MCQ’s in Computer Networks(CN)

1. Which OSI layer is responsible for end-to-end communication?

a) Network Layer
b) Transport Layer
c) Data Link Layer
d) Physical Layer

Answer: b) Transport Layer
Explanation: The transport layer is responsible for delivering messages from source to destination, ensuring error-free transmission.

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2. Which of the following protocols is used for email transmission?

a) FTP
b) HTTP
c) SMTP
d) SNMP

Answer: c) SMTP
Explanation: SMTP (Simple Mail Transfer Protocol) is the standard protocol for sending emails across networks.

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3. What is the full form of TCP?

a) Transmission Control Protocol
b) Transfer Control Protocol
c) Transmission Central Protocol
d) Transfer Central Protocol

Answer: a) Transmission Control Protocol
Explanation: TCP stands for Transmission Control Protocol, which provides reliable, ordered, and error-checked data transmission.

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4. Which device operates at the Data Link layer of the OSI model?

a) Hub
b) Switch

c) Router
d) Repeater

Answer: b) Switch
Explanation: A switch operates at the Data Link layer (Layer 2) and helps in packet switching within a LAN by forwarding data to specific devices.

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5. In a ring topology, how are devices connected?

a) In a straight line
b) In a circular path
c) In a star pattern
d) Randomly connected

Answer: b) In a circular path
Explanation: In a ring topology, each device is connected to two other devices, forming a circular data path.

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6. Which of the following protocols uses encryption for secure web communications?

a) HTTP
b) HTTPS
c) FTP
d) SNMP

Answer: b) HTTPS
Explanation: HTTPS (Hypertext Transfer Protocol Secure) is an extension of HTTP that uses encryption via SSL/TLS to secure web communications.

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7. What is the default port number for HTTP?

a) 20
b) 21
c) 80
d) 443

Answer: c) 80
Explanation: Port 80 is the default port for HTTP, while port 443 is for HTTPS.

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8. Which of the following IP address classes provides the most host addresses?

a) Class A
b) Class B
c) Class C
d) Class D

Answer: a) Class A
Explanation: Class A provides the most host addresses because it allocates the fewest network bits and the most host bits.

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9. Which protocol provides dynamic IP addressing?

a) DNS
b) DHCP
c) ARP
d) ICMP

Answer: b) DHCP
Explanation: DHCP (Dynamic Host Configuration Protocol) dynamically assigns IP addresses to devices on a network.

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10. Which layer of the OSI model is responsible for encryption and decryption?

a) Application Layer
b) Presentation Layer
c) Session Layer
d) Data Link Layer

Answer: b) Presentation Layer
Explanation: The Presentation Layer ensures that data is in a usable format and is responsible for encryption and decryption.

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11. What type of routing protocol is OSPF?

a) Distance vector
b) Link state
c) Path vector
d) Static

Answer: b) Link state
Explanation: OSPF (Open Shortest Path First) is a link-state routing protocol that calculates the shortest path through a network.

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12. What is the maximum length of a 100Base-T Ethernet cable?

a) 10 meters
b) 100 meters
c) 500 meters
d) 1000 meters

Answer: b) 100 meters
Explanation: The maximum length for 100Base-T Ethernet cables is 100 meters.

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13. Which protocol maps an IP address to a MAC address?

a) ARP
b) RARP
c) ICMP
d) DHCP

Answer: a) ARP
Explanation: ARP (Address Resolution Protocol) is used to map an IP address to a device's MAC address.

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14. Which layer of the OSI model is responsible for establishing, managing, and terminating sessions?

a) Session Layer
b) Presentation Layer
c) Application Layer
d) Transport Layer

Answer: a) Session Layer
Explanation: The Session Layer establishes, manages, and terminates communication sessions between applications.

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15. Which device is used to connect two networks together?

a) Hub
b) Switch
c) Router
d) Repeater

Answer: c) Router
Explanation: A router is used to connect two or more networks and route data between them.

