Network Journey

A journey towards packet life !!!

48 MCQ Question Answers with Explanation

VLAN

1. What is the primary purpose of VLANs in a network?

a. To increase the physical size of a network
b. To divide a single physical network into multiple logical networks
c. To provide encryption for data in transit
d. To enhance routing capabilities

Answer: b. To divide a single physical network into multiple logical networks

Explanation: VLANs are used to logically segment a single physical network into multiple virtual networks, improving network management and security.

2. Which device is responsible for assigning VLAN tags to network packets?

a. Switch
b. Router
c. Hub
d. Firewall

Answer: a. Switch

Explanation: Switches assign VLAN tags to network packets based on port or MAC addresses, allowing them to be routed to the correct VLAN.

3. What is the purpose of a native VLAN in IEEE 802.1Q tagging?

a. It's a VLAN used exclusively for management traffic
b. It's a VLAN with no tag that carries untagged traffic
c. It's a VLAN used for voice over IP (VoIP) traffic
d. It's a VLAN for guest network traffic

Answer: b. It's a VLAN with no tag that carries untagged traffic

Explanation: The native VLAN is used for carrying untagged traffic over a trunk link.

4. In a network with multiple VLANs, which device is responsible for routing traffic between them?

a. Switch
b. Access Point
c. Router

d. Hub

Answer: c. Router

Explanation: Routers are used to route traffic between different VLANs.

5. What is the maximum number of VLANs that can be created using IEEE 802.1Q tagging?

a. 4094
b. 1024
c. 256
d. 128

Answer: a. 4094

Explanation: IEEE 802.1Q tagging supports a maximum of 4094 VLANs, including the reserved VLANs.

6. What is the purpose of a Voice VLAN in a network?

a. It carries all network voice traffic
b. It separates voice traffic from data traffic for quality of service (QoS)
c. It provides encryption for voice data
d. It segments the network for security

Answer: b. It separates voice traffic from data traffic for quality of service (QoS)

Explanation: Voice VLANs are used to ensure high-quality voice traffic by separating it from other data traffic and applying QoS policies.

7. Which IEEE standard specifies the operation of VLANs and VLAN tagging?

a. IEEE 802.11
b. IEEE 802.3
c. IEEE 802.1Q
d. IEEE 802.15

Answer: c. IEEE 802.1Q

Explanation: IEEE 802.1Q is the standard for VLAN tagging.

8. What is a VLAN Trunk in networking?

a. A cable connecting two switches for VLAN management
b. A link that carries traffic for multiple VLANs
c. A wireless access point
d. A dedicated server for VLAN configuration

Answer: b. A link that carries traffic for multiple VLANs

Explanation: A VLAN trunk is a connection between switches or routers that carries traffic for multiple VLANs.

9. What is the purpose of a VLAN Membership Policy Server (VMPS) in a network?

a. To assign IP addresses to devices in a VLAN
b. To dynamically assign VLANs based on MAC addresses
c. To secure the network against VLAN hopping attacks
d. To manage the Wi-Fi network's encryption keys

Answer: b. To dynamically assign VLANs based on MAC addresses

Explanation: VMPS is used to assign VLANs based on MAC addresses, allowing dynamic VLAN assignment.

10. What is VLAN Hopping?

a. A technique used to secure VLANs
b. A network attack where an attacker gains unauthorized access to another VLAN
c. A feature in VoIP networks
d. A method of enhancing VLAN performance

Answer: b. A network attack where an attacker gains unauthorized access to another VLAN

Explanation: VLAN hopping is a security vulnerability where an attacker exploits misconfigured switch settings to gain unauthorized access to other VLANs.

11. Which of the following is an advantage of VLANs?

a. Improved network speed
b. Enhanced physical security
c. Simplified network management

d. Reduced bandwidth

Answer: c. Simplified network management

Explanation:VLANs simplify network management by segmenting the network logically, making it easier to manage and secure.

12. What is Private VLAN (PVLAN) used for in a network?

a. To isolate devices from all other devices
b. To isolate devices within the same VLAN
c. To create public Wi-Fi networks
d. To provide encryption for data in transit

Answer: b. To isolate devices within the same VLAN

Explanation: PVLANs are used to isolate devices within the same VLAN, providing enhanced security.

13. Which of the following VLANs is typically reserved for management and control traffic in a network?

a. VLAN 1
b. VLAN 100
c. VLAN 10
d. VLAN 999

Answer: a. VLAN 1

Explanation: VLAN 1 is often reserved for management and control traffic.

