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# MODULE 10 : Infrastructure Security and WAN Technologies

1. A Cisco Catalyst switch connects to what should be individual user PCs. Each port has the same port security configuration, configured as follows:

**Example:-**

```
interface range gigabit Ethernet 0/1 - 24
switchport mode access
switchport port-security
switchport port-security mac-address sticky
```

Which of the following answers describe the result of the port security configuration created with these commands? (Choose two)

- A. Prevents unknown devices with unknown MAC addresses from sending data through the switch ports.
- B. If a user connects a switch to the cable, prevents multiple devices from sending data through the port.
- C. Will allow any one device to connect to each port, and will save that device's MAC address into the startup-config.
- D. Will allow any one device to connect to each port, but will not save that device's MAC address into the startup-config.

**Ans:**

A. Prevents unknown devices with unknown MAC addresses from sending data through the switch ports.

C. Will allow any one device to connect to each port, and will save that device's MAC address into the startup-config.

**Explanation:**

Port security with the sticky MAC address option allows the switch to dynamically learn the MAC addresses of devices that connect to the port and store them in the startup configuration. It also prevents unknown devices with unlearned MAC addresses from sending traffic through the port.

**2. What is the Administrative Distance of internal EIGRP routes?**

- A. 170
- B. 90
- C. 20
- D. 1
- E. 110
- F. 120

**Ans:**

**B. 90**

**Explanation:**

The Administrative Distance (AD) of internal EIGRP routes is 90. The AD is a value used to rank routing protocols; lower values are preferred.

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**3. When a subnet mask is presented in binary, what do the binary 1s represent?**

- A. The network portion of an associated address
- B. The host portion of the subnet mask
- C. The number of wildcard bits in the subnet mask
- D. The number of wildcard bits in the address
- E. The network portion of the subnet mask
- F. The host portion of an associated address

**Ans:**

**A. The network portion of an associated address**

**Explanation:**

In a subnet mask, the binary 1s represent the network portion of the associated IP address. They identify which part of the IP address refers to the network.

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**4. Which switch would STP choose to become the root bridge in the selection process?**

- A. 32768: 11-22-33-44-55-66
- B. 32768: 22-33-44-55-66-77
- C. 32769: 11-22-33-44-55-65
- D. 32769: 22-33-44-55-66-78

**Ans:**

A. 32768: 11-22-33-44-55-66

**Explanation:**

The root bridge in Spanning Tree Protocol (STP) is chosen based on the lowest bridge priority and, if there is a tie, the lowest MAC address. The switch with the lowest priority value and MAC address becomes the root bridge.

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**5. Which of the following devices is used by the service provider to provide WAN services?**

- A. Router
- B. Core router
- C. WAN switch
- D. CSU/DSU

**Ans:**

D. CSU/DSU

**Explanation:**

A CSU/DSU (Channel Service Unit/Data Service Unit) is used by service providers to connect a customer's equipment to the WAN link, providing access to the network.

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**6. Your Cisco IOS router is acting as a DHCP server. Which command will display the addresses that have been handed out to clients on the LAN?**

- A. show ip dhcp assignments
- B. show ip dhcp address
- C. show ip dhcp conflicts
- D. show ip dhcp bindings
- E. show ip dhcp pool

**Ans:**

D. show ip dhcp bindings

**Explanation:**

The `show ip dhcp bindings` command displays the list of DHCP leases that have been assigned to clients, including IP addresses, MAC addresses, and lease times.

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**7. Which of the following commands would you use to enable EIGRP only on those interfaces with an IP address from 10.1.1.0 through 10.1.1.63?**

- A. `network 10.1.1.0 0.0.0.63`
- B. `network 10.1.1.0/63`
- C. `router eigrp 10.1.1.0 0.0.0.63`
- D. `network 10.0.0.0 0.0.0.255`

**Ans:**

A. `network 10.1.1.0 0.0.0.63`

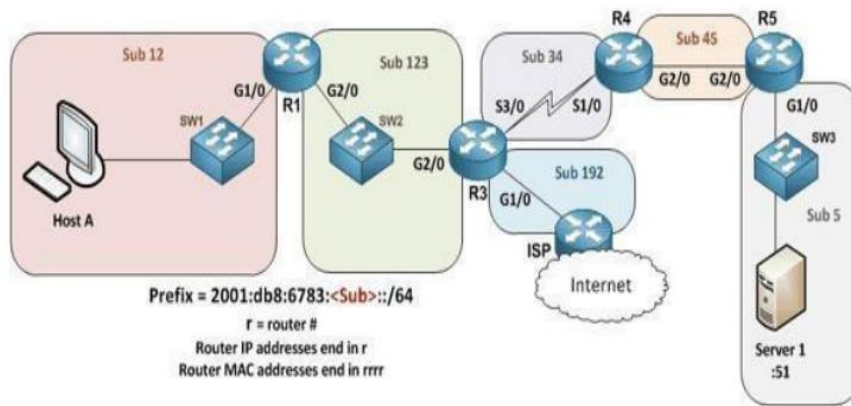
**Explanation:**

The `network` command with the wildcard mask `0.0.0.63` enables EIGRP on the interfaces with IP addresses in the range 10.1.1.0 to 10.1.1.63.

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**8. R3 has a static route configured that points toward the service provider. What command could you use to have R3 advertise an OSPFv3 default route to the internal network, regardless of whether R3 had its default static route?**

- A. The decision to advertise a default route depends on the static route always being present on R3.
- B. The default behavior is to redistribute any default IPv6 routes into OSPFv3, so no action is required.
- C. Each of the other routers needs a static default route that leads to R3.
- D. Use the command `default-information originate always` in interface mode for G1/0 on R3.
- E. Have R3 use the command `default-information originate always` in OSPFv3 router configuration mode.