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16. Which type of network topology has all nodes connected to a central hub?

a) Bus
b) Ring
c) Star
d) Mesh

Answer: c) Star
Explanation: In a star topology, all devices are connected to a central hub or switch.

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17. Which of the following protocols is used to remotely manage devices on a network?

a) SNMP
b) SMTP
c) FTP
d) ARP

Answer: a) SNMP
Explanation: SNMP (Simple Network Management Protocol) is used for managing devices on IP networks remotely.

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18. Which network type spans a city?

a) LAN
b) WAN
c) PAN
d) MAN

Answer: d) MAN
Explanation: MAN (Metropolitan Area Network) is a network that spans a city or a large campus.

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19. Which is a classless addressing scheme?

a) IPv4
b) IPv6

c) CIDR
d) MAC address

Answer: c) CIDR
Explanation: CIDR (Classless Inter-Domain Routing) allows for more flexible allocation of IP addresses.

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20. Which layer of the OSI model handles flow control?

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

Answer: c) Transport Layer
Explanation: The Transport Layer handles flow control, ensuring data is transmitted at an appropriate rate.

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21. What is the purpose of NAT (Network Address Translation)?

a) To map private IP addresses to public IP addresses
b) To encrypt network traffic
c) To assign dynamic IP addresses
d) To resolve domain names to IP addresses

Answer: a) To map private IP addresses to public IP addresses
Explanation: NAT translates private IP addresses to a single public IP address for internet access.

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22. Which network protocol is connection-oriented?

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

Answer: c) TCP
Explanation: TCP (Transmission Control Protocol) is connection-oriented and ensures reliable communication.

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23. What is the purpose of a subnet mask?

a) To identify the network portion of an IP address
b) To identify the MAC address
c) To encrypt data packets
d) To provide error checking

Answer: a) To identify the network portion of an IP address
Explanation: A subnet mask separates the network and host portions of an IP address.

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24. What is the role of a firewall in network security?

a) To speed up network traffic
b) To manage routing protocols
c) To block unauthorized access
d) To assign IP addresses

Answer: c) To block unauthorized access
Explanation: A firewall filters network traffic to block unauthorized access while allowing authorized communication.

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25. Which of the following is a wireless networking standard?

a) Ethernet
b) 802.11
c) Bluetooth
d) Token Ring

Answer: b) 802.11
Explanation: 802.11 is the IEEE standard for wireless networking, commonly known as Wi-Fi.

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26. What is the primary purpose of DNS (Domain Name System)?

a) To assign IP addresses
b) To route traffic between networks
c) To resolve domain names to IP addresses
d) To create subnets

Answer: c) To resolve domain names to IP addresses
Explanation: DNS translates domain names (like google.com) into IP addresses that computers use to communicate.

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27. Which protocol is used for file transfer over a network?

a) SMTP
b) FTP
c) SNMP
d) DHCP

Answer: b) FTP
Explanation: FTP (File Transfer Protocol) is used to transfer files between a client and a server over a network.

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28. Which layer in the OSI model deals with error detection but not correction?

a) Physical Layer
b) Data Link Layer
c) Network Layer
d) Transport Layer

Answer: b) Data Link Layer
Explanation: The Data Link Layer detects errors in frames but does not correct them.

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29. Which of the following describes the concept of “ping”?

a) A test of reachability of a host
b) A method for assigning IP addresses
c) A protocol for file transfer
d) A process for domain resolution

Answer: a) A test of reachability of a host
Explanation: The ping command is used to test the reachability of a host on an IP network.

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30. Which of the following uses tunneling to provide secure connections over public networks?

a) VPN
b) LAN
c) FTP
d) DHCP

Answer: a) VPN
Explanation: VPN (Virtual Private Network) uses tunneling protocols to provide secure communication over public networks like the internet.

31. What does UDP stand for?

a) User Datagram Protocol
b) Unified Data Protocol
c) Unreliable Datagram Protocol
d) User Data Program

Answer: a) User Datagram Protocol
Explanation: UDP (User Datagram Protocol) is a connectionless protocol that is faster but less reliable than TCP.

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32. Which of the following is a routing protocol used in the Internet?

a) HTTP
b) RIP
c) FTP
d) SNMP

Answer: b) RIP
Explanation: RIP (Routing Information Protocol) is one of the oldest distance-vector routing protocols used for routing in small to medium-sized networks.

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33. Which layer of the OSI model is responsible for routing packets across different networks?

a) Physical Layer
b) Data Link Layer
c) Network Layer
d) Transport Layer

Answer: c) Network Layer
Explanation: The Network Layer (Layer 3) is responsible for routing packets between different networks, ensuring they reach their destination.

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34. What is the primary function of ICMP (Internet Control Message Protocol)?

a) Transmit emails
b) Provide flow control
c) Send error and status messages
d) Manage network security

Answer: c) Send error and status messages
Explanation: ICMP is used for sending error messages and operational information, such as when a service is unavailable or a host is unreachable.

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35. Which of the following refers to a connection-less communication protocol?

a) TCP
b) FTP
c) HTTP
d) UDP

Answer: d) UDP
Explanation: UDP (User Datagram Protocol) is connection-less, meaning it sends data without establishing a connection first, which can result in faster but unreliable transmissions.

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36. Which command is used to view the routing table in a network?

a) ping
b) traceroute
c) netstat
d) route

Answer: d) route
Explanation: The `route` command is used to view and manipulate the IP routing table in networked systems.

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37. What type of attack involves overwhelming a network with more requests than it can handle?

a) Phishing
b) Spoofing
c) DDoS
d) Sniffing

Answer: c) DDoS
Explanation: A Distributed Denial of Service (DDoS) attack involves overwhelming a network or service with excessive traffic to make it unavailable.

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38. Which type of network is used for communication between devices within a close range, such as a room or building?

a) WAN
b) MAN
c) LAN
d) PAN

Answer: c) LAN
Explanation: A Local Area Network (LAN) is used for communication between devices in a small geographic area, like a building or campus.

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39. What is a MAC address?

a) An IP address
b) A logical address
c) A hardware address
d) A network address

Answer: c) A hardware address
Explanation: A MAC (Media Access Control) address is a unique identifier assigned to a network interface for communications on the physical network.

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40. What is the maximum size of an IP packet?

a) 1024 bytes
b) 65535 bytes
c) 8192 bytes
d) 128000 bytes

Answer: b) 65535 bytes
Explanation: The maximum size of an IP packet, including the header, is 65,535 bytes (or 64 KB).

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41. Which technology is used to divide a network into smaller segments to reduce collision domains?

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

Answer: c) Switch
Explanation: A switch divides a network into smaller collision domains, allowing multiple devices to communicate efficiently without interference.

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42. Which protocol helps in the automatic discovery of devices on a network?

a) DHCP
b) DNS
c) ARP
d) LLDP

Answer: d) LLDP
Explanation: LLDP (Link Layer Discovery Protocol) is used for network devices to automatically discover each other and exchange information.

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43. What is the full form of DNS?

a) Domain Network Service
b) Domain Name System
c) Data Network System
d) Digital Network Server

Answer: b) Domain Name System
Explanation: DNS (Domain Name System) is responsible for translating human-readable domain names (like example.com) into IP addresses.

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44. Which type of address is used by routers to forward packets across networks?

a) MAC address
b) Physical address
c) IP address
d) Port address

Answer: c) IP address
Explanation: Routers use IP addresses to forward packets between different networks.

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45. Which type of switching technique is used by the Internet?

a) Circuit switching
b) Packet switching
c) Message switching
d) Time-division switching

Answer: b) Packet switching
Explanation: The Internet uses packet switching, where data is broken into packets and sent independently to its destination.

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46. Which network device regenerates signals and helps to extend the length of a network?

a) Switch
b) Hub
c) Repeater
d) Router

Answer: c) Repeater
Explanation: A repeater regenerates weakened signals and helps extend the physical reach of a network.

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47. Which protocol is responsible for converting domain names into IP addresses?

a) DHCP
b) FTP
c) DNS
d) ARP

Answer: c) DNS
Explanation: DNS (Domain Name System) converts human-readable domain names into corresponding IP addresses.

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48. Which network topology has a single point of failure?

a) Mesh
b) Ring
c) Star
d) Bus

Answer: d) Bus
Explanation: In a bus topology, if the main cable fails, the entire network goes down, making it a single point of failure.

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49. Which of the following is a private IP address range?

a) 192.168.0.0 to 192.168.255.255
b) 200.168.0.0 to 200.168.255.255
c) 150.150.0.0 to 150.150.255.255
d) 180.200.0.0 to 180.200.255.255

Answer: a) 192.168.0.0 to 192.168.255.255
Explanation: The 192.168.x.x range is reserved for private networks and is not routable on the public Internet.

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50. Which protocol is used to provide secure data transmission over the internet?

a) FTP
b) HTTP
c) SSL/TLS
d) ARP

Answer: c) SSL/TLS
Explanation: SSL (Secure Sockets Layer) and TLS (Transport Layer Security) are protocols that provide encryption and secure data transmission over the Internet.

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51. Which protocol resolves a hostname into an IP address?

a) DNS
b) ICMP
c) SMTP
d) TCP

Answer: a) DNS
Explanation: DNS resolves hostnames into IP addresses.

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52. What is the primary purpose of VPN (Virtual Private Network)?

a) To increase bandwidth
b) To ensure secure communications
c) To reduce latency
d) To assign IP addresses

Answer: b) To ensure secure communications
Explanation: VPN provides secure communication by encrypting data transmitted over public networks.

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53. Which type of address is used to identify a device on a local network at the Data Link layer?

a) IP address
b) MAC address
c) Port address
d) Logical address

Answer: b) MAC address
Explanation: A MAC address is used to identify devices on a local network at the Data Link layer.

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54. Which command is used to trace the path that a packet takes to reach its destination?

a) ping
b) traceroute
c) nslookup
d) ifconfig

Answer: b) traceroute
Explanation: The `traceroute` command shows the path that a packet takes to reach its destination by displaying each hop along the way.

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55. Which protocol is used to synchronize clocks on network devices?

a) DHCP
b) FTP
c) NTP
d) SMTP

Answer: c) NTP
Explanation: NTP (Network Time Protocol) is used to synchronize the clocks of network devices to ensure accurate timekeeping.

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56. What does the term "latency" refer to in networking?

a) The amount of data that can be sent at once
b) The delay between sending and receiving data
c) The speed at which data is transmitted
d) The error rate in data transmission

Answer: b) The delay between sending and receiving data
Explanation: Latency refers to the time delay between a data request and the data response in a network.

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57. Which technology allows the combination of multiple networks into a single virtual network?

a) VLAN
b) VPN
c) NAT
d) DNS

Answer: a) VLAN
Explanation: A VLAN (Virtual Local Area Network) allows multiple physical networks to be combined into a single logical network.

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58. What is the function of a proxy server?

a) To block incoming attacks
b) To act as an intermediary between a client and the internet
c) To monitor network traffic
d) To assign dynamic IP addresses

Answer: b) To act as an intermediary between a client and the internet
Explanation: A proxy server acts as an intermediary that forwards client requests to the internet and returns the requested resources.

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59. Which of the following describes a hybrid topology?

a) A combination of two or more topologies
b) A network where devices are connected in a ring
c) A network with all nodes connected to a single cable
d) A network where each node is connected to every other node

Answer: a) A combination of two or more topologies
Explanation: A hybrid topology combines two or more different topologies, like a star-bus or star-ring topology.

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60. Which command is used to configure network interfaces on Linux?

a) ping
b) traceroute
c) ifconfig
d) ipconfig

Answer: c) ifconfig
Explanation: The `ifconfig` command is used to configure network interfaces on Unix-based systems.

These questions cover more advanced and diverse aspects of networking, including protocols, commands, topologies, and network management.