14. What is a "PVID" in the context of VLANs on a switch?

a. Port VLAN Identifier
b. Private VLAN ID
c. Parent VLAN ID
d. Protected VLAN ID

Answer: a. Port VLAN Identifier

Explanation: PVID stands for Port VLAN Identifier and is used to assign a VLAN to a specific port.

15. Which VLAN is known as the "default" VLAN on most switches?

a. VLAN 100
b. VLAN 1
c. VLAN 10
d. VLAN 999

Answer: b. VLAN 1

Explanation: VLAN 1 is commonly referred to as the default VLAN on many switches.

16. Which of the following statements about VLANs is true?

a. VLANs can only be configured on Layer 3 switches.
b. VLANs are limited to 16 million in number.
c. VLANs can span multiple physical locations.
d. VLANs can't communicate with each other.

Answer: c. VLANs can span multiple physical locations.

Explanation: VLANs can be configured to span multiple physical locations, allowing for network segmentation across different sites.

17. What is a "VLAN ID" or "VLAN Tag"?

a. A unique identifier for a VLAN.
b. A password for accessing a VLAN.
c. A type of VLAN-based encryption.
d. An IP address assigned to a VLAN.

Answer: a. A unique identifier for a VLAN.

Explanation: A VLAN ID or VLAN Tag is a unique identifier associated with a VLAN to distinguish it from others.

18. What is a "VLAN interface" used for in a network?

a. It's a virtual interface used to configure physical switch ports.

b. It's a physical interface used to connect different VLANs.
c. It's a router interface used to route traffic between VLANs.
d. It's an access point used for wireless VLANs.

Answer: c. It's a router interface used to route traffic between VLANs.

Explanation: A VLAN interface on a router is used to route traffic between different VLANs.

19. What is a "VLAN Trunking Protocol (VTP)" used for in a Cisco network?

a. It's used to assign IP addresses to VLANs.
b. It's used to encrypt VLAN traffic.
c. It's used to automatically configure VLAN information across switches.
d. It's used to prioritize VoIP traffic in a VLAN.

Answer: c. It's used to automatically configure VLAN information across switches.

Explanation: VTP is a Cisco protocol used to synchronize VLAN information across multiple switches in a network.

20. Which of the following is a common use case for Voice VLANs in a network?

a. Isolating printers from other devices.
b. Separating guest Wi-Fi traffic from the main network.
c. Prioritizing voice traffic in a separate VLAN for quality of service (QoS).
d. Creating a dedicated VLAN for servers.

Answer: c. Prioritizing voice traffic in a separate VLAN for quality of service (QoS).

Explanation: Voice VLANs are used to ensure quality of service for voice over IP (VoIP) traffic.

21. What is the purpose of "VLAN pruning" in a network?

a. To limit the number of devices in a VLAN
b. To optimize the size of VLAN frames
c. To reduce the size of the broadcast domain
d. To dynamically allocate VLAN IDs

Answer: c. To reduce the size of the broadcast domain

Explanation: VLAN pruning is used to prevent unnecessary broadcast traffic from being sent to switches that don't have devices in a particular VLAN, reducing the broadcast domain.

22. Which VLAN is typically reserved for system use and can't be removed or modified on Cisco switches?

a. VLAN 100
b. VLAN 1
c. VLAN 10
d. VLAN 999

Answer: b. VLAN 1

Explanation: VLAN 1 is the default VLAN on Cisco switches and is typically reserved for system use.

23. What is "VLAN tagging" in the context of Ethernet frames?

a. It's the process of encrypting VLAN traffic.
b. It's a technique used to divide a switch into multiple VLANs.
c. It's the addition of a VLAN ID to the frame header.
d. It's a method of isolating network segments.

Answer: c. It's the addition of a VLAN ID to the frame header.

Explanation: VLAN tagging involves adding a VLAN ID to the frame header to identify the VLAN to which the frame belongs.

24. What is the range of valid VLAN IDs in IEEE 802.1Q tagging?

a. 1-4096
b. 1-1024
c. 1-256
d. 1-128

Answer: a. 1-4096

Explanation: IEEE 802.1Q tagging supports VLAN IDs in the range of 1 to 4096.

25. Which VLAN is commonly used for guest network traffic in organizations?

a. VLAN 100
b. VLAN 1
c. VLAN 10
d. VLAN 999

Answer: a. VLAN 100

Explanation: VLAN 100 is often used for guest network traffic to isolate it from the main network.

26. What is the primary benefit of using Voice VLANs in a network?

a. Enhanced security for voice traffic
b. Prioritization of voice traffic for quality of service (QoS)
c. Increased bandwidth for voice calls
d. Simplified network management

Answer: b. Prioritization of voice traffic for quality of service (QoS)

Explanation: Voice VLANs prioritize voice traffic for better quality of service (QoS).

27. What is VLAN "tag hopping," and how can it be prevented in a network?

a. It's the unauthorized removal of VLAN tags from frames.
b. It's a method of dynamically changing VLAN IDs on the fly.
c. It's a security attack where an attacker gains access to multiple VLANs.
d. It's the renaming of VLANs.

Answer: c. It's a security attack where an attacker gains access to multiple VLANs.

Explanation: VLAN tag hopping is a security attack where an attacker exploits misconfigured switches to gain access to multiple VLANs. It can be prevented by proper switch configuration.

28. What is the purpose of a "VLAN database" on some switches?

a. To store VLAN configuration information
b. To track the MAC addresses of devices in a VLAN
c. To manage wireless VLANs
d. To encrypt VLAN traffic

Answer: a. To store VLAN configuration information

Explanation: Some switches have a VLAN database that stores VLAN configuration information.

29. In a Layer 3 switch, how is inter-VLAN routing typically achieved?

a. By connecting a router to each VLAN
b. By using a VLAN interface on the switch
c. By configuring a separate physical switch for each VLAN
d. By using a VLAN trunk link

Answer: b. By using a VLAN interface on the switch

Explanation: In a Layer 3 switch, inter-VLAN routing is typically achieved by configuring a VLAN interface on the switch itself.

30. What is "VLAN stacking," and how does it enhance network flexibility?

a. It's the process of creating multiple nested VLANs within a single VLAN.
b. It's a security feature that isolates VLAN traffic.
c. It's a technique for combining VLAN IDs to increase the number of available VLANs.
d. It's a method for creating VLAN backups.

Answer: a. It's the process of creating multiple nested VLANs within a single VLAN.

Explanation: VLAN stacking involves creating multiple nested VLANs within a single VLAN, enhancing network flexibility and segmentation.

31. What is the purpose of "VLAN pruning" in a network?

a. To optimize the size of VLAN frames
b. To reduce the size of the broadcast domain
c. To dynamically allocate VLAN IDs
d. To separate voice traffic from data traffic

Answer: b. To reduce the size of the broadcast domain

Explanation: VLAN pruning is used to reduce the size of the broadcast domain by preventing unnecessary broadcast traffic from being sent to switches that don't have devices in a particular VLAN.

32. Which VLAN is often used for voice traffic in organizations implementing Voice over IP (VoIP) systems?

a. VLAN 100
b. VLAN 1
c. VLAN 10
d. VLAN 999

Answer: a. VLAN 100

Explanation: VLAN 100 is commonly used for voice traffic to ensure quality of service for VoIP systems.

33. What is "VLAN tagging" in the context of Ethernet frames?

a. A method to divide a switch into multiple VLANs
b. The addition of a VLAN ID to the frame header
c. The process of encrypting VLAN traffic
d. A technique to isolate network segments

Answer: b. The addition of a VLAN ID to the frame header

Explanation: VLAN tagging involves adding a VLAN ID to the frame header to identify the VLAN to which the frame belongs.

34. What is the purpose of a "Trunk" port on a switch?

a. To connect to a router for inter-VLAN routing
b. To reduce the size of the broadcast domain
c. To connect to access points for wireless VLANs
d. To assign VLAN IDs to devices

Answer: a. To connect to a router for inter-VLAN routing

Explanation: A Trunk port on a switch is used to connect to a router for inter-VLAN routing.

35. What is "VLAN stacking," and how does it enhance network flexibility?

a. It's the process of creating multiple nested VLANs within a single VLAN.
b. It's a security feature that isolates VLAN traffic.

c. It's a technique for combining VLAN IDs to increase the number of available VLANs.
d. It's a method for creating VLAN backups.

Answer: a. It's the process of creating multiple nested VLANs within a single VLAN.

Explanation: VLAN stacking involves creating multiple nested VLANs within a single VLAN, enhancing network flexibility and segmentation.

36. Which of the following is an advantage of Private VLANs (PVLANs)?

a. Enhanced security for voice traffic
b. Prioritization of voice traffic for quality of service (QoS)
c. Isolating devices within the same VLAN
d. Simplifying network management

Answer: c. Isolating devices within the same VLAN

Explanation: PVLANs are used to isolate devices within the same VLAN, providing enhanced security.

37. Which device is responsible for routing traffic between different VLANs in a network?

a. Switch
b. Access Point
c. Router
d. Hub

Answer: c. Router

Explanation: Routers are responsible for routing traffic between different VLANs.

38. What is a "VLAN Membership Policy Server (VMPS)" used for in a network?

a. To assign IP addresses to devices in a VLAN
b. To secure the network against VLAN hopping attacks
c. To dynamically assign VLANs based on MAC addresses
d. To manage the Wi-Fi network's encryption keys

Answer: c. To dynamically assign VLANs based on MAC addresses

Explanation: VMPS is used to assign VLANs based on MAC addresses, allowing dynamic VLAN assignment.

39. What is the primary benefit of using VLANs in a network?

a. Enhanced security for voice traffic
b. Improved network speed
c. Simplified network management
d. Enhanced physical security

Answer: c. Simplified network management

Explanation: VLANs simplify network management by segmenting the network logically, making it easier to manage and secure.

40. What is the purpose of a "VLAN interface" in a Layer 3 switch?

a. To optimize the size of VLAN frames
b. To prioritize voice traffic for quality of service (QoS)
c. To route traffic between different VLANs
d. To separate voice traffic from data traffic

Answer: c. To route traffic between different VLANs

Explanation: A VLAN interface on a Layer 3 switch is used to route traffic between different VLANs within the switch.

41. What is the purpose of a "VLAN database" on some switches?

a. To manage VLAN encryption keys
b. To store VLAN configuration information
c. To track the MAC addresses of devices in a VLAN
d. To create VLAN backups

Answer: b. To store VLAN configuration information

Explanation: Some switches have a VLAN database that stores VLAN configuration information.

42. In a network, how is VLAN information automatically synchronized across multiple switches?

a. By manually configuring each switch with the same VLAN information
b. By using the STP (Spanning Tree Protocol)
c. By configuring VTP (VLAN Trunking Protocol)
d. By enabling VLAN tagging on all ports

Answer: c. By configuring VTP (VLAN Trunking Protocol)

Explanation: VLAN information is automatically synchronized across multiple switches by configuring VTP.

43. What is the main advantage of using a "Voice VLAN" for VoIP traffic in a network?

a. Enhanced security for voice traffic
b. Isolating voice traffic from data traffic
c. Simplified network management
d. Prioritizing voice traffic for quality of service (QoS)

Answer: d. Prioritizing voice traffic for quality of service (QoS)

Explanation: Voice VLANs prioritize voice traffic for better quality of service (QoS) in VoIP systems.

44. What is "Inter-VLAN Routing," and why is it necessary in a network?

a. It's the process of connecting VLANs to the internet.
b. It's used to create nested VLANs within a larger VLAN.
c. It's the routing of traffic between different VLANs.
d. It's a security measure to protect VLANs.

Answer: c. It's the routing of traffic between different VLANs.

Explanation: Inter-VLAN routing is the process of routing traffic between different VLANs in a network.

45. Which command is commonly used to view the VLAN configuration on a Cisco switch?

a. `show vlan`
b. `view vlan`
c. `vlan config`
d. `list vlan`

Answer: a. `show vlan`

Explanation: The `show vlan` command is commonly used to view the VLAN configuration on a Cisco switch.

46. What is "Native VLAN" in the context of IEEE 802.1Q tagging?

a. The VLAN used for data traffic in a network
b. The default VLAN on a switch
c. The VLAN used for VoIP traffic
d. The VLAN used for administrative traffic

Answer: b. The default VLAN on a switch

Explanation: The Native VLAN is the default VLAN on a switch used for untagged frames in IEEE 802.1Q tagging.

47. What is "VLAN Hopping," and how can it be prevented in a network?

a. A method to increase the size of VLAN frames
b. A security attack to gain unauthorized access to VLANs
c. A technique for tagging VLAN traffic
d. A method for nesting VLANs

Answer: b. A security attack to gain unauthorized access to VLANs

Explanation: VLAN hopping is a security attack where an attacker gains unauthorized access to VLANs. It can be prevented through proper switch configuration.

48. In a network, what is the purpose of a "Trunk" port on a switch?

a. To connect to access points for wireless VLANs
b. To assign VLAN IDs to devices
c. To reduce the size of the broadcast domain
d. To connect to routers for inter-VLAN routing

Answer: d. To connect to routers for inter-VLAN routing

Explanation: A Trunk port on a switch is used to connect to routers for inter-VLAN routing.

These questions delve into VLAN concepts, their configuration, and their role in network management and security.