

Member ID: _____

Time: _____

Rank: _____



Network Administration Using Cisco (315)

Regional 2024

CONCEPT KNOWLEDGE:

Multiple Choice (50 @ 2 points each) _____ (100 points)

Test Time: 60 minutes

GENERAL GUIDELINES:

Failure to adhere to any of the following rules will result in disqualification:

1. Member must hand in this test booklet and all printouts if any. Failure to do so will result in disqualification.
2. No equipment, supplies, or materials other than those specified for this event are allowed in the testing area. No previous BPA tests and/or sample tests (handwritten, photocopied, or keyed) are allowed in the testing area.
3. Electronic devices will be monitored according to ACT standards.

Multiple Choice Questions

Directions: Identify the letter of the choice that best completes the statement or answers the question.

1. What does the protocol DHCP primarily accomplish in a network?
 - A. It encrypts data for secure transmission.
 - B. It distributes IP addresses within a network dynamically.
 - C. It allows computers to connect to the Internet.
 - D. It regulates data packet transmission between networks.
2. What is the role of OSPF LSA type 5 in OSPF?
 - A. It handles the distribution of the router ID.
 - B. It is used for path control within the OSPF area.
 - C. It is responsible for injecting external routes into the OSPF domain.
 - D. It summarizes all networks within the OSPF area.
3. What is the primary role of a Domain Name System (DNS) server in a network?
 - A. It allows the sharing of files over the network
 - B. It translates domain names to IP addresses
 - C. It controls the access of computers to the network
 - D. It distributes summarized routes of the area to other OSPF areas
4. What is the main function of a firewall in a computer network?
 - A. It acts as a default gateway for the network
 - B. It monitors and controls incoming and outgoing network traffic based on predetermined security rules
 - C. It translates IP addresses to domain names
 - D. It allows the sharing of files over the network
5. What is the role of a Virtual Private Network (VPN)?
 - A. It allows users to securely access a private network and share data remotely through public networks
 - B. It translates IP addresses to domain names
 - C. It forwards data packets between computer networks
 - D. It provides a set of standards for network management
6. What is the function of the Designated Router (DR) in an OSPF network?
 - A. It translates protocols from OSPF to other routing protocols
 - B. It is the default gateway for all hosts in the OSPF area
 - C. It manages the flooding of LSAs to reduce network traffic
 - D. It ensures the distribution of summarized routes within a single OSPF area

7. What is a primary function of the Interior Gateway Routing Protocol (IGRP)?
 - A. It provides dynamic IP addresses to devices on a network
 - B. It determines the best path for data packets based on distance and network speed
 - C. It forwards data packets based on MAC addresses
 - D. It ensures the distribution of summarized routes within a single OSPF area
8. Which command should be used to see a summary of the interfaces and their status?
 - A. Show ip interface brief
 - B. Show interface summary
 - C. Display interface summary
 - D. View interface status
9. What does the command "show version" do on a Cisco device?
 - A. It shows the operating system version.
 - B. It shows the hardware specifications of the device.
 - C. It shows the IP routing table.
 - D. It shows the hardware version, software version, and other related information.
10. Which of the following addresses is in the same IPv4 subnet as 172.16.34.25/28?
 - A. 172.16.34.12
 - B. 172.16.34.40
 - C. 172.16.34.16
 - D. 172.16.34.60
11. For the network address 192.0.2.0/24, you need to create at least 6 subnets. What is the suitable subnet mask you should use?
 - A. 255.255.255.0
 - B. 255.255.255.128
 - C. 255.255.255.192
 - D. 255.255.255.224
12. What command would you use to set up IPv6 routing in Cisco IOS?
 - A. Ipv6 unicast-routing
 - B. Ipv6 routing-setup
 - C. Set ipv6 routing
 - D. Ipv6 enable-routing
13. Which of the following protocols is used for device management within a network infrastructure?
 - A. Border Gateway Protocol (BGP)
 - B. Simple Network Management Protocol (SNMP)
 - C. Transmission Control Protocol (TCP)
 - D. User Datagram Protocol (UDP)

14. Which of the following is an example of the use of a subnet mask in CIDR notation?
- A. 192.168.1.0/24
 - B. 192.168.1.255
 - C. 255.255.255.0
 - D. 192.168.1.1
15. Which command is used to display the IP address information on a Cisco router interface?
- A. Show ip interface
 - B. Show interface ip
 - C. Display ip interface
 - D. Ip interface show
16. The command "show ip route" was executed on a router, and the following entry is found: "C 192.168.1.0/24 is directly connected, FastEthernet0/0". What can be determined from this output?
- A. The router has learned about the 192.168.1.0/24 network via a routing protocol.
 - B. The router has a static route configured for the 192.168.1.0/24 network.
 - C. The router is directly connected to the 192.168.1.0/24 network.
 - D. The router is advertising the 192.168.1.0/24 network to neighboring routers.
17. The command "show cdp neighbors" was executed on a router, and the following entry is found:
- ```
Device ID Local Intrfce Holdtme Capability Platform Port ID
Switch1 Fas0/1 130 S I WS-C2960 Fas0/5
```
- What can be determined from this output?
- A. The router is directly connected to a switch with the hostname "Switch1".
  - B. The router interface Fas0/1 is connected to the switch interface Fas0/5.
  - C. The hold time for the CDP information exchange is 130 seconds.
  - D. The switch has Layer 3 routing capabilities.
18. When implementing Network Address Translation (NAT), what is the purpose of the "overload" or "PAT" mode?
- A. It allows multiple private IP addresses to be translated to a single public IP address using different port numbers
  - B. It allows a single private IP address to be translated to multiple public IP addresses
  - C. It blocks all incoming traffic to the network
  - D. It allows incoming traffic from unknown sources but notates the event by sending a message
19. In the context of Virtual Local Area Networks (VLANs), what is the purpose of the "trunk" port mode?
- A. It allows the transmission of multiple VLANs over a single physical link
  - B. It restricts the transmission of VLANs to a specific subset of ports
  - C. It blocks VLAN traffic from unknown sources
  - D. It allows VLAN traffic from unknown sources but notates the event by sending a message

20. What is the purpose of the "show ip interface brief" command on a Cisco router?
  - A. Displays a summary of all configured interfaces and their IP addresses.
  - B. Shows detailed information about a specific interface.
  - C. Enables the IP routing protocol on all interfaces.
  - D. Configures IP address summarization on the router.
21. What is the purpose of the "clock rate" command on a Cisco router serial interface?
  - A. Configures the clock speed of the CPU.
  - B. Enables clocking on the serial interface.
  - C. Sets the clock rate for synchronization with the connected device.
  - D. Sets the baud rate for serial communication.
22. What is the purpose of the "banner motd" command on a Cisco device?
  - A. Configures a banner for multicast traffic.
  - B. Displays a message of the day when users log in.
  - C. Enables the MOTD (Message of the Day) protocol.
  - D. Sets the device's mode of operation.
23. Which command is used to display the IP addresses assigned to interfaces on a Cisco device?
  - A. Show ip interface brief
  - B. Show cdp
  - C. Show ip address
  - D. Show running-config
24. What is the main function of a switch?
  - A. To store and manage data files
  - B. To provide power to network devices
  - C. To connect devices within a network
  - D. To control internet access
25. What does the acronym LAN stand for?
  - A. Local Area Network
  - B. Long Access Node
  - C. Limited Access Network
  - D. Logical Application Node
26. What is the purpose of an IP subnet mask?
  - A. To determine the physical location of a device
  - B. To assign a unique identifier to a device
  - C. To divide a network into smaller subnetworks
  - D. To protect against malware attacks
27. What is the function of a router in a network?
  - A. To connect multiple networks together
  - B. To block incoming network traffic
  - C. To store and manage files and documents

- D. To secure wireless networks from unauthorized access
28. Which protocol and port combination is used for email communication?
- A. TCP port 53
  - B. UDP port 25
  - C. TCP port 143
  - D. UDP port 3389
29. What is the purpose of the ARP (Address Resolution Protocol)?
- A. It maps an IP address to a physical (MAC) address on the network.
  - B. It establishes secure VPN tunnels.
  - C. It manages group membership for IP multicast groups.
  - D. It performs load balancing across multiple network links.
30. Which protocol provides reliable, ordered, and error-checked delivery of a stream of packets in the internet protocol suite?
- A. HTTP
  - B. TCP
  - C. UDP
  - D. DNS
31. What is a primary function of a Layer 2 switch in a network?
- A. It determines the best path to send packets across the network
  - B. It forwards data frames based on MAC addresses
  - C. It assigns IP addresses to devices on a network
  - D. It manages the routing tables in an OSPF area
32. What does the Spanning Tree Protocol (STP) prevent in a network?
- A. The occurrence of routing loops
  - B. The use of default gateways in an OSPF area
  - C. The running of other routing protocols
  - D. The distribution of summarized routes to other OSPF areas
33. What is the primary function of the Network Time Protocol (NTP) in a network?
- A. It translates protocols from OSPF to other routing protocols
  - B. It synchronizes the clocks of computers over a network
  - C. It manages the routing tables in an OSPF area
  - D. It ensures the distribution of summarized routes within a single OSPF area
34. How do you manually set a port's speed to 100 Mbps on a Cisco switch?
- A. speed 100
  - B. set speed 100
  - C. speed set 100
  - D. switchport speed 100



