT (Network Address Translation) in computer networks?

- a) To assign IP addresses dynamically
- b) To provide secure communication between networks
- c) To translate private IP addresses to public IP addresses
- d) To prioritize network traffic

Answer: c) To translate private IP addresses to public IP addresses

Explanation: NAT (Network Address Translation) is used to translate private IP addresses used within a local network to public IP addresses for communication over the internet.

26. Which protocol is responsible for routing packets across different networks in the TCP/IP protocol suite?

- a) IP
- b) TCP
- c) UDP
- d) ICMP

Answer: a) IP (Internet Protocol)

Explanation: IP (Internet Protocol) is responsible for routing packets across different networks in the TCP/IP protocol suite.

27. What is the purpose of subnetting in IP networking?

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- b) To improve security

- c) To divide a large network into smaller, manageable subnetworks
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