**Ans:**

E. Have R3 use the command `default-information originate always` in OSPFv3 router configuration mode.

**Explanation:**

The `default-information originate always` command in OSPFv3 router configuration mode forces the router to advertise a default route, regardless of whether the static default route is present.

9. You are configuring dynamic NAT on your Cisco IOS router. Which command is used to verify the interfaces that are being used as the outside interface and the inside interface?

- A. show interfaces
- B. show ip route
- C. show ip nat translations
- D. show ip interface brief
- E. show ip interface
- F. show ip nat statistics

**Answer:**

D. show ip interface brief

**Explanation:**

The `show ip interface brief` command provides a quick overview of the router's interfaces, including their IP addresses and NAT role (inside or outside).

**10. When using the “show EtherChannel summary” command, what does the “u” flag signify?**

- A. Waiting to be aggregated**
- B. Suspended**
- C. In use**
- D. Unsuitable for bundling**

**Ans:**

**D. Unsuitable for bundling**

**Explanation:**

The "u" flag indicates that the interface is unsuitable for bundling in an EtherChannel configuration.

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**11. Which command could you enter to encrypt passwords?**

- A. enable secret**
- B. username {username} secret {password}**
- C. service password-encryption**
- D. All of the above**
- E. None of the above**

**Ans:**

**D. All of the above**

**Explanation:**

All of the listed commands are used to either configure or encrypt passwords on a Cisco router.

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**12. You are setting up a Cisco IOS router as a DHCP server. Which command is used to identify the IPv4 addresses that will be in the DHCP pool?**

- A. network**
- B. dns-server**
- C. default-router**
- D. ip dhcp excluded-address**
- E. lease**
- F. ip dhcp pool**
- G. domain-name**

**Ans:**

**A. network**

**Explanation:**

The **network** command in the DHCP configuration identifies the range of IP addresses that the DHCP server can assign to clients.

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**13. Which of the following statements are true regarding the processing of ACLs that have been applied to router interfaces? (Choose two)**

- A. Inbound ACLs will be processed before the routing table lookup occurs**
- B. Inbound ACLs will be processed after the routing table lookup has occurred**
- C. Outbound ACLs will be processed after the routing table lookup has occurred**
- D. Outbound ACLs will be processed before the routing table lookup occurs**

**Ans:**

**A. Inbound ACLs will be processed before the routing table lookup occurs**

**C. Outbound ACLs will be processed after the routing table lookup has occurred**

**Explanation:**

Inbound ACLs are processed before the routing table lookup, while outbound ACLs are processed after the routing table lookup.

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**14. Imagine you configured OSPFv2 in a small lab network. Which of the following answers list a condition that could keep the routers in your lab from learning all the routes to all the IPv4 routes in your small lab network? (Choose two)**

- A. An ACL could be blocking router advertisements.**
- B. Two neighboring routers that connect to the same link have been configured with the same OSPF area and with the same IPv4 subnet mask.**
- C. Any physical layer problem that would prevent two neighboring routers from being able to ping each other's IPv4 addresses in the subnet that exists between the two routers.**
- D. Two neighboring routers that connect to the same link have been configured with the same OSPF process ID on the router ospf command.**

**Ans:**

**A. An ACL could be blocking router advertisements.**

**C. Any physical layer problem that would prevent two neighboring routers from being**

able to ping each other's IPv4 addresses in the subnet that exists between the two routers.

**Explanation:**

OSPF routers may not learn all routes if there are ACLs blocking advertisements or physical layer issues that prevent routers from establishing communication

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**15. Which statements describe neighbor discovery functionality in IPv6? (Choose two)**

- A. Determines the link layer address of a neighbor**
- B. Finds neighbor switches on the link**
- C. Is achieved by using Dynamic Host Configuration Protocol for IPv6, or DHCPv6 with IPv6 multicast**
- D. Queries for duplicate addresses**

**Answer:**

- A. Determines the link layer address of a neighbor**
- D. Queries for duplicate addresses**

**Explanation:**

Neighbor Discovery Protocol (NDP) in IPv6 is responsible for discovering neighbors' link layer addresses and detecting duplicate addresses.

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**16. Which IPv6 prefix will the typical enterprise network receive from the service provider?**

- A. /52**
- B. /56**
- C. /64**
- D. /32**
- E. /48**
- F. /60**

**Answer:**

- E. /48**

**Explanation:**

Enterprise networks typically receive a /48 IPv6 prefix from service providers for internal use and subnetting.



**17. How should a switch be configured so that it could be accessed remotely?**

- A. Assign a password and privilege level**
- B. Apply the access control list, or ACL, to the virtual type terminal, or vty, lines**
- C. Configure a gateway for the switch**
- D. Generate a certificate**

**Ans:**

**C. Configure a gateway for the switch**

**Explanation:**

For remote access, the switch needs a gateway configured to enable communication with devices outside its subnet.

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**18. Refer to the exhibit. A network technician is asked to design a small network with redundancy. The exhibit represents this design, with all hosts configured in the same VLAN. What conclusions can be made about this design?**

- A. This design will function as intended.**
- B. Spanning-tree will need to be used.**
- C. The router will not accept the addressing scheme.**
- D. The connection between switches should be a trunk.**
- E. The router interfaces must be encapsulated with the 802.1Q protocol.**

**Ans:**

**B. Spanning-tree will need to be used.**

**Explanation:**

Spanning Tree Protocol (STP) is needed to prevent loops in a redundant switch network.