35. What is the purpose of the command "show running-config" in a Cisco router?
- A. It will show the saved configuration file in the NVRAM.
  - B. It will show the currently active configuration in the router's RAM.
  - C. It will show the startup configuration in the router's ROM.
  - D. It will show the interface configurations on the router.
36. What does the command "show arp" do on a Cisco device?
- A. It shows the IP routing table.
  - B. It shows the Address Resolution Protocol (ARP) table.
  - C. It shows the detailed configuration of all VLANs.
  - D. It shows the MAC address table.
37. What will the command "show controllers serial 0/0/0" display on a Cisco router?
- A. It will display the configuration of the serial interface.
  - B. It will display the IP address of the specific serial interface.
  - C. It will display the routing protocols active on the specific serial interface.
  - D. To store and manage data files
38. What command set enables a password for Telnet users on a Cisco device?
- A. Line vty 0 4, password cisco, login
  - B. Password cisco, enable
  - C. Line vty 0 4, cisco, enable
  - D. Vty password cisco, login
39. What commands enable RIP on a Cisco router?
- A. Router rip, version 2, enable
  - B. Router rip, version 2
  - C. Rip router, version 2, enable
  - D. Version 2, router rip, no shutdown
40. Which of the following is a private Class B network address?
- A. 10.5.0.0/16
  - B. 165.15.0.0/16
  - C. 172.31.0.0/16
  - D. 191.168.0.0/16
41. Given the network 200.34.56.78/29, what is the broadcast address?
- A. 200.34.56.79
  - B. 200.34.56.83
  - C. 200.34.56.85
  - D. 200.34.56.255
42. You are tasked to divide the IP address 133.18.0.0/16 into subnets that could minimally support 300 subnetworks. What subnet mask would you apply?
- A. 255.255.192.0
  - B. 255.255.254.0
  - C. 255.255.128.0

D. 255.255.255.128

43. How do you specify the IPv6 address for an interface on a Cisco device?
- A. Ipv6 set address
  - B. Ipv6 address
  - C. Set ipv6 address
  - D. Ipv6 configure address
44. What kind of network topology relies on a single, central hub or switch to which all nodes are directly connected?
- A. Mesh topology
  - B. Ring topology
  - C. Star topology
  - D. Tree topology
45. Which type of IP address allocation method automatically assigns IP addresses from a pool and reuses them as devices leave the network?
- A. Static
  - B. Dynamic
  - C. Manual
  - D. Persistent
46. Which of the following is an example of a valid IPv6 address?
- A. 2001:0db8:85a3::8a2e:370::7334
  - B. FG80:CD00:0:CDE:1257:0:211E:729C
  - C. FF01::101
  - D. 1200::AB00:1234::2552:7777:1313
47. The command "show ip interface brief" was executed on a router, and the following entry is found: "FastEthernet0/0 10.0.0.1 YES manual up up". What can be determined from this output?
- A. The interface is administratively down.
  - B. The interface is using DHCP to obtain its IP address.
  - C. The interface is using a static IP address.
  - D. The interface is experiencing errors on the physical layer.
48. In the context of routing protocols, what is the purpose of the "passive" interface mode?
- A. It allows the interface to participate in routing updates
  - B. It blocks incoming traffic on the interface
  - C. It allows incoming traffic on the interface but notates the event by sending a message
  - D. It disables the interface from participating in routing updates
49. Which command is used to configure a static route on a Cisco router?
- A. Ip route
  - B. Route static
  - C. Static-route
  - D. Route add

50. What is the purpose of the "access-list" command on a Cisco router?
- A. Configures an ACL (Access Control List) to filter traffic.
  - B. Displays the list of access permissions for users.
  - C. Enables access to the router's configuration mode.
  - D. Assigns an IP address to an interface.