

Exam Questions 200-105

Interconnecting Cisco Networking Devices Part 2 (ICND2 v3.0)

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NEW QUESTION 1

Which option describes a difference between EIGRP for IPv4 and IPv6?

- A. Only EIGRP for IPv6 advertises all connected networks.
- B. Only EIGRP for IPv6 requires a router ID to be configured under the routing process.
- C. AS numbers are configured in EIGRP but not in EIGRPv3.
- D. Only EIGRP for IPv6 is enabled in the global configuration mode.

Answer: B

Explanation: Router ID - Both EIGRP for IPv4 and EIGRP for IPv6 use a 32-bit number for the EIGRP router ID. The 32-bit router ID is represented in dotted-decimal notation and is commonly referred to as an IPv4 address. If the EIGRP for IPv6 router has not been configured with an IPv4 address, the eigrp router-id command must be used to configure a 32-bit router ID. The process for determining the router ID is the same for both EIGRP for IPv4 and IPv6.

NEW QUESTION 2

Which identification number is valid for an extended ACL?

- A. 1
- B. 64
- C. 99
- D. 100
- E. 299
- F. 1099

Answer: D

NEW QUESTION 3

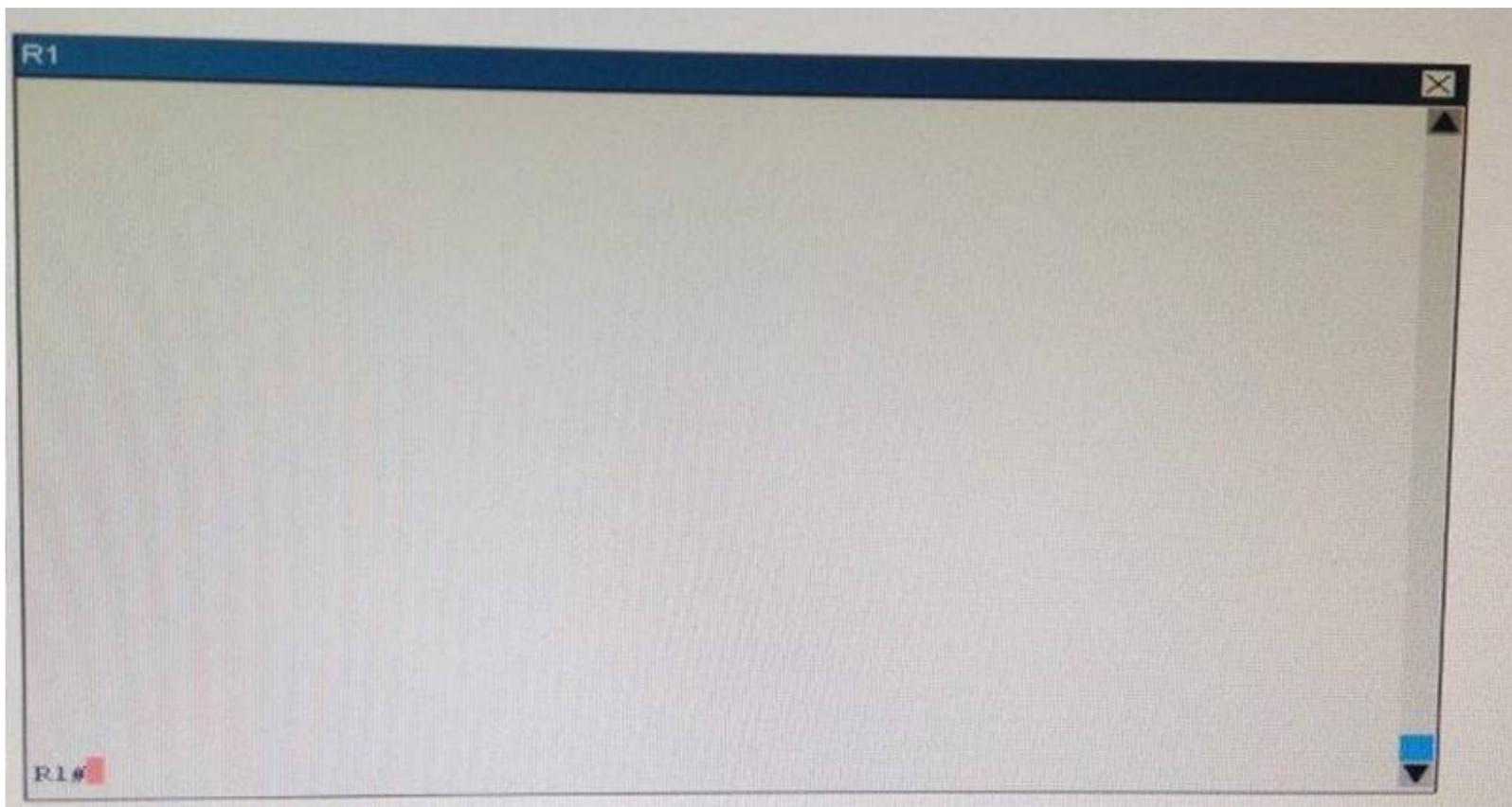
Instructions

- Enter Cisco IOS commands on the device to verify network operation and answer the multiple-choice questions.
- **THIS TASK DOES NOT REQUIRE DEVICE CONFIGURATION.**
- Click on the device to gain access to the console of the device. No console or enable passwords are required.
- To access the multiple-choice questions, click on the numbered boxes on the left of the top panel.
- There are **four** multiple-choice questions with this task. Be sure to answer all four questions before clicking the Next button.

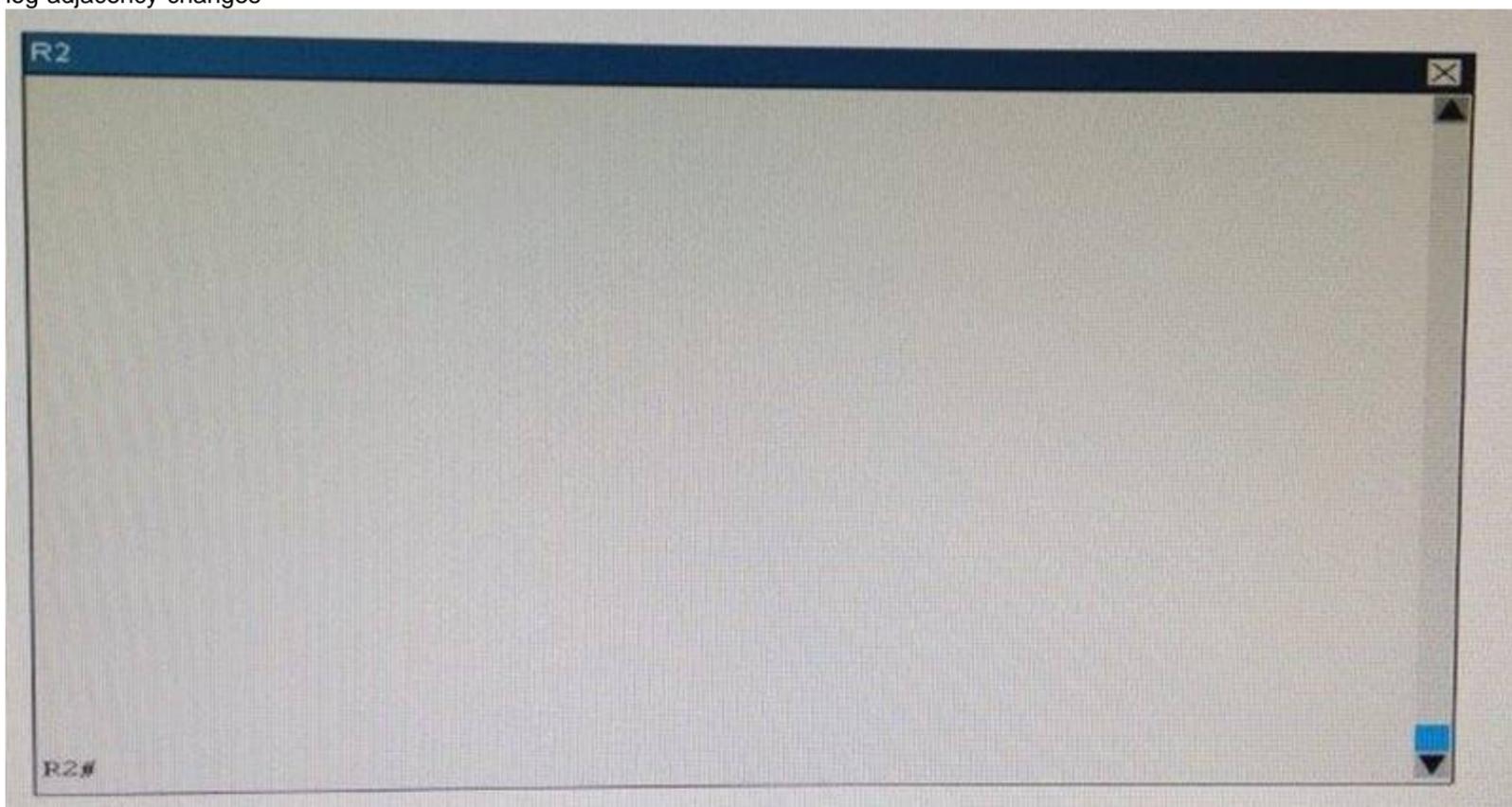
Scenario

Refer to the topology. Your company has decided to connect the main office with three other remote branch offices using point-to-point serial links. You are required to troubleshoot and resolve OSPF neighbor adjacency issues between the main office and the routers located in the remote branch offices. Use appropriate show commands to troubleshoot the issues and answer all four questions.

Topology

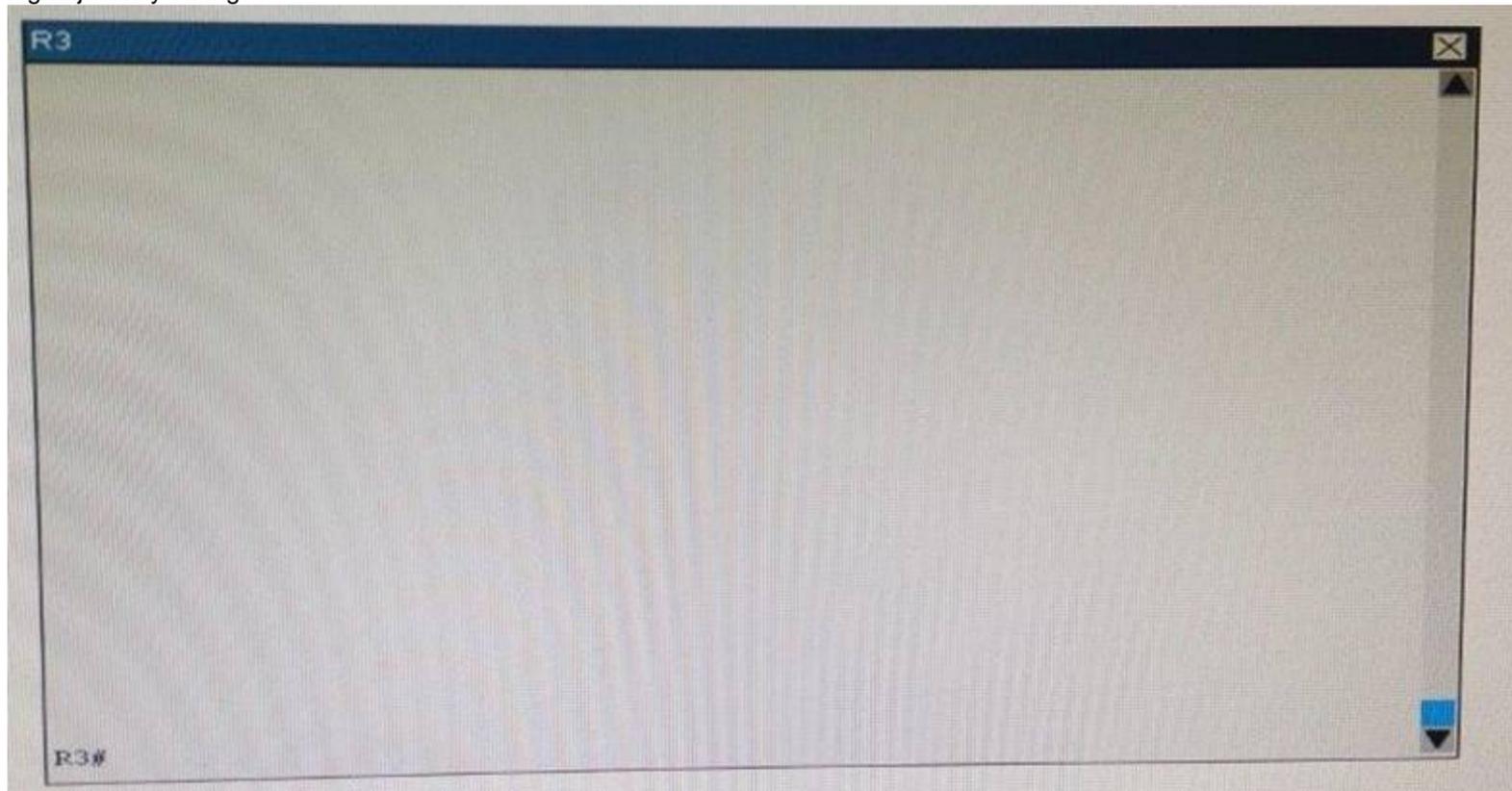


```
R1# show running-config interface Loopback0
description ***Loopback***
ip address 192.168.1.1 255.255.255.255
ip ospf 1 area 0
!
interface Ethernet0/0
description **Connected to R1-LAN** ip address 10.10.110.1 255.255.255.0
ip ospf 1 area 0
!
interface Ethernet0/1
description **Connected to L2SW**
ip address 10.10.230.1 255.255.255.0
ip ospf hello-interval 25 ip ospf 1 area 0
!
router ospf 1
log-adjacency-changes
```

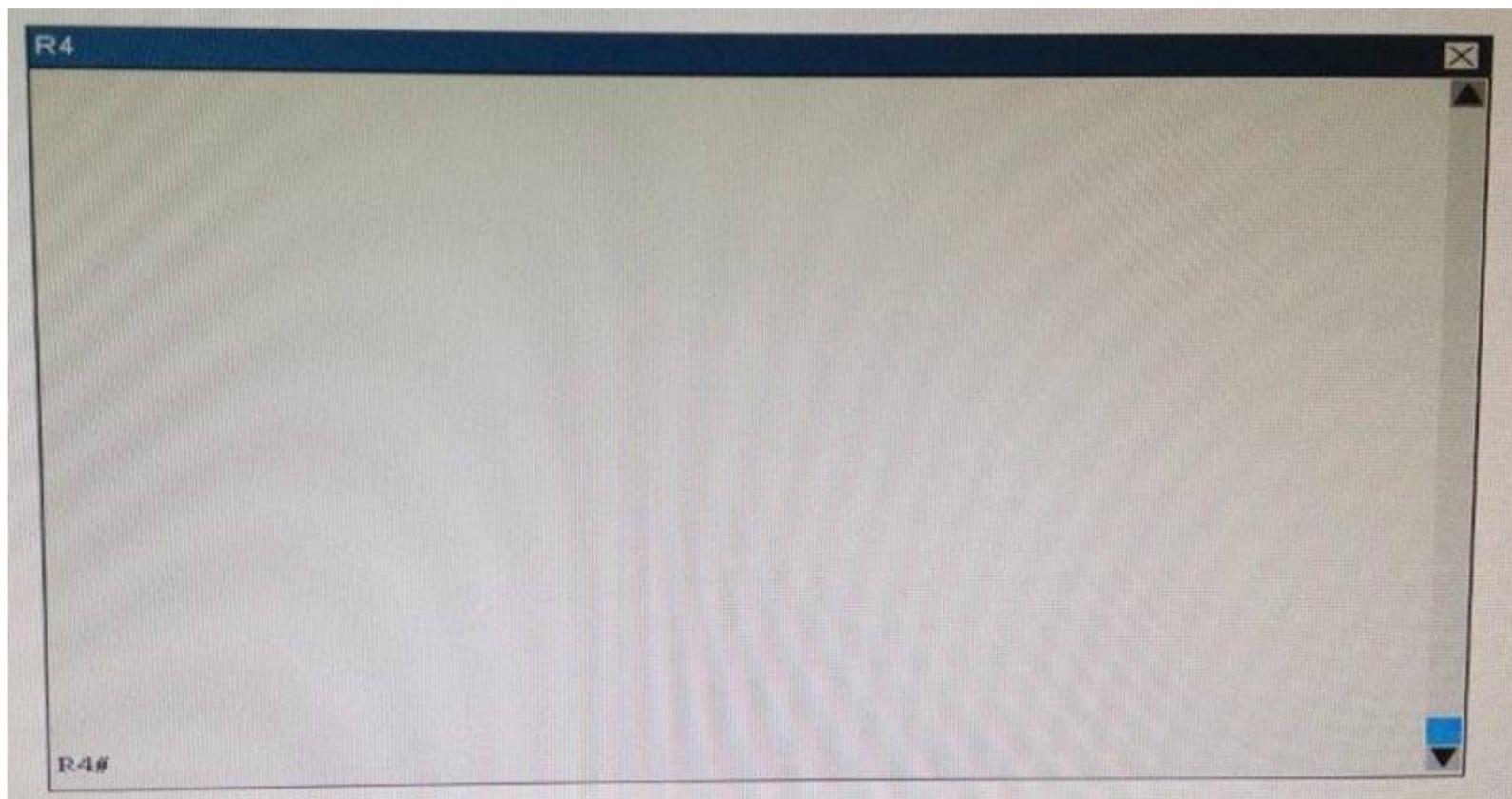


```
R2# show running-config
R2
!
interface Loopback0 description **Loopback**
ip address 192.168.2.2 255.255.255.255
ip ospf 2 area 0
!
interface Ethernet0/0
description **Connected to R2-LAN** ip address 10.10.120.1 255.255.255.0
ip ospf 2 area 0
!
interface Ethernet0/1
description **Connected to L2SW**
ip address 10.10.230.2 255.255.255.0
```

```
ip ospf 2 area 0
!  
router ospf 2  
log-adjacency-changes
```

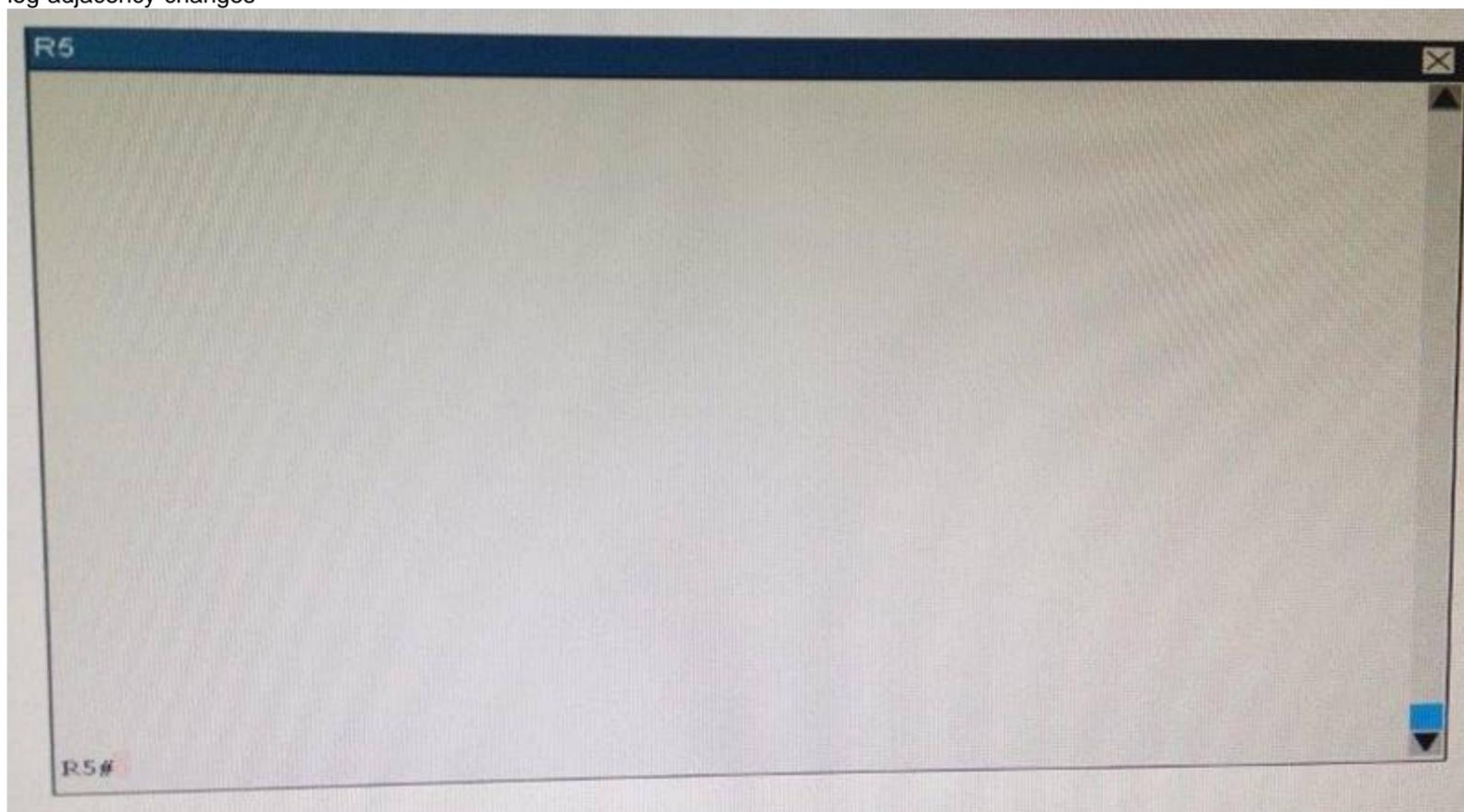


```
R3# show running-config R3  
username R6 password CISCO36  
!  
interface Loopback0 description **Loopback**  
ip address 192.168.3.3 255.255.255.255  
ip ospf 3 area 0  
!  
interface Ethernet0/0  
description **Connected to L2SW**  
ip address 10.10.230.3 255.255.255.0  
ip ospf 3 area 0  
!  
interface Serial1/0  
description **Connected to R4-Branch1 office** ip address 10.10.240.1 255.255.255.252  
encapsulation ppp ip ospf 3 area 0  
!  
interface Serial1/1  
description **Connected to R5-Branch2 office** ip address 10.10.240.5 255.255.255.252  
encapsulation ppp  
ip ospf hello-interval 50 ip ospf 3 area 0  
!  
interface Serial1/2  
description **Connected to R6-Branch3 office** ip address 10.10.240.9 255.255.255.252  
encapsulation ppp ip ospf 3 area 0  
ppp authentication chap  
!  
router ospf 3  
router-id 192.168.3.3  
!
```



R4# show running-config R4

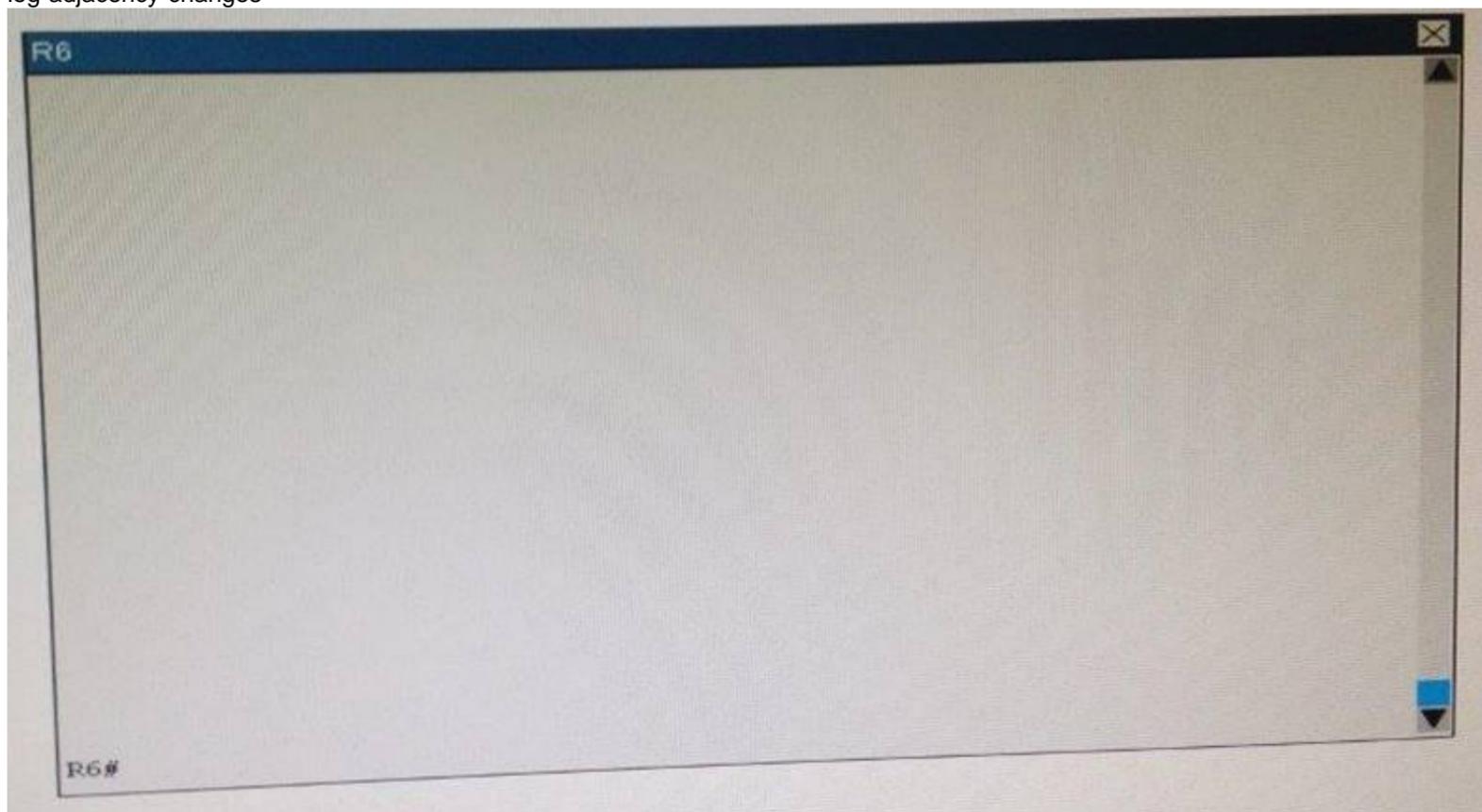
```
!  
interface Loopback0 description **Loopback**  
ip address 192.168.4.4 255.255.255.255  
ip ospf 4 area 2  
!  
interface Ethernet0/0  
ip address 172.16.113.1 255.255.255.0  
ip ospf 4 area 2  
!  
interface Serial1/0  
description **Connected to R3-Main Branch office** ip address 10.10.240.2 255.255.255.252  
encapsulation ppp ip ospf 4 area 2  
!  
router ospf 4  
log-adjacency-changes
```



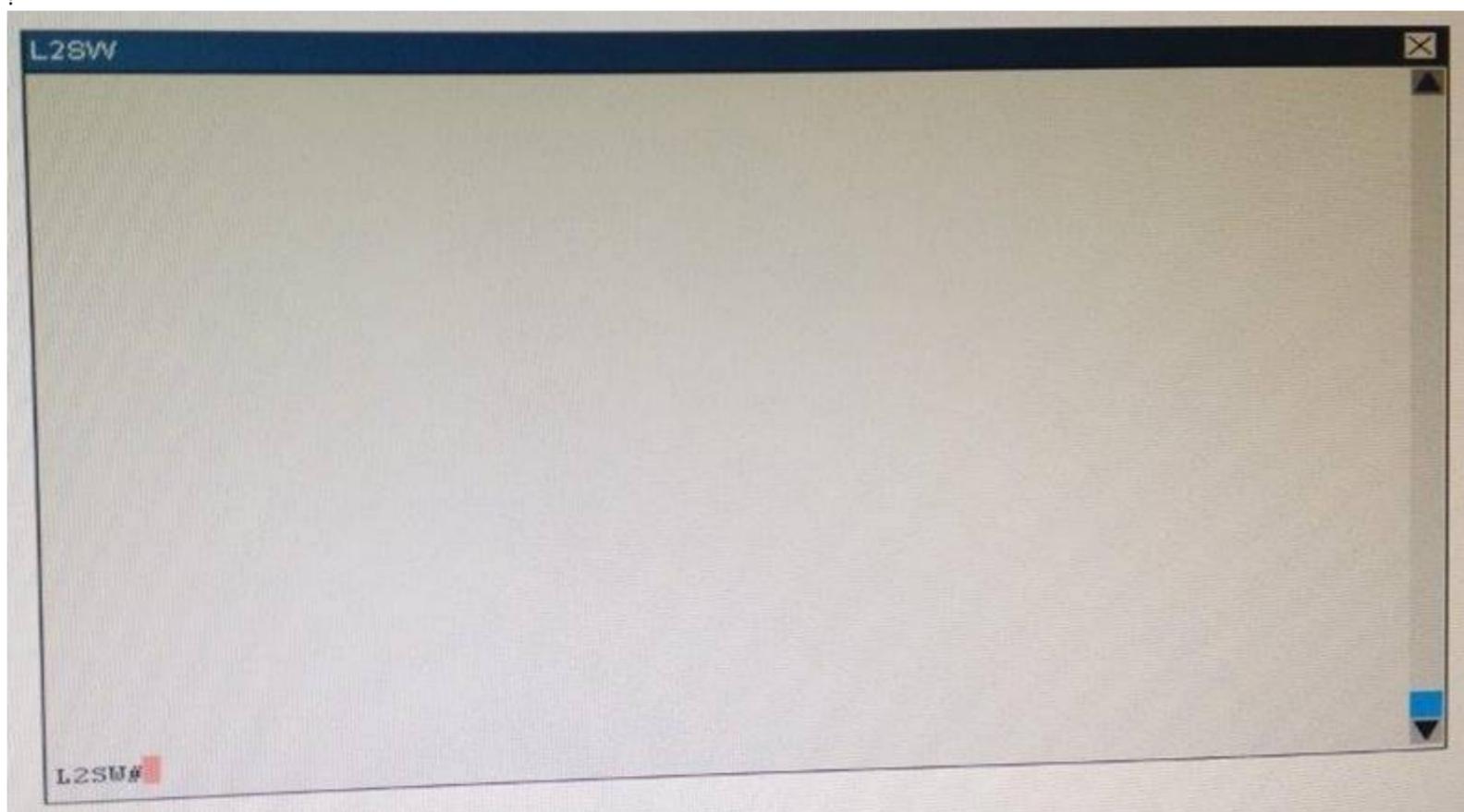
R5# show running-config R5

```
!  
interface Loopback0 description **Loopback**  
ip address 192.168.5.5 255.255.255.255  
ip ospf 5 area 0  
!  
interface Ethernet0/0  
ip address 172.16.114.1 255.255.255.0  
ip ospf 5 area 0  
!  
interface Serial1/0  
description **Connected to R3-Main Branch office** ip address 10.10.240.6 255.255.255.252  
encapsulation ppp ip ospf 5 area 0  
!
```

```
router ospf 5
log-adjacency-changes
```



```
R6# show running-config R6
username R3 password CISCO36
!
interface Loopback0 description **Loopback**
ip address 192.168.6.6 255.255.255.255
ip ospf 6 area 0
!
interface Ethernet0/0
ip address 172.16.115.1 255.255.255.0
ip ospf 6 area 0
!
interface Serial1/0
description **Connected to R3-Main Branch office** ip address 10.10.240.10 255.255.255.252
encapsulation ppp ip ospf 6 area 0
ppp authentication chap
!
router ospf 6
router-id 192.168.3.3
!
```



An OSPF neighbor adjacency is not formed between R3 in the main office and R4 in the Branch1 office. What is causing the problem?

- A. There is an area ID mismatch.
- B. There is a Layer 2 issue; an encapsulation mismatch on serial links.
- C. There is an OSPF hello and dead interval mismatch.
- D. The R3 router ID is configured on R4.

Answer: A

NEW QUESTION 4

What is the first step you perform to configure an SNMPv3 user?

- A. Configure server traps.
- B. Configure the server group.
- C. Configure the server host.
- D. Configure the remote engine ID.

Answer: B

Explanation: The first task in configuring SNMPv3 is to define a view. To simplify things, we'll create a view that allows access to the entire internet subtree:

```
router(config)#snmp-server view readview internet included
```

This command creates a view called readview. If you want to limit the view to the system

tree, for example, replace internet with system. The included keyword states that the specified tree should be included in the view; use excluded if you wanted to exclude a certain subtree.

Next, create a group that uses the new view. The following command creates a group called readonly ; v3 means that SNMPv3 should be used. The auth keyword specifies that the entity should authenticate packets without encrypting them; read readview says that the view named readview should be used whenever members of the readonly group access the router.

```
router(config)#snmp-server group readonly v3 auth read readview
```

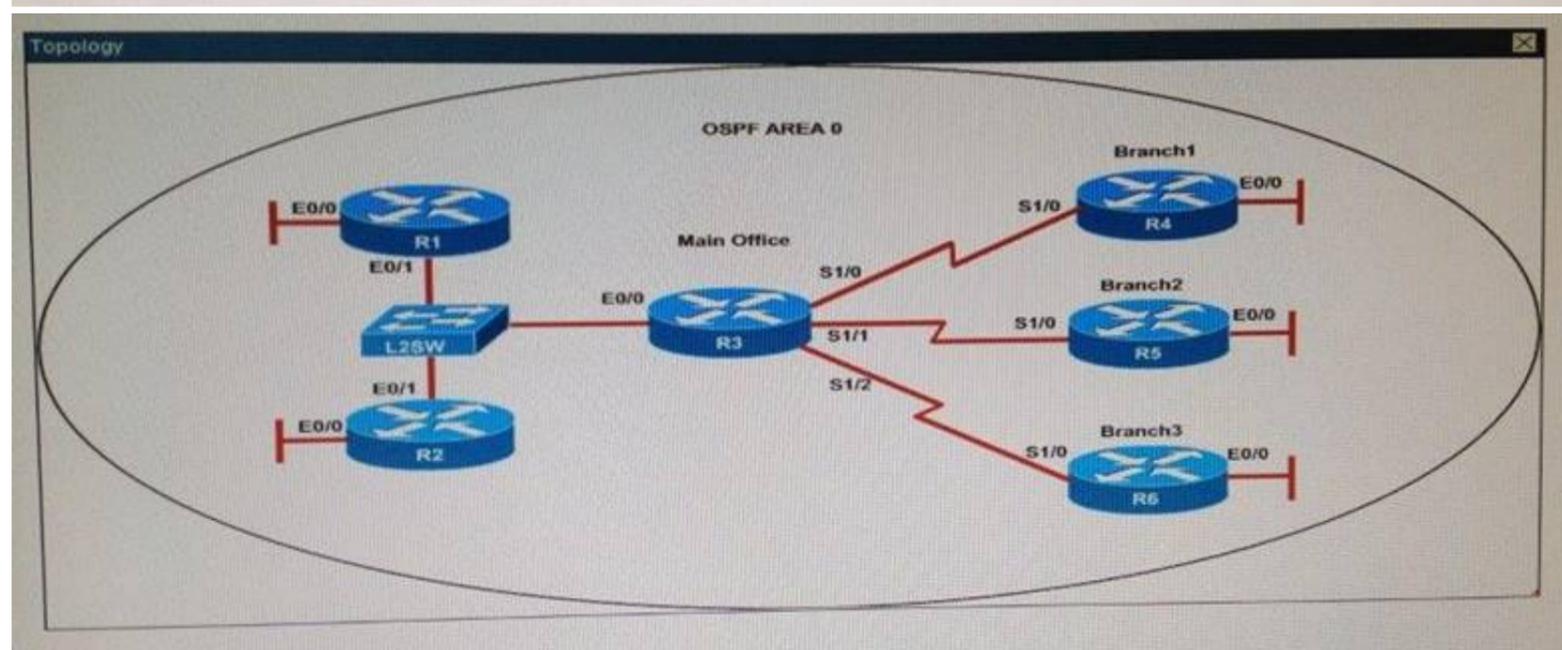
NEW QUESTION 5

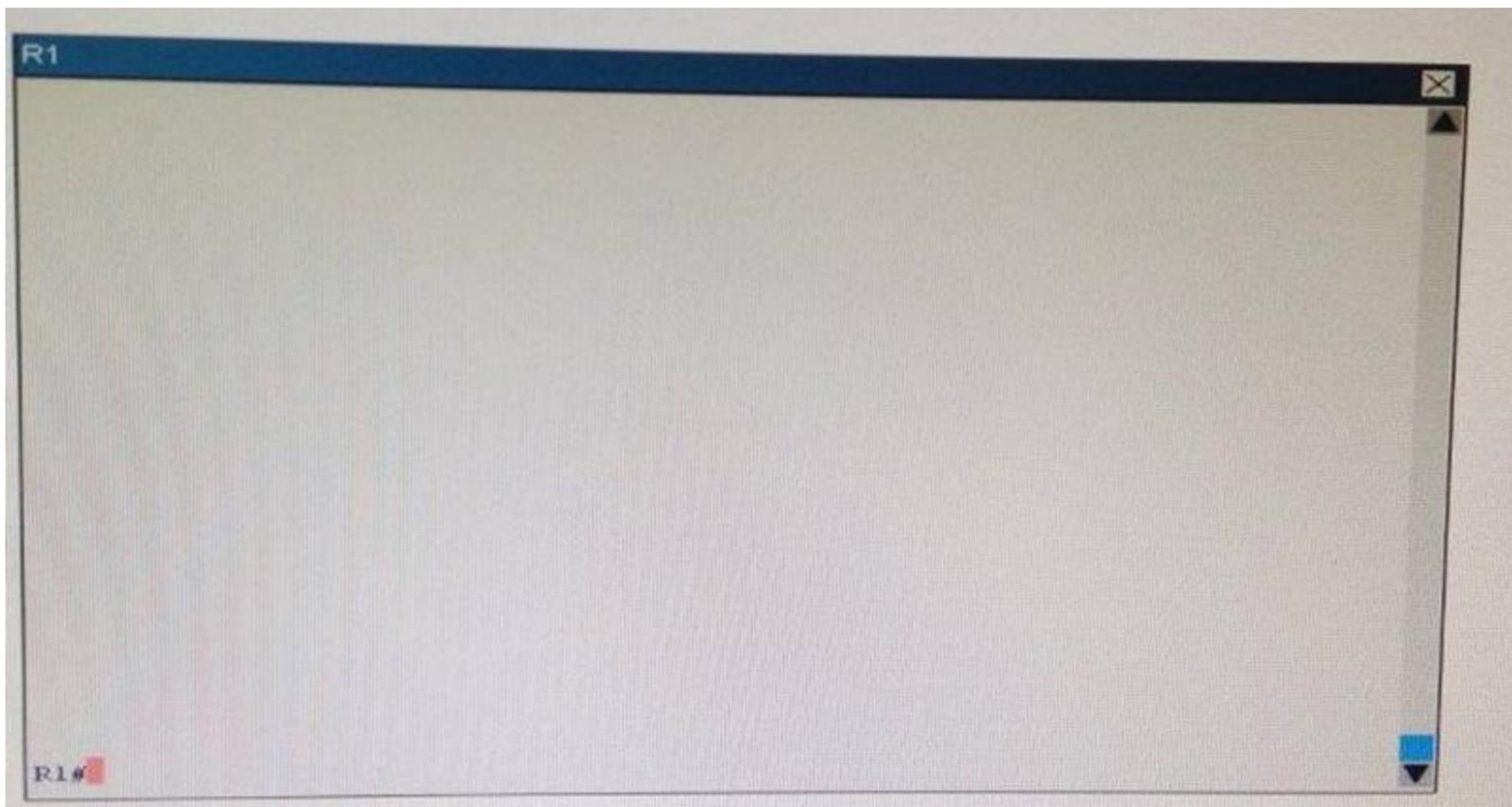
Instructions

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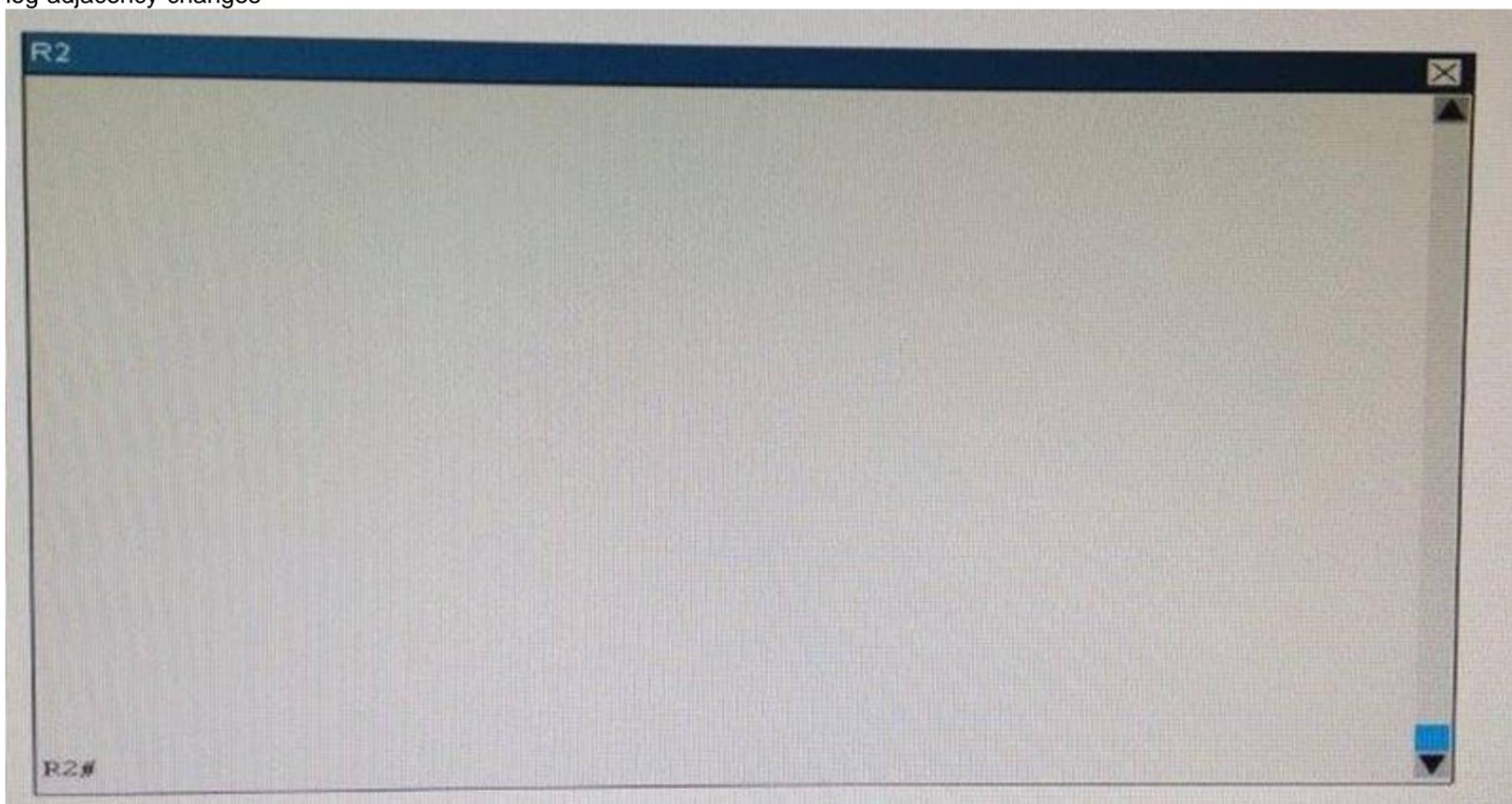
Scenario

Refer to the topology. Your company has decided to connect the main office with three other remote branch offices using point-to-point serial links. You are required to troubleshoot and resolve OSPF neighbor adjacency issues between the main office and the routers located in the remote branch offices. Use appropriate show commands to troubleshoot the issues and answer all four questions.



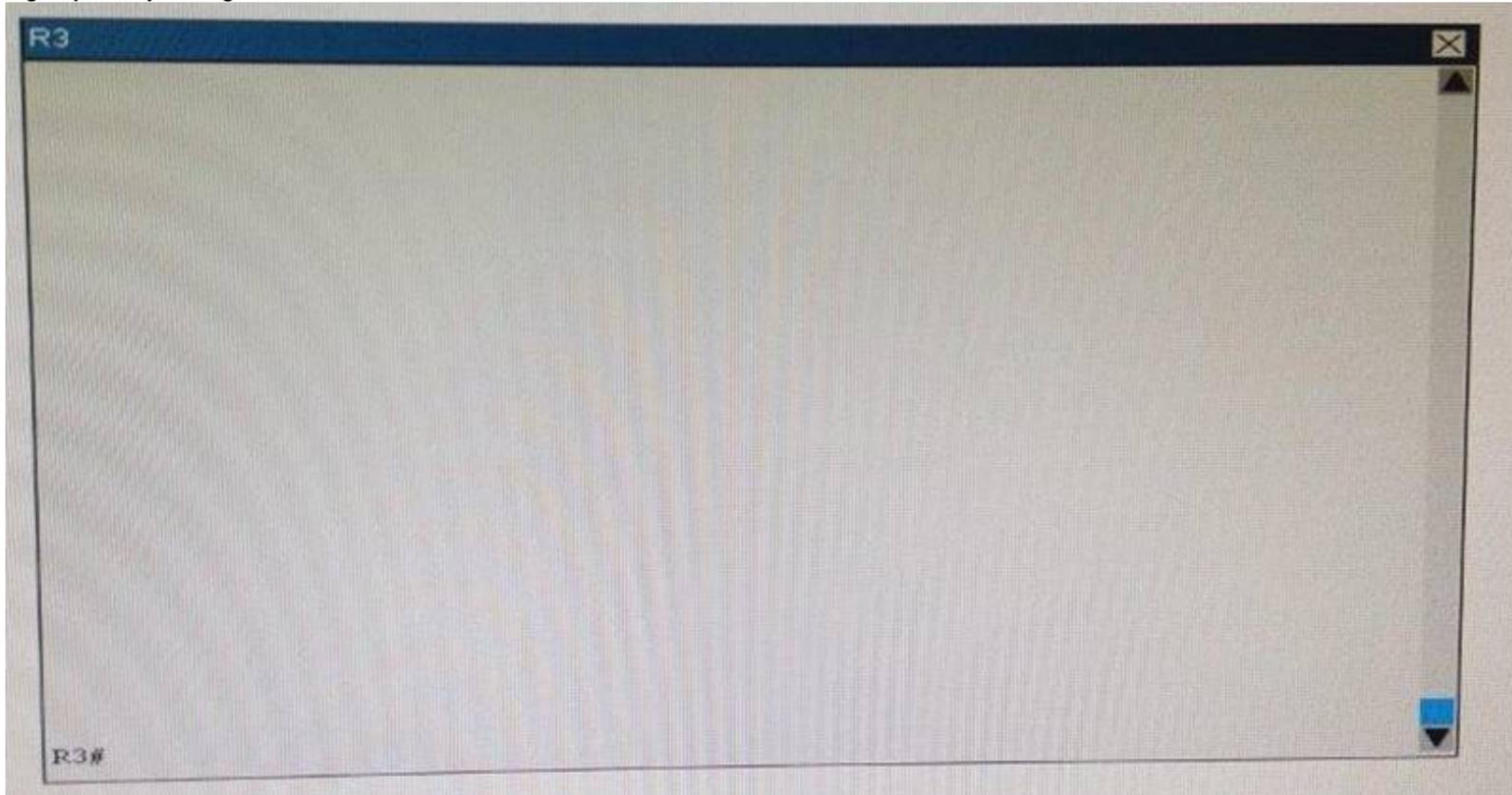


```
R1# show running-config interface Loopback0
description ***Loopback***
ip address 192.168.1.1 255.255.255.255
ip ospf 1 area 0
!
interface Ethernet0/0
description **Connected to R1-LAN** ip address 10.10.110.1 255.255.255.0
ip ospf 1 area 0
!
interface Ethernet0/1
description **Connected to L2SW**
ip address 10.10.230.1 255.255.255.0
ip ospf hello-interval 25 ip ospf 1 area 0
!
router ospf 1
log-adjacency-changes
```

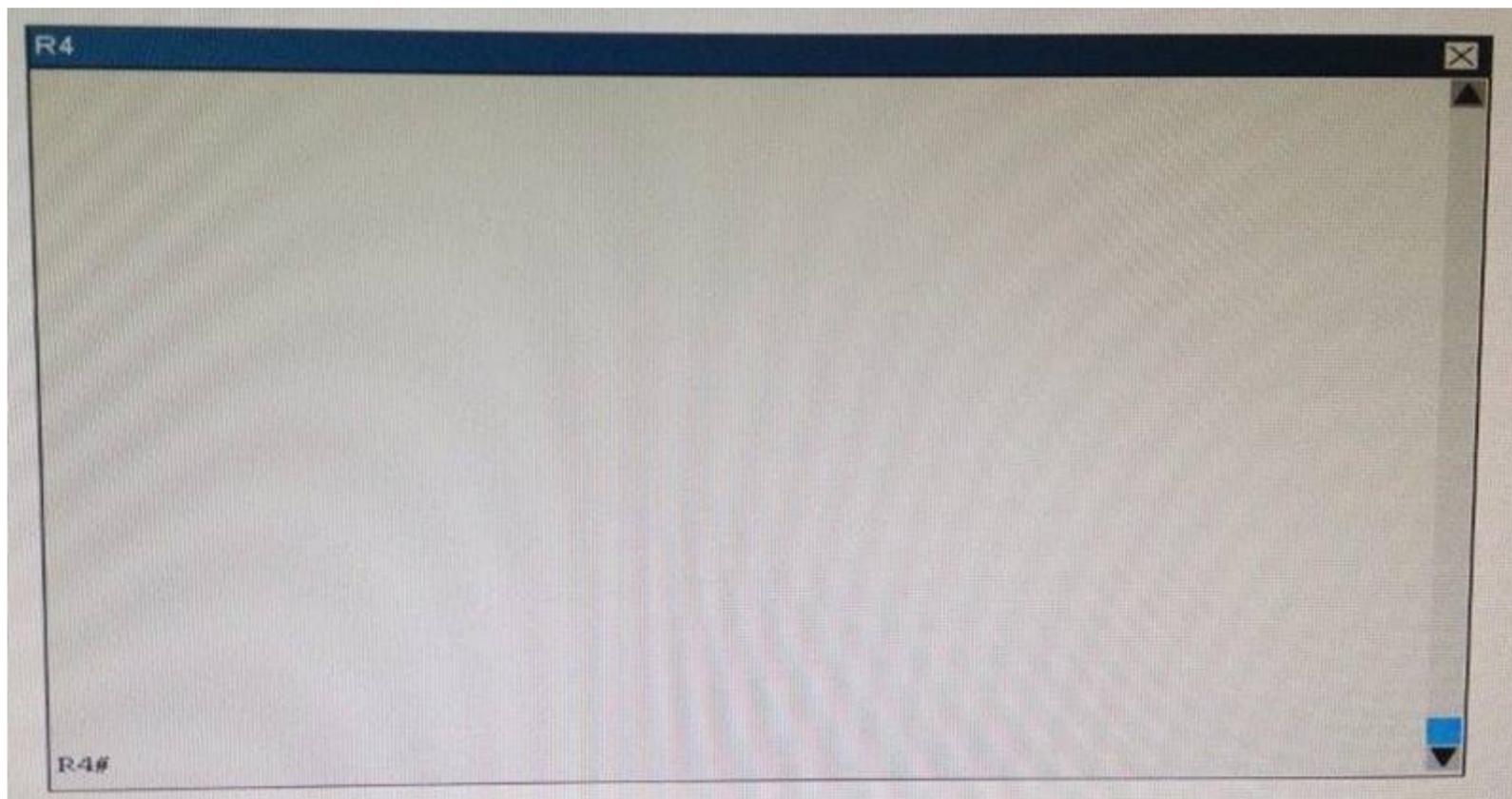


```
R2# show running-config R2
!
interface Loopback0 description **Loopback**
ip address 192.168.2.2 255.255.255.255
ip ospf 2 area 0
!
interface Ethernet0/0
description **Connected to R2-LAN** ip address 10.10.120.1 255.255.255.0
ip ospf 2 area 0
!
interface Ethernet0/1
description **Connected to L2SW**
ip address 10.10.230.2 255.255.255.0
ip ospf 2 area 0
```

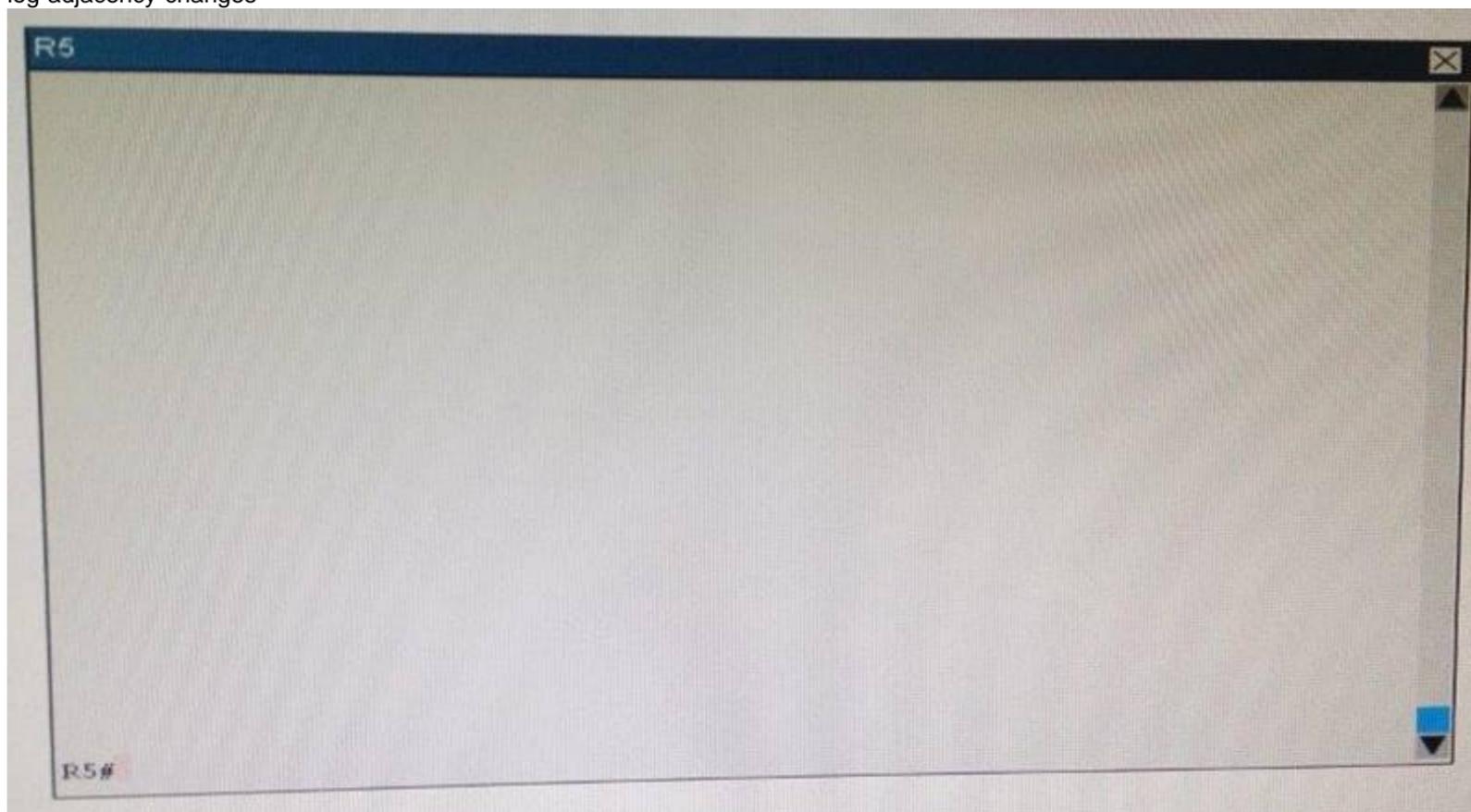
```
!  
router ospf 2  
log-adjacency-changes
```



```
R3# show running-config R3  
username R6 password CISCO36  
!  
interface Loopback0 description **Loopback**  
ip address 192.168.3.3 255.255.255.255  
ip ospf 3 area 0  
!  
interface Ethernet0/0  
description **Connected to L2SW**  
ip address 10.10.230.3 255.255.255.0  
ip ospf 3 area 0  
!  
interface Serial1/0  
description **Connected to R4-Branch1 office** ip address 10.10.240.1 255.255.255.252  
encapsulation ppp ip ospf 3 area 0  
!  
interface Serial1/1  
description **Connected to R5-Branch2 office** ip address 10.10.240.5 255.255.255.252  
encapsulation ppp  
ip ospf hello-interval 50 ip ospf 3 area 0  
!  
interface Serial1/2  
description **Connected to R6-Branch3 office** ip address 10.10.240.9 255.255.255.252  
encapsulation ppp ip ospf 3 area 0  
ppp authentication chap  
!  
router ospf 3  
router-id 192.168.3.3  
!
```

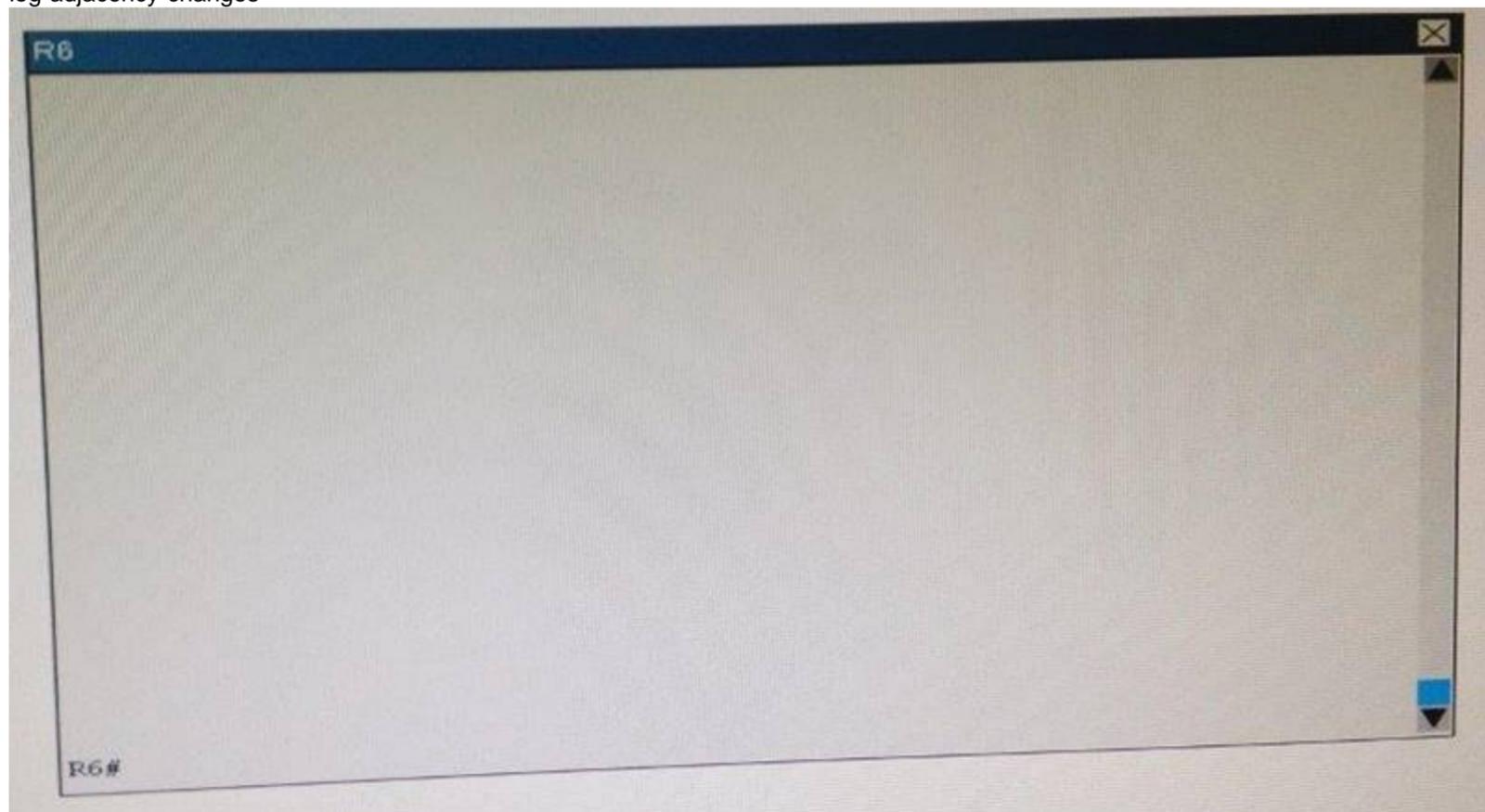


```
R4# show running-config
R4
!
interface Loopback0 description **Loopback**
ip address 192.168.4.4 255.255.255.255
ip ospf 4 area 2
!
interface Ethernet0/0
ip address 172.16.113.1 255.255.255.0
ip ospf 4 area 2
!
interface Serial1/0
description **Connected to R3-Main Branch office** ip address 10.10.240.2 255.255.255.252
encapsulation ppp ip ospf 4 area 2
!
router ospf 4
log-adjacency-changes
```

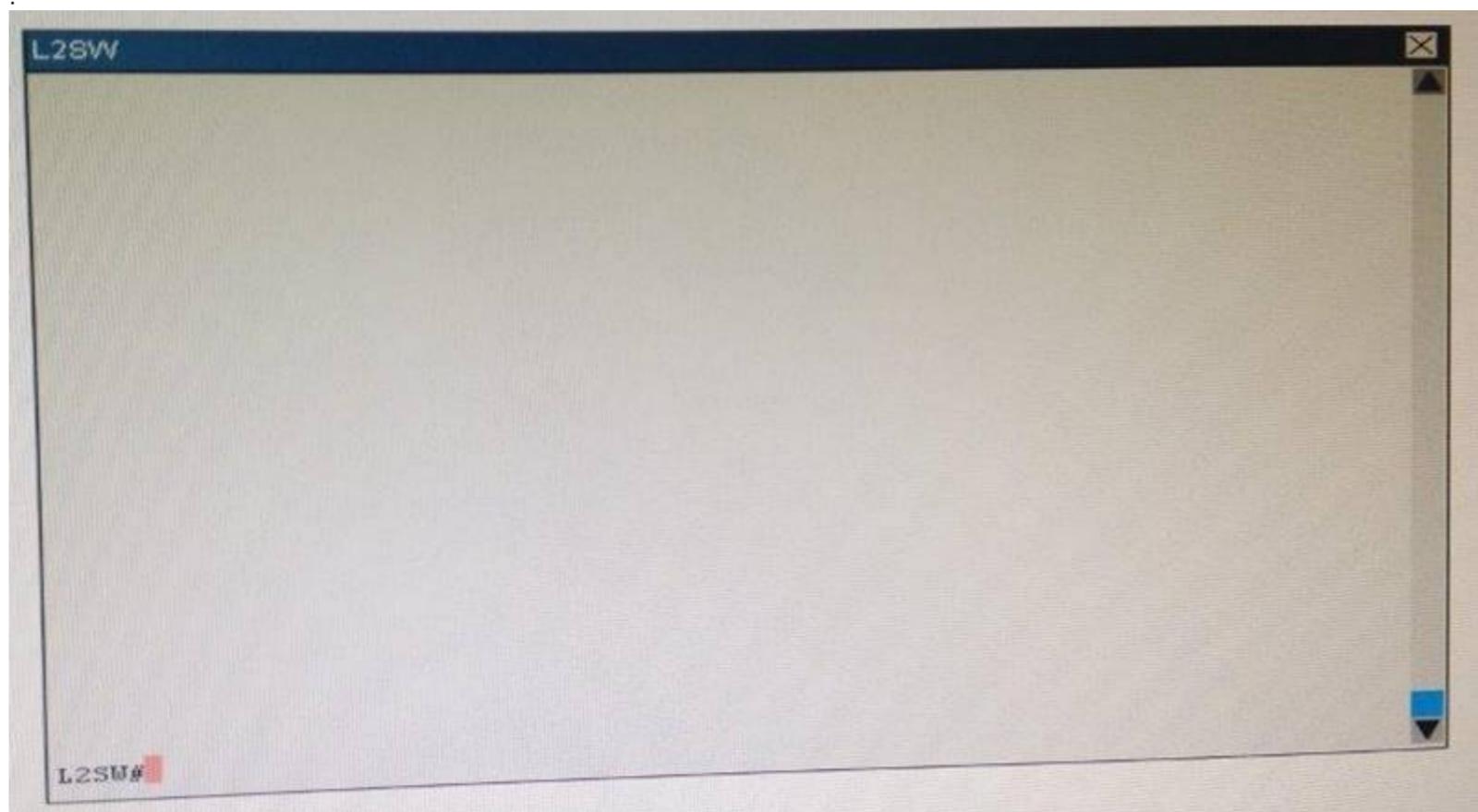


```
R5# show running-config R5
!
interface Loopback0 description **Loopback**
ip address 192.168.5.5 255.255.255.255
ip ospf 5 area 0
!
interface Ethernet0/0
ip address 172.16.114.1 255.255.255.0
ip ospf 5 area 0
!
interface Serial1/0
description **Connected to R3-Main Branch office**
ip address 10.10.240.6 255.255.255.252
```

```
encapsulation ppp ip ospf 5 area 0
!  
router ospf 5  
log-adjacency-changes
```



```
R6# show running-config R6  
username R3 password CISCO36  
!  
interface Loopback0 description **Loopback**  
ip address 192.168.6.6 255.255.255.255  
ip ospf 6 area 0  
!  
interface Ethernet0/0  
ip address 172.16.115.1 255.255.255.0  
ip ospf 6 area 0  
!  
interface Serial1/0  
description **Connected to R3-Main Branch office** ip address 10.10.240.10 255.255.255.252  
encapsulation ppp ip ospf 6 area 0  
ppp authentication chap  
!  
router ospf 6  
router-id 192.168.3.3  
!
```



R1 does not form an OSPF neighbor adjacency with R2. Which option would fix the issue?

- A. R1 ethernet0/1 is shutdown
- B. Configure the no shutdown command.
- C. R1 ethernet0/1 configured with a non-default OSPF hello interval of 25, configure no ip ospf hello interval 25
- D. R2 ethernet0/1 and R3 ethernet0/0 are configured with a non-default OSPF hello interval of 25; configure no ip ospf hello interval 25

E. Enable OSPF for R1 ethernet0/1; configure ip ospf 1 area 0 command under ethernet0/1

Answer: B

NEW QUESTION 6

Which part of the PPPoE server configuration contains the information used to assign an IP address to a PPPoE client?

- A. virtual-template interface
- B. DHCP
- C. dialer interface
- D. AAA authentication

Answer: A

NEW QUESTION 7

Refer to the exhibit.

Index	Load	Port	EC state	No of bits
0	36	Gi1/1	Active	3
1	84	Gi1/2	Active	3
2	16	Gi1/3	Active	2

While troubleshooting a switch, you executed the show interface port-channel 1 etherchannel command and it returned this output. Which information is provided by the Load value?

- A. the percentage of use of the link
- B. the preference of the link
- C. the session count of the link
- D. the number source-destination pairs on the link

Answer: D

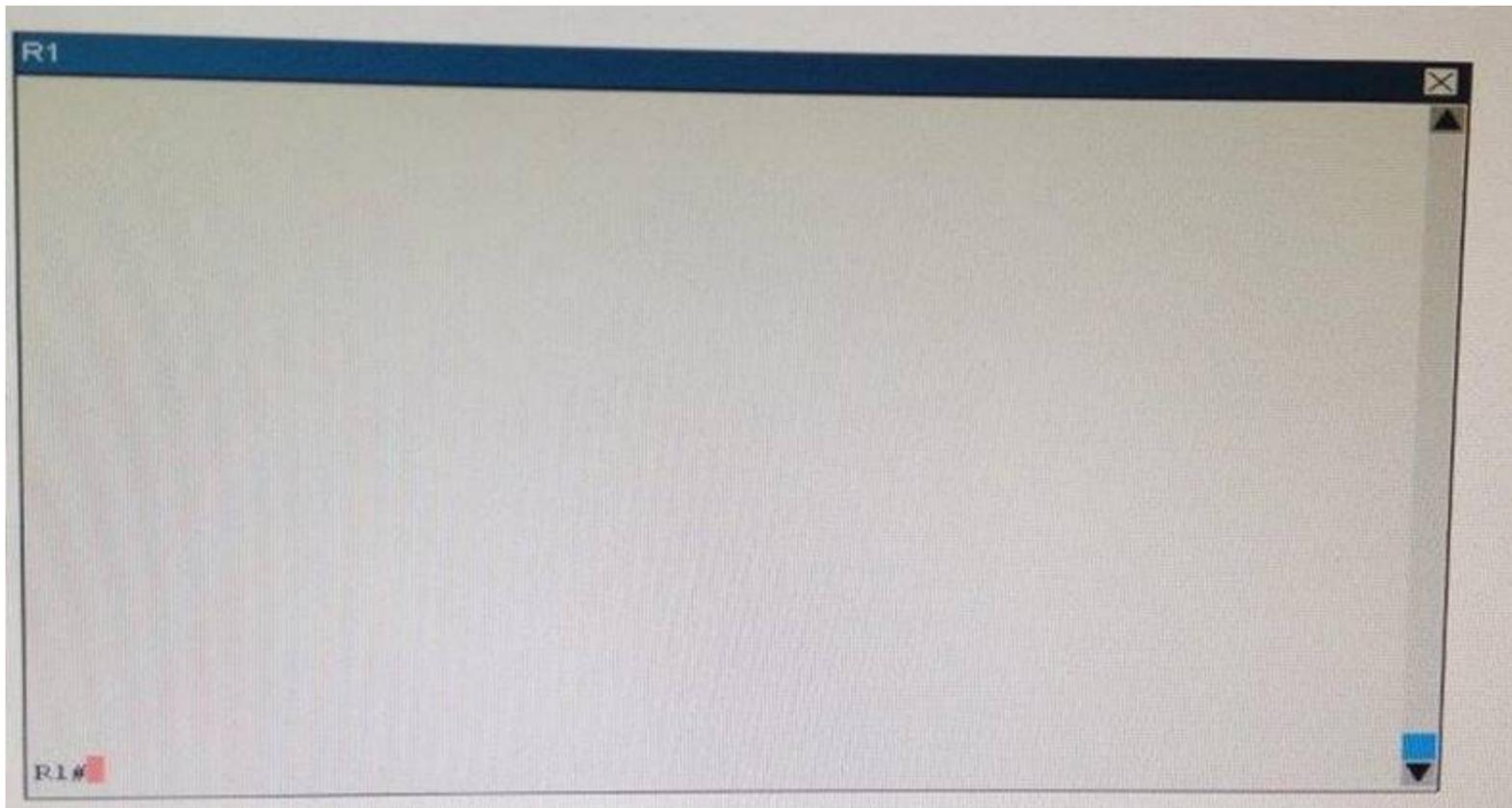
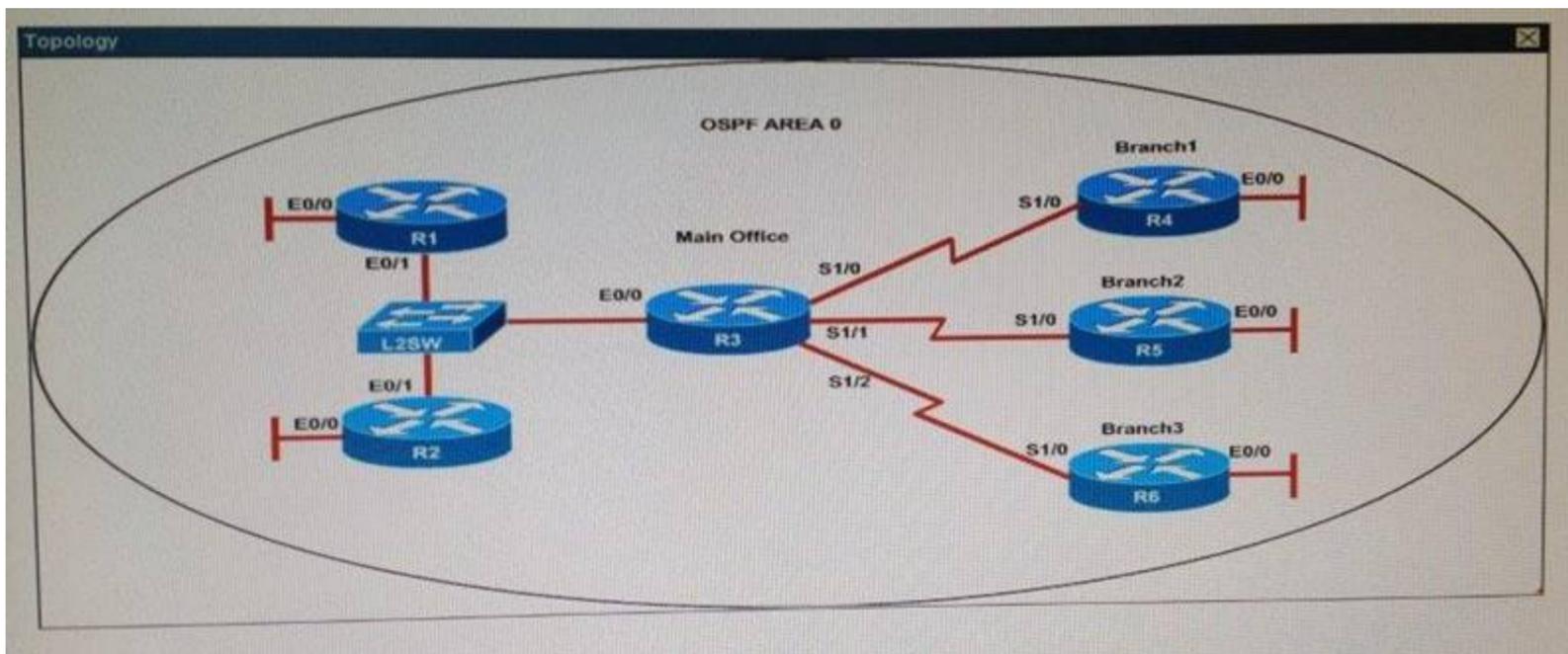
NEW QUESTION 8

Instructions

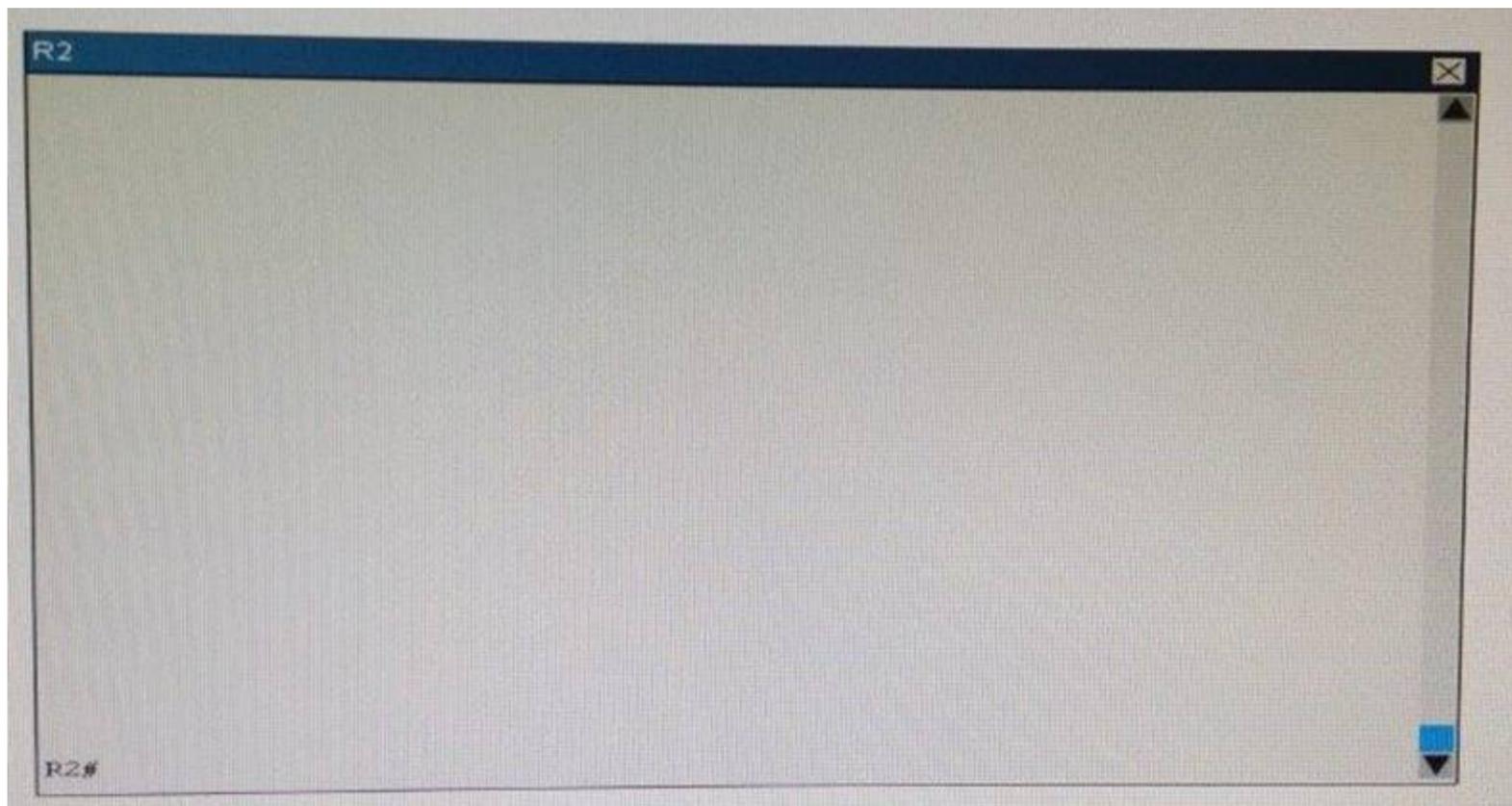
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Scenario

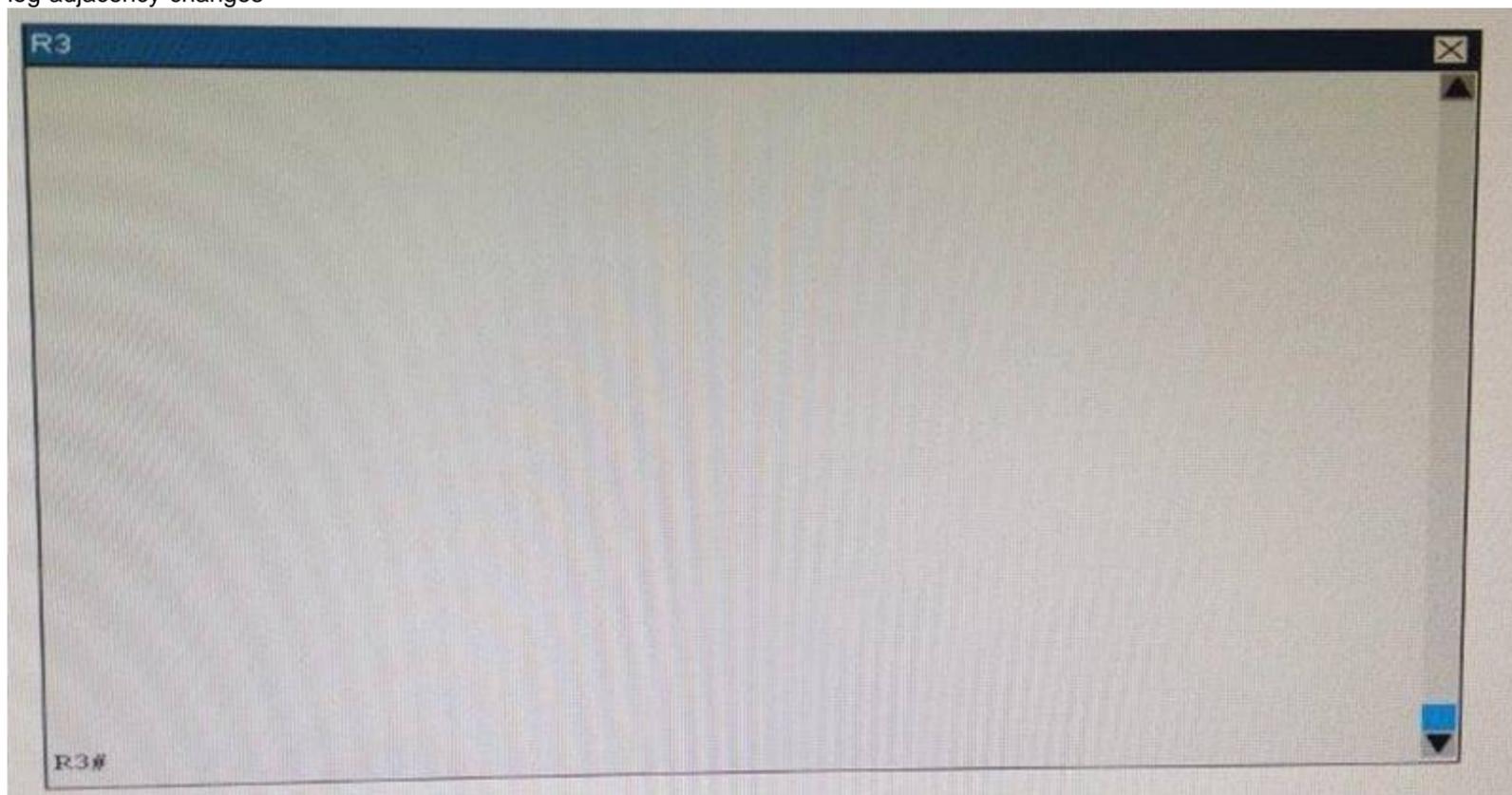
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```
R1# show running-config interface Loopback0
description ***Loopback***
ip address 192.168.1.1 255.255.255.255
ip ospf 1 area 0
!
interface Ethernet0/0
description **Connected to R1-LAN** ip address 10.10.110.1 255.255.255.0
ip ospf 1 area 0
!
interface Ethernet0/1
description **Connected to L2SW**
ip address 10.10.230.1 255.255.255.0
ip ospf hello-interval 25 ip ospf 1 area 0
!
router ospf 1
log-adjacency-changes
```

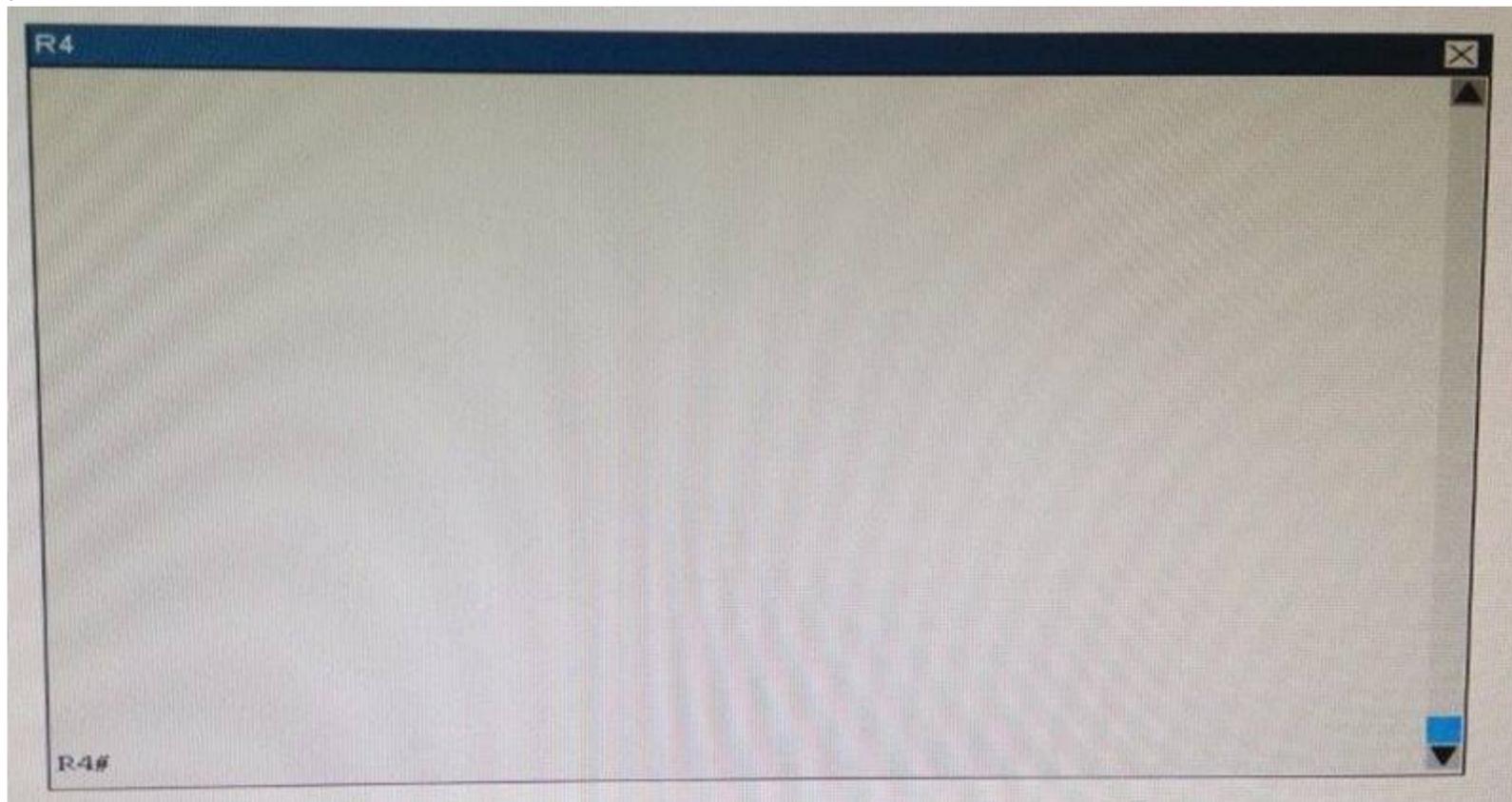


```
R2# show running-config R2
!
interface Loopback0 description **Loopback**
ip address 192.168.2.2 255.255.255.255
ip ospf 2 area 0
!
interface Ethernet0/0
description **Connected to R2-LAN** ip address 10.10.120.1 255.255.255.0
ip ospf 2 area 0
!
interface Ethernet0/1
description **Connected to L2SW**
ip address 10.10.230.2 255.255.255.0
ip ospf 2 area 0
!
router ospf 2
log-adjacency-changes
```

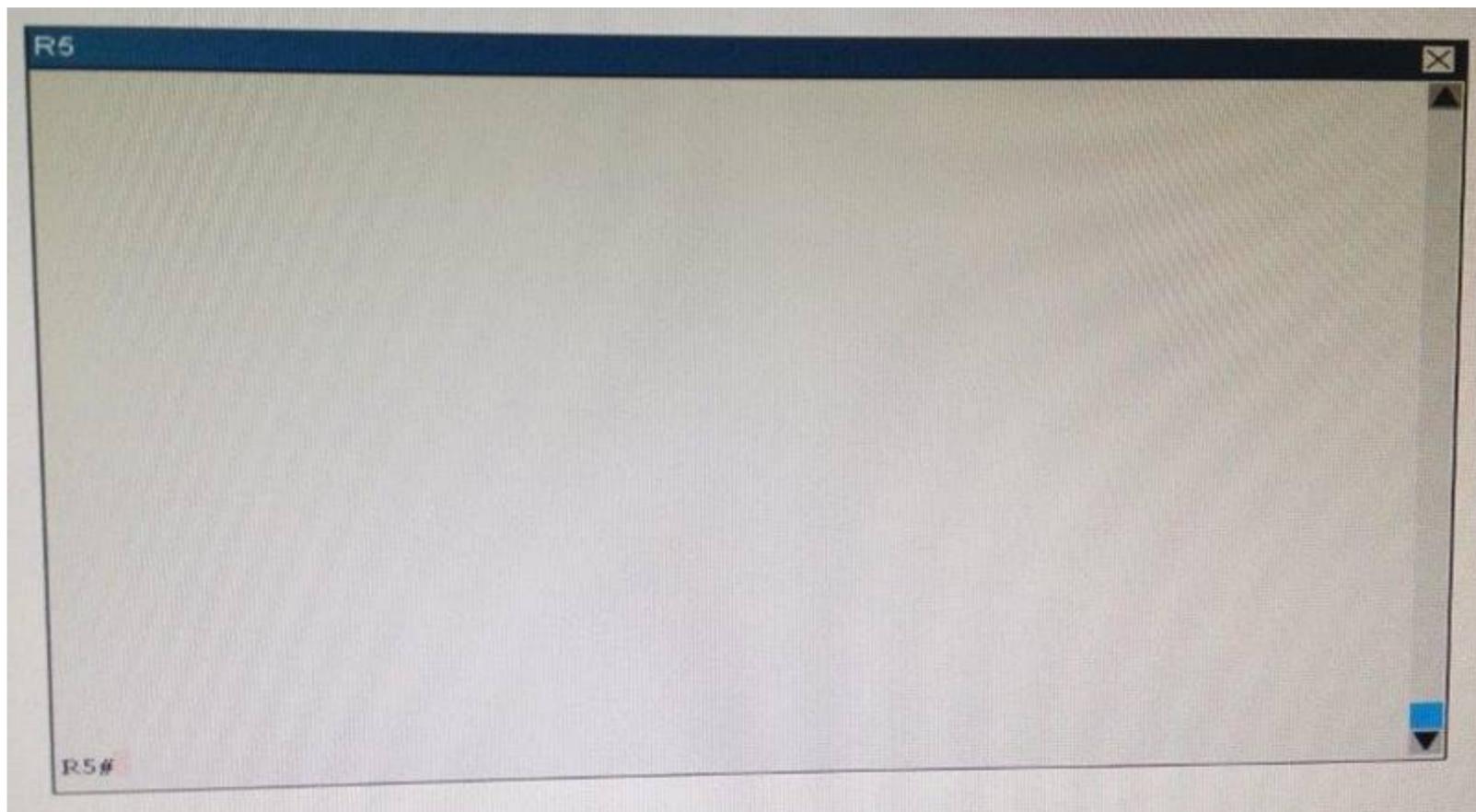


```
R3# show running-config R3
username R6 password CISCO36
!
interface Loopback0 description **Loopback**
ip address 192.168.3.3 255.255.255.255
ip ospf 3 area 0
!
interface Ethernet0/0
description **Connected to L2SW**
ip address 10.10.230.3 255.255.255.0
ip ospf 3 area 0
!
interface Serial1/0
description **Connected to R4-Branch1 office** ip address 10.10.240.1 255.255.255.252
```

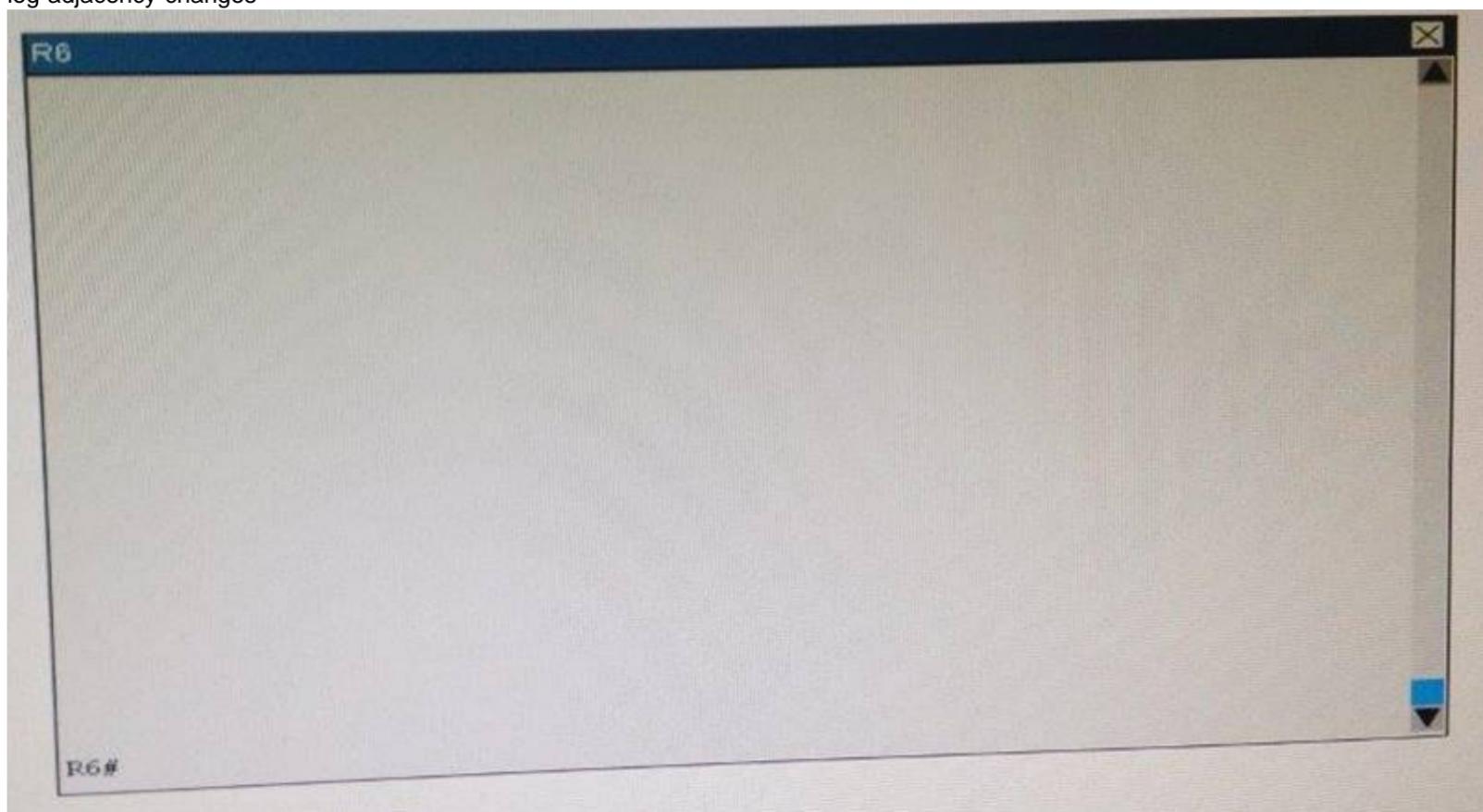
```
encapsulation ppp
ip ospf 3 area 0
!
interface Serial1/1
description **Connected to R5-Branch2 office** ip address 10.10.240.5 255.255.255.252
encapsulation ppp
ip ospf hello-interval 50 ip ospf 3 area 0
!
interface Serial1/2
description **Connected to R6-Branch3 office** ip address 10.10.240.9 255.255.255.252
encapsulation ppp ip ospf 3 area 0
ppp authentication chap
!
router ospf 3
router-id 192.168.3.3
!
```



```
R4# show running-config
R4
!
interface Loopback0 description **Loopback**
ip address 192.168.4.4 255.255.255.255
ip ospf 4 area 2
!
interface Ethernet0/0
ip address 172.16.113.1 255.255.255.0
ip ospf 4 area 2
!
interface Serial1/0
description **Connected to R3-Main Branch office** ip address 10.10.240.2 255.255.255.252
encapsulation ppp ip ospf 4 area 2
!
router ospf 4
log-adjacency-changes
```

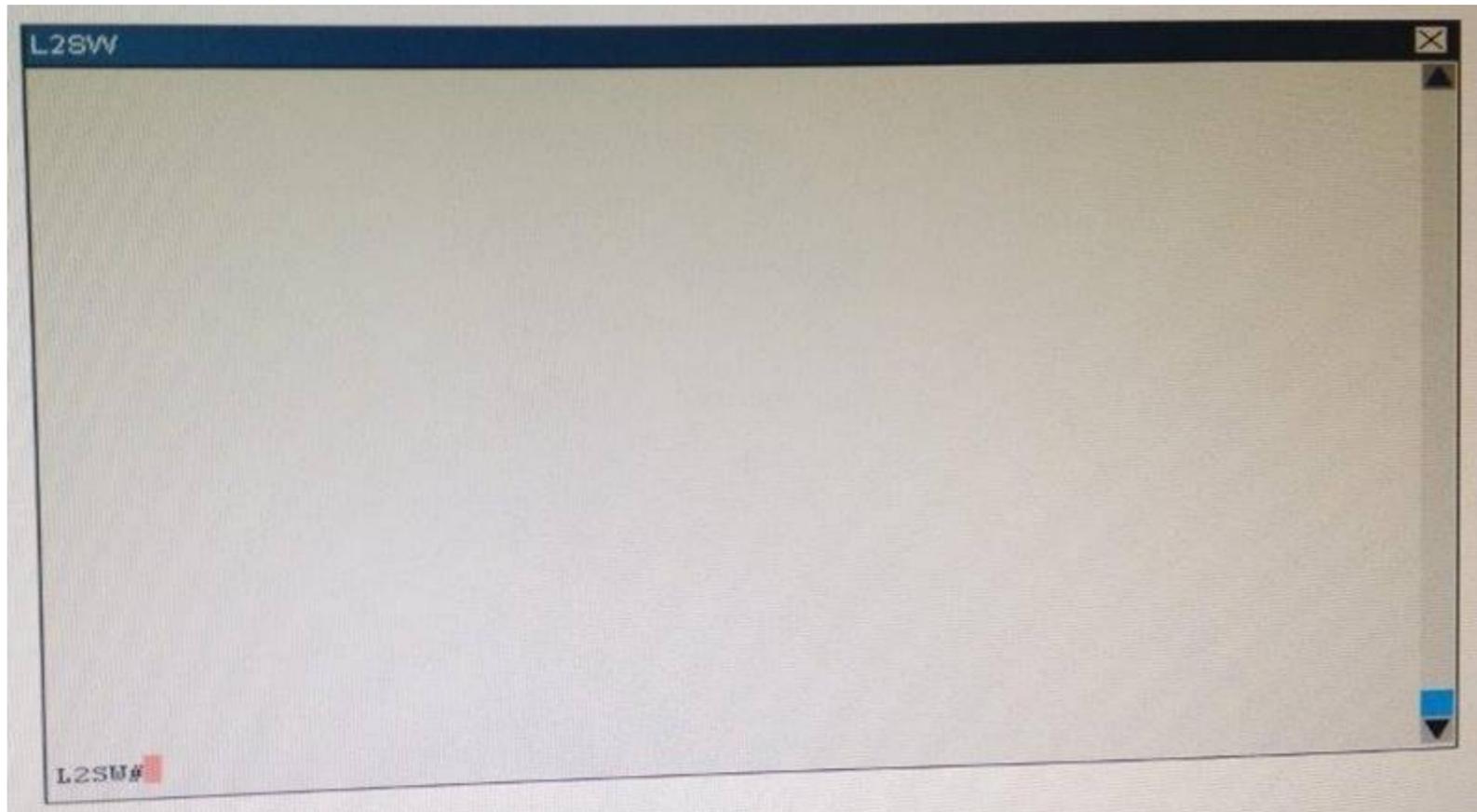


```
R5# show running-config
R5
!
interface Loopback0 description **Loopback**
ip address 192.168.5.5 255.255.255.255
ip ospf 5 area 0
!
interface Ethernet0/0
ip address 172.16.114.1 255.255.255.0
ip ospf 5 area 0
!
interface Serial1/0
description **Connected to R3-Main Branch office** ip address 10.10.240.6 255.255.255.252
encapsulation ppp ip ospf 5 area 0
!
router ospf 5
log-adjacency-changes
```



```
R6# show running-config R6
username R3 password CISCO36
!
interface Loopback0 description **Loopback**
ip address 192.168.6.6 255.255.255.255
ip ospf 6 area 0
!
interface Ethernet0/0
ip address 172.16.115.1 255.255.255.0
ip ospf 6 area 0
!
interface Serial1/0
```

```
description **Connected to R3-Main Branch office** ip address 10.10.240.10 255.255.255.252
encapsulation ppp ip ospf 6 area 0
ppp authentication chap
!
router ospf 6
router-id 192.168.3.3
!
```



An OSPF neighbor adjacency is not formed between R3 in the main office and R5 in the Branch2 office. What is causing the problem?

- A. There is an area ID mismatch.
- B. There is a PPP authentication issue; a password mismatch.
- C. There is an OSPF hello and dead interval mismatch.
- D. There is a missing network command in the OSPF process on R5.

Answer: C

NEW QUESTION 9

Which option is a benefit of switch stacking?

- A. It provides redundancy with no impact on resource usage.
- B. It simplifies adding and removing hosts.
- C. It supports better performance of high-needs applications.
- D. It provides higher port density with better resource usage.

Answer: D

Explanation: A stackable switch is a network switch that is fully functional operating standalone but which can also be set up to operate together with one or more other network switches, with this group of switches showing the characteristics of a single switch but having the port capacity of the sum of the combined switches.

NEW QUESTION 10

If host Z needs to send data through router R1 to a storage server, which destination MAC address does host Z use to transmit packets?

- A. the host Z MAC address
- B. the MAC address of the interface on R1 that connects to the storage server
- C. the MAC address of the interface on R1 that connects to host Z
- D. the MAC address of the storage server interface

Answer: C

NEW QUESTION 10

What is the best way to verify that a host has a path to other hosts in different networks?

- A. Ping the loopback address.
- B. Ping the default gateway.
- C. Ping the local interface address.
- D. Ping the remote network.

Answer: D

Explanation: Ping is a tool that helps to verify IP-level connectivity; PathPing is a tool that detects packet loss over multiple-hop trips. When troubleshooting, the ping command is used to send an ICMP Echo Request to a target host name or IP address. Use Ping whenever you want to verify that a host computer can send IP packets to a destination host. You can also use the Ping tool to isolate network hardware problems and incompatible configurations.

If you call ipconfig /all and receive a response, there is no need to ping the loopback address and your own IP address — Ipconfig has already done so in order to generate the report.

It is best to verify that a route exists between the local computer and a network host by first using ping and the IP address of the network host to which you want to connect. The command syntax is:

ping < IP address >

Perform the following steps when using Ping:

? Ping the loopback address to verify that TCP/IP is installed and configured correctly on the local computer.

ping 127.0.0.1

If the loopback step fails, the IP stack is not responding. This might be because the TCP drivers are corrupted, the network adapter might not be working, or another service is interfering with IP.

? Ping the IP address of the local computer to verify that it was added to the network

correctly. Note that if the routing table is correct, this simply forwards the packet to the loopback address of 127.0.0.1.

ping < IP address of local host >

? Ping the IP address of the default gateway to verify that the default gateway is functioning and that you can communicate with a local host on the local network.

ping < IP address of default gateway >

? Ping the IP address of a remote host to verify that you can communicate through a router.

ping < IP address of remote host >

? Ping the host name of a remote host to verify that you can resolve a remote host name.

ping < Host name of remote host >

? Run a PathPing analysis to a remote host to verify that the routers on the way to the destination are operating correctly. pathping < IP address of remote host >

NEW QUESTION 11

What is a difference between TACACS+ and RADIUS in AAA?

- A. Only TACACS+ allows for separate authentication.
- B. Only RADIUS encrypts the entire access-request packet.
- C. Only RADIUS uses TCP.
- D. Only TACACS+ couples authentication and authorization.

Answer: A

Explanation: Authentication and Authorization

RADIUS combines authentication and authorization. The access-accept packets sent by the RADIUS server to the client contain authorization information. This makes it difficult to decouple authentication and authorization.

TACACS+ uses the AAA architecture, which separates AAA. This allows separate authentication solutions that can still use TACACS+ for authorization and accounting. For example, with TACACS+, it is possible to use Kerberos authentication and TACACS+ authorization and accounting. After a NAS authenticates on a Kerberos server, it requests authorization information from a TACACS+ server without having to re-authenticate. The NAS informs the TACACS+ server that it has successfully authenticated on a Kerberos server, and the server then provides authorization information.

During a session, if additional authorization checking is needed, the access server checks with a TACACS+ server to determine if the user is granted permission to use a particular command. This provides greater control over the commands that can be executed on the access server while decoupling from the authentication mechanism.

NEW QUESTION 15

Which feature can you use to monitor traffic on a switch by replicating it to another port or ports on the same switch?

- A. copy run start
- B. traceroute
- C. the ICMP Echo IP SLA
- D. SPAN

Answer: D

Explanation: A source port, also called a monitored port, is a switched or routed port that you monitor for network traffic analysis. In a single local SPAN session or RSPAN source session, you can monitor source port traffic, such as received (Rx), transmitted (Tx), or bidirectional (both). The switch supports any number of source ports (up to the maximum number of available ports on the switch) and any number of source VLANs.

A source port has these characteristics:

? It can be any port type, such as EtherChannel, Fast Ethernet, Gigabit Ethernet, and so forth.

? It can be monitored in multiple SPAN sessions.

? It cannot be a destination port.

? Each source port can be configured with a direction (ingress, egress, or both) to monitor. For EtherChannel sources, the monitored direction applies to all physical ports in the group.

? Source ports can be in the same or different VLANs.

? For VLAN SPAN sources, all active ports in the source VLAN are included as source ports.

NEW QUESTION 17

Instructions

- Enter Cisco IOS commands on the device to verify network operation and answer for multiple-choice questions.
- **THIS TASK DOES NOT REQUIRE DEVICE CONFIGURATION.**
- Click the device icon to gain access to the console of the router. No console or enable passwords are required.
- To access the multiple-choice questions, click the numbered boxes on the left of the top panel.
- This task has **four** multiple-choice questions. Be sure to answer all four questions before clicking the Next button.

Scenario

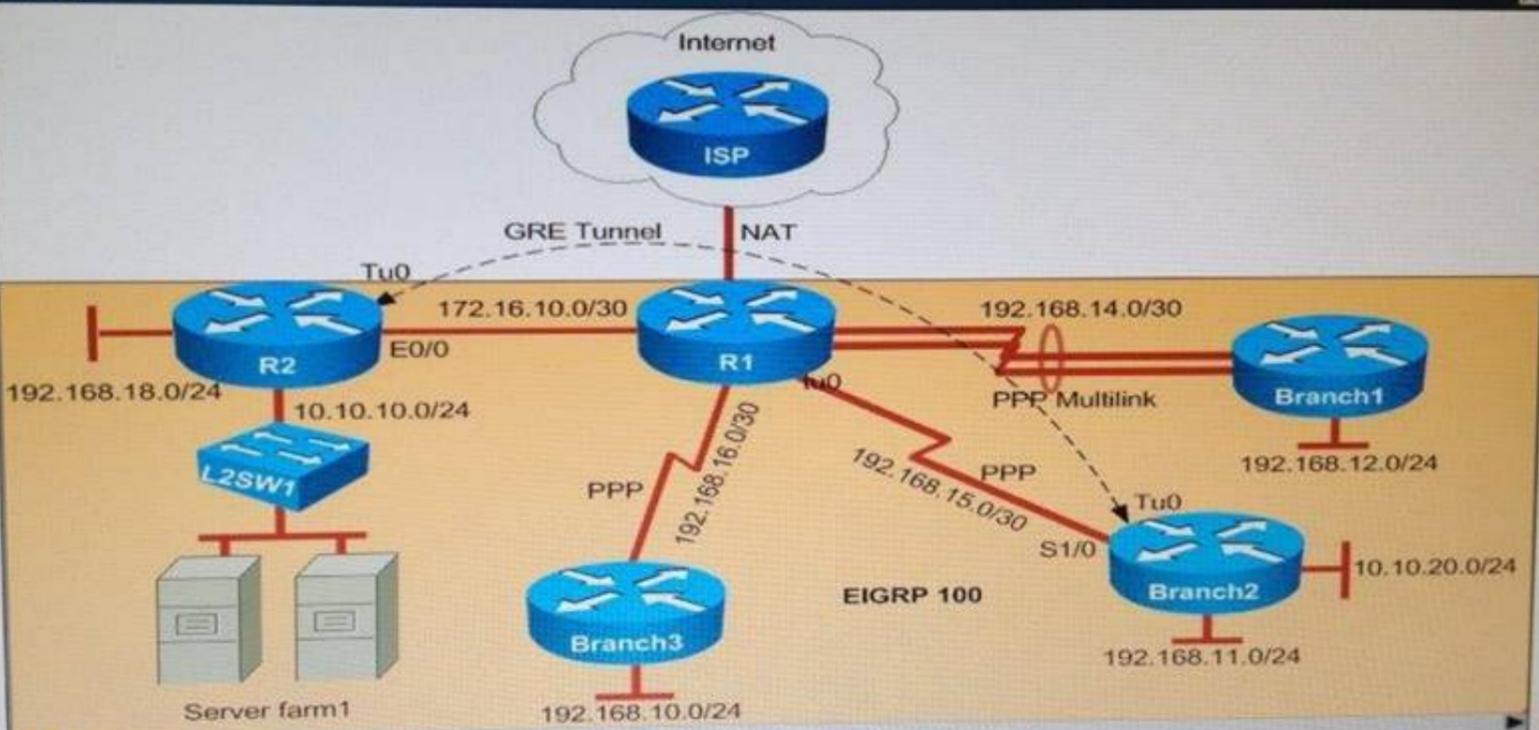
You are implementing PPP over serial links between R1 router and branch offices. In Phase 1 you must implement and verify PPP and GRE tunnel configurations as mentioned in the topology. In Phase 2 your colleague is expected to do NAT and ISP configurations between R1 and ISP router.

Identify the issues that you encounter during PPP over serial links implementation.

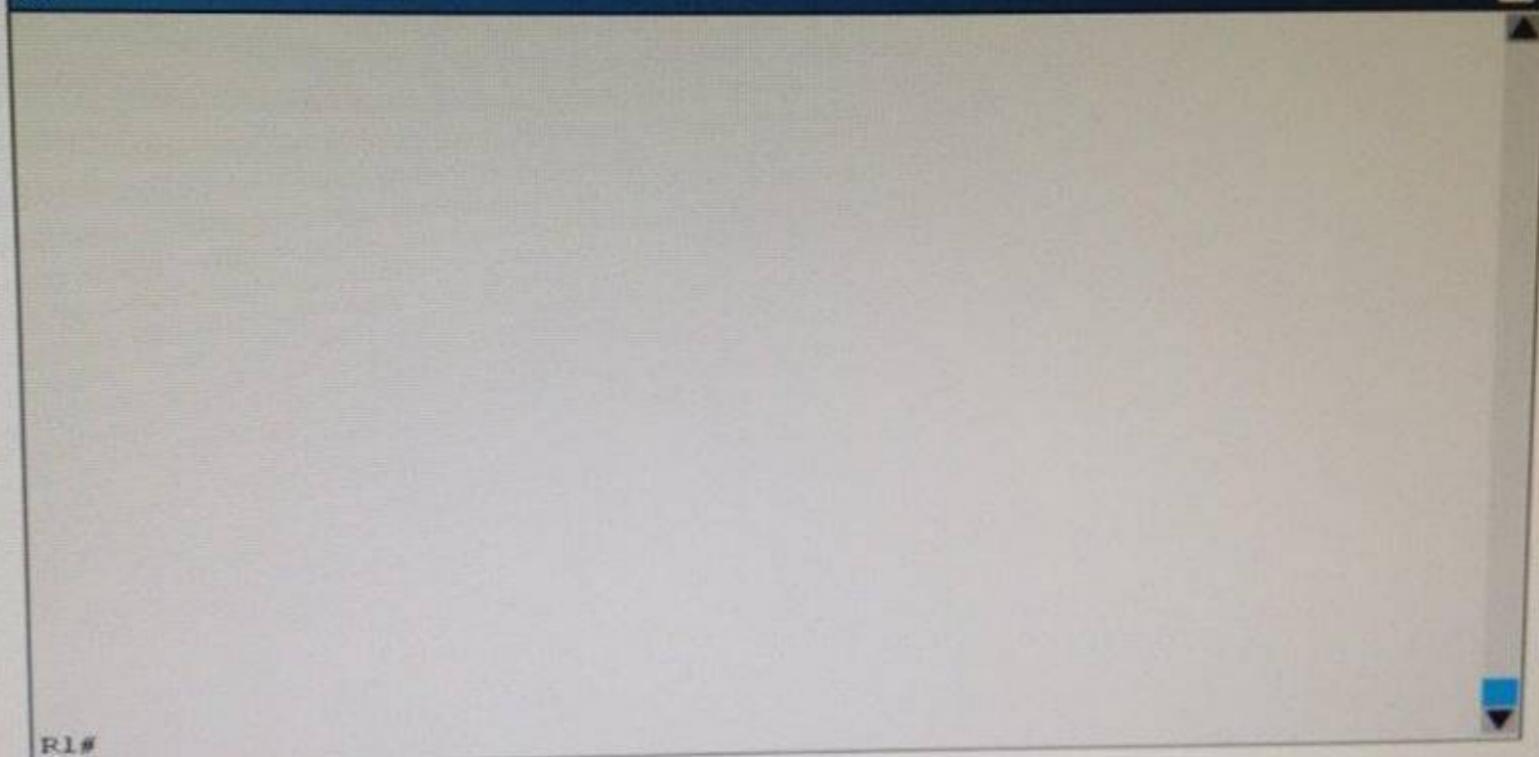
Routers Branch1, Branch2, and Branch3 connect to Router R1 in the main office over serial links. PPP multilink implementation is recommended between R1 and Branch1 routers. The GRE tunnel is configured between R2 and Branch2 routers, and traffic between Server farm1 10.10.10.0/24 network and Branch2 LAN 10.10.20.0/24 network, is routed over GRE tunnel using static route.

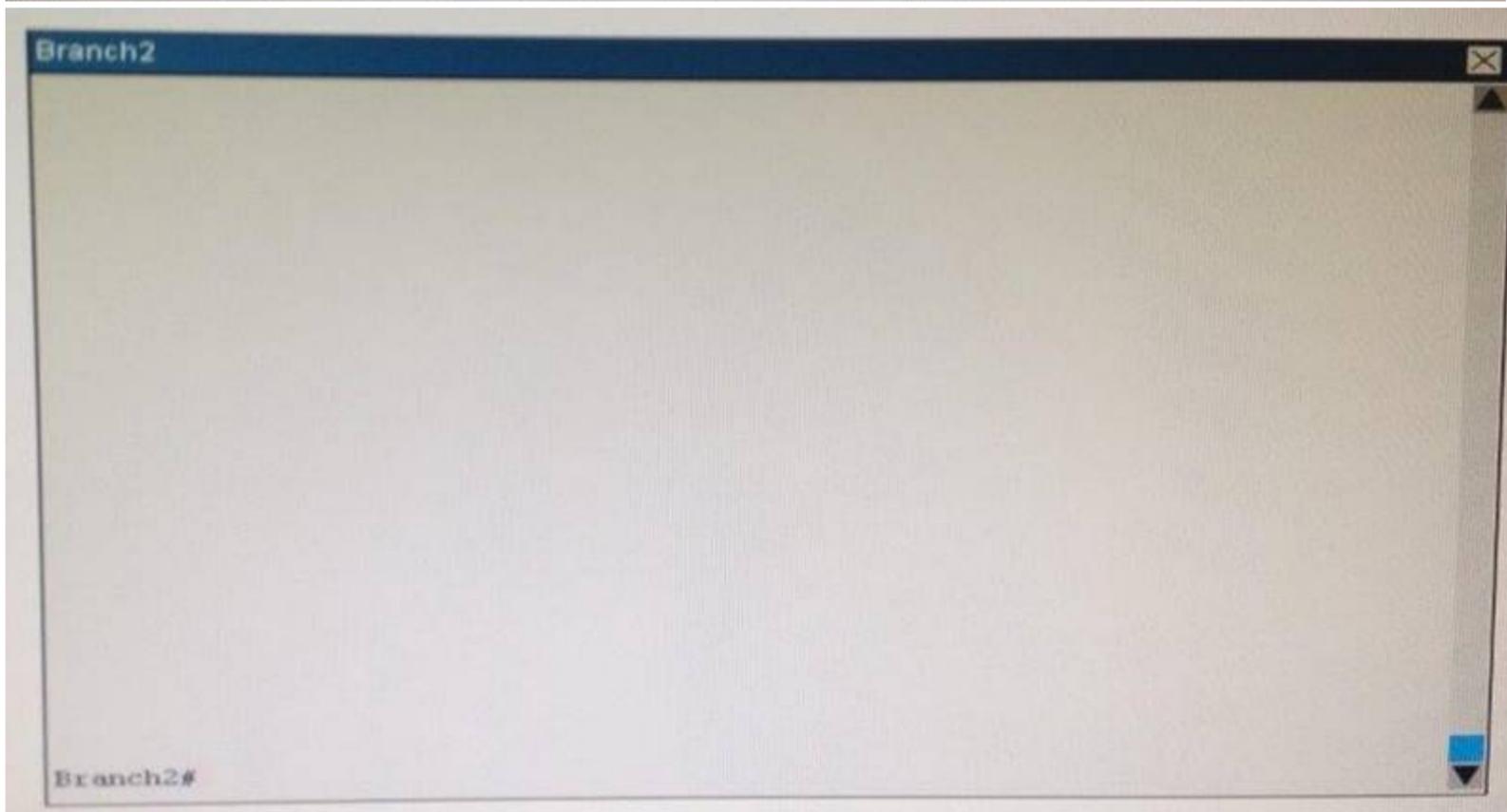
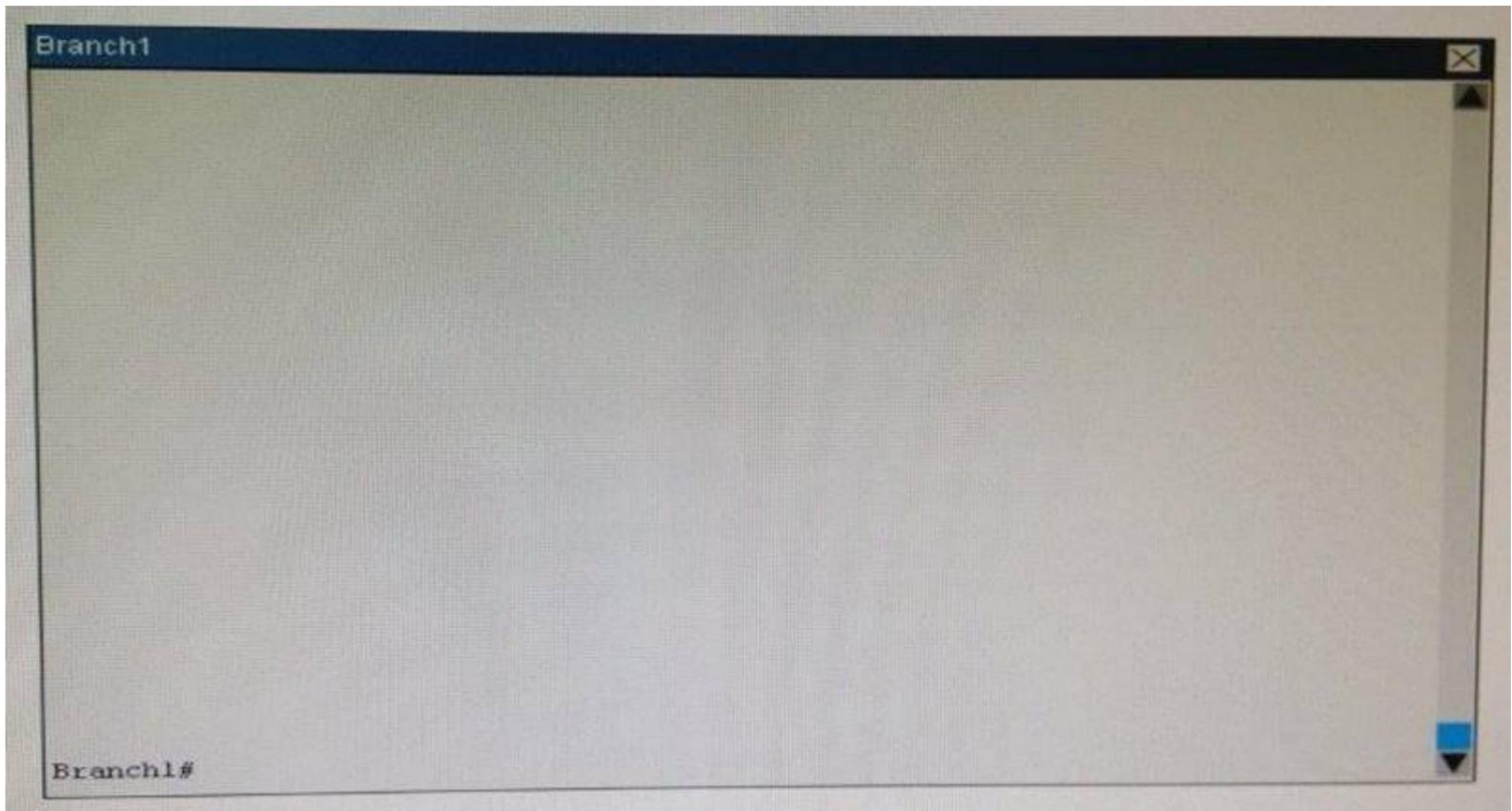
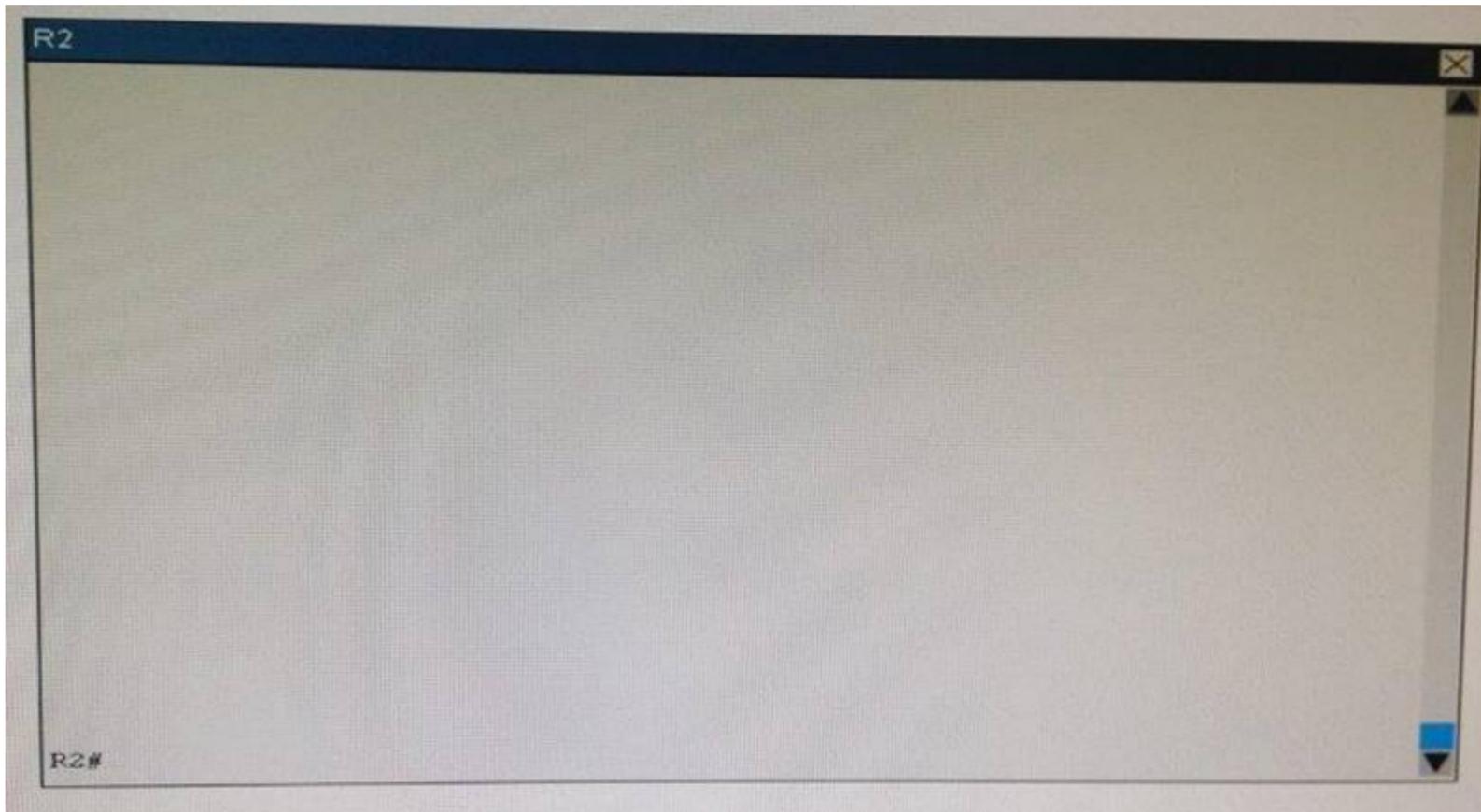
You have console access on R1, R2, Branch1, Branch2, and Branch3 devices. Use only show commands to troubleshoot the issues.

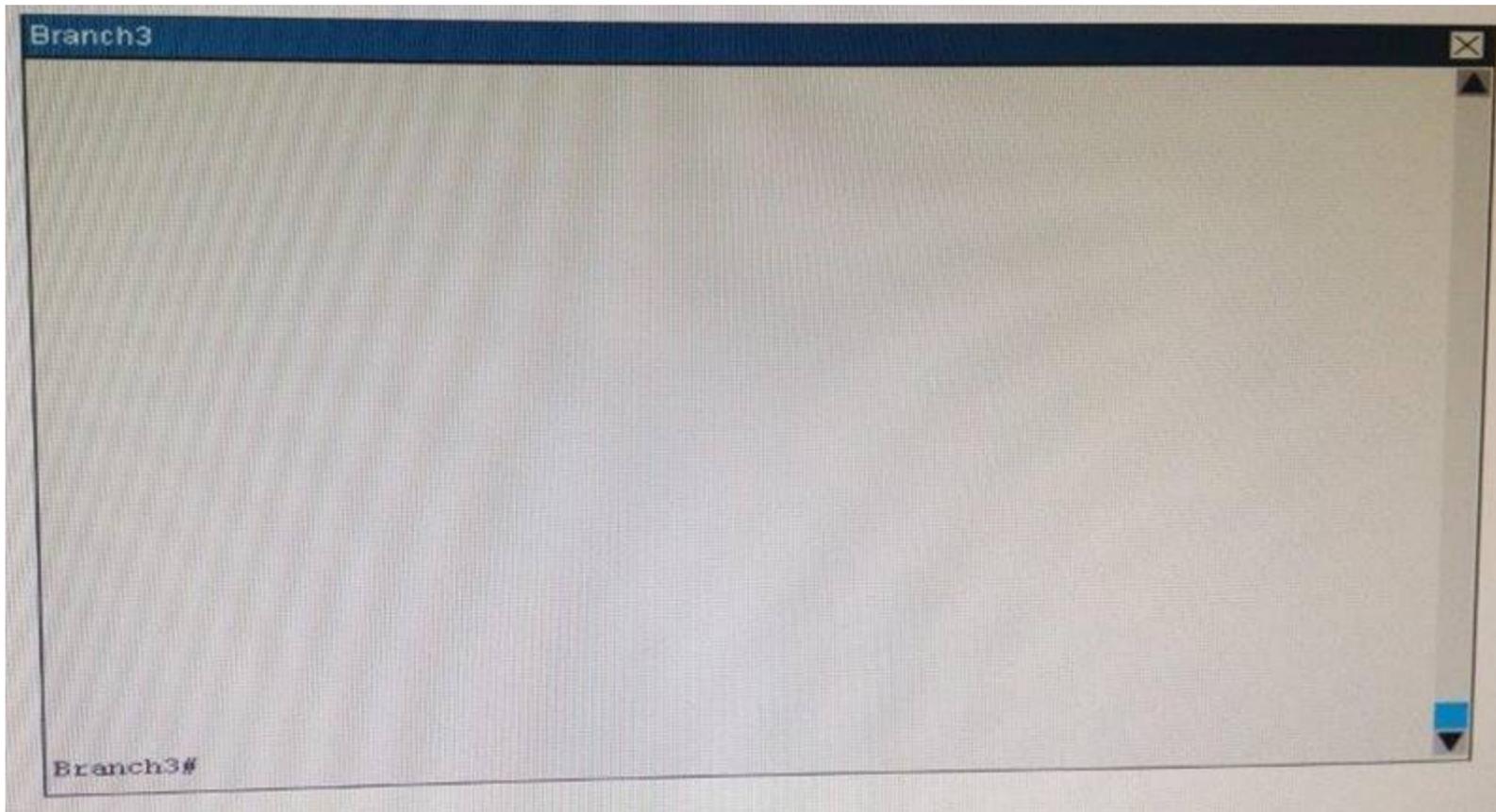
Topology



R1







Why has the Branch3 router lost connectivity with R1?

Use only show commands to troubleshoot because usage of the debug command is restricted on the Branch3 and R1 routers.

- A. A PPP chap hostname mismatch is noticed between Branch3 and R1.
- B. A PPP chap password mismatch is noticed between Branch3 and R1.
- C. PPP encapsulation is not configured on Branch3.
- D. The PPP chap hostname and PPP chap password commands are missing on the Branch3 router.

Answer: A

NEW QUESTION 20

How can you disable DTP on a switch port?

- A. Configure the switch port as a trunk.
- B. Add an interface on the switch to a channel group.
- C. Change the operational mode to static access.
- D. Change the administrative mode to access.

Answer: D

NEW QUESTION 25

Which option describes how a switch in rapid PVST+ mode responds to a topology change?

- A. It immediately deletes dynamic MAC addresses that were learned by all ports on the switch.
- B. It sets a timer to delete all MAC addresses that were learned dynamically by ports in the same STP instance.
- C. It sets a timer to delete dynamic MAC addresses that were learned by all ports on the switch.
- D. It immediately deletes all MAC addresses that were learned dynamically by ports in the same STP instance.

Answer: D

Explanation: Rapid PVST+ This spanning-tree mode is the same as PVST+ except that it uses a rapid convergence based on the IEEE 802.1w standard. To provide rapid convergence, the rapid PVST+ immediately deletes dynamically learned MAC address entries on a per-port basis upon receiving a topology change. By contrast, PVST+ uses a short aging time for dynamically learned MAC address entries. The rapid PVST+ uses the same configuration as PVