Top Essential 50 CCNA Interview Questions and Answers 2024

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Check out these frequently asked 50 CCNA interview questions along with answers that will help you to prepare for the exam.

1. What is a VLAN?

Answer: A VLAN (Virtual Local Area Network) is a logical grouping of devices within a network, regardless of their physical location. It allows for the segmentation and isolation of broadcast domains.

2. What is the purpose of a router?

Answer: Routers link different computer networks by forwarding data packets. In the OSI model, it belongs to the network layer.

3. What is the difference between a hub, a switch, and a router?

Answer: Hub: Operates at the physical layer and simply broadcasts data to all connected devices. Switch:

Operates at the data link layer, filters, and forwards data based on MAC addresses. Router: Operates at the network layer, and forwards data between different networks based on IP addresses.

4. What is OSPF?

Answer: OSPF (Open Shortest Path First) is a dynamic routing protocol used to exchange routing information between routers within an autonomous system.

5. What is the purpose of NAT?

Answer: NAT (Network Address Translation) is used to map private IP addresses to a single public IP address, allowing

multiple devices within a private network to share a single public IP for internet access.

6. Explain the difference between TCP and UDP.

Answer: TCP (Transmission Control Protocol) is connection-oriented, provides reliable and ordered delivery of data. UDP (User Datagram Protocol) is connectionless, provides faster but unreliable delivery of data.

7. What is ARP?

Answer: ARP (Address Resolution Protocol) is used to map a known IP address to a MAC address in a local network.

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8. What is the purpose of the OSI model?

Answer: The OSI (Open Systems interconnection) model is a conceptual framework that standardizes the functions of a telecommunication or computing system into seven abstraction layers.

9. What is a subnet mask?

Answer: An IP address is divided into network and host portions by a subnet mask, which is a 32-bit number.

It identifies a host's IP address and the network's address.

10. Explain the concept of a default gateway.

Answer: A default gateway is a router on a network that serves as an entry and exit point for data packets traveling between different networks.

11. What is a broadcast storm?

Answer: A broadcast storm occurs when a network system is overwhelmed with continuous broadcast or multicast traffic, degrading network performance.

12. What is STP (Spanning Tree Protocol)?

Answer: A bridged Ethernet local area network is guaranteed to maintain a loop-free topology by using STP.

13. What is the purpose of DHCP?

Answer: DHCP (Dynamic Host Configuration Protocol) is used to dynamically assign IP addresses and other network configuration information to devices on a network.

14. Explain the difference between a collision domain and a broadcast domain.

Collision Domain: The set of devices on a network segment where collisions can occur. Broadcast Domain:

The set of all devices that receive broadcast frames originating from any device within the group.

15. What is HSRP (Hot Standby Router Protocol)?

Answer: HSRP is a Cisco proprietary redundancy protocol that provides high network availability by allowing two or more routers to work together in order to represent a single IP address for a particular network.

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16. What is the purpose of the TCP three-way handshake?

Answer: To establish a reliable connection between two devices, the three-way handshake is used. It involves SYN, SYN-ACK, and ACK packets to synchronize sequence numbers.

17. What is the purpose of ACL (Access Control List)?

Answer: An ACL is a set of rules applied to a router interface to control the traffic entering or exiting a network.

18. What is Layer 3 Switch

Answer: A Layer 3 switch is basically a switch that can perform routing functions in addition to switching

19. What is VTP (VLAN Trunking Protocol)?

Answer: VTP is a Cisco proprietary protocol used to manage VLAN configurations across a network of switches.

20. What is the purpose of the ping command?

Answer: An Internet Protocol (IP) network uses the ping command to determine if a host is reachable and to. measure the round-trip time of messages sent from a source host to a destination host.

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21. What is the role of ARP in a network?

Answer: ARP (Address Resolution Protocol) is used to map an IP address to a MAC address in a local network.

22. Explain the concept of a MAC address.

Answer: A MAC (Media Access Control) address is a unique identifier assigned to a network interface card (NIC) for communications at the data link layer of a network segment.

23. What is the purpose of the traceroute command?

Answer: The traceroute command is used to trace the route that packets take to reach a destination, showing the IP addresses of routers along the way.

24. What is the purpose of the 802.1Q standard?

Answer: The 802.10 standard defines a protocol for carrying VLAN (Virtual Local Area Network) information over Ethernet networks.

25. What is the purpose of the BGP (Border Gateway Protocol)?

Answer: The BGP protocol is a standardized exterior gateway protocol for exchanging routing and reachability information between autonomous systems (ASes).

26. What is DHCP snooping?

Answer: DHCP snooping is a security feature that filters and regulates DHCP traffic within a network by monitoring and controlling the responses from DHCP servers.

27. Explain the purpose of the ARP cache.

Answer: The ARP cache is a table that maps IP addresses to MAC addresses in a local network. It is used to store ARP (Address Resolution Protocol) information.

28. What is the purpose of the NAT/PAT?

Answer: NAT (Network Address Translation) and PAT (Port Address Translation) are used to map private IP addresses to a public IP address, allowing multiple devices to share a single public IP for internet access.

29. What is the purpose of the subnetting?

Answer: Subnetting is the process of dividing a larger network into smaller, more manageable sub-networks to improve performance and security.

30. What is the purpose of the VLAN trunking?

Answer: VLAN trunking allows the transmission of VLAN information between switches, enabling devices on d ifferent switches to be part of the same VLAN.

31. What is the purpose of the loopback address?

Answer: The loopback address (127.0.0.1) is used to test the network interface of a device. It allows a device to send and

receive data to itself for diagnostic purposes.

32. What is RSTP (Rapid Spanning Tree Protocol)?

Answer: RSTP is an enhancement of the Spanning Tree Protocol (STP) that provides faster convergence in the event of network topology changes.

33. What is EtherChannel?

Answer: Ether Channel Combine bandwidth of multiple physical ports into a single logical Port known as a Port-channel The main purpose is to get more bandwidth and availability.

34. What is the purpose of the GRE tunnel?

Answer: GRE (Generic Routing Encapsulation) tunnels are used to encapsulate a wide variety of network layer protocols into point-to-point connections.

35. What is the purpose of the ACL (Access Control List)?

Answer: An ACL is a set of rules used to filter network traffic and provide security by controlling access to network resources.

36. What is the purpose of the HSRP (Hot Standby Router Protocol)?

Answer: HSRP is a Cisco proprietary protocol that provides high network availability by allowing two or more routers to work together to represent a single IP address for a particular network.

37. What is the purpose of the subnet mask?

Answer: A subnet mask is used to divide an IP address into network and host portions, allowing for the creation of sub-networks.

38. Explain the concept of the broadcast storm.

Answer: A broadcast storm occurs when a network is flooded with broadcast or multicast traffic, leading to network congestion and performance degradation.

39. What is Routing?

Answer: Routing is a process of establishing the routes that data packets take on their way to the destination. itis a process of selecting a path across one or more networks to move a data packet from source to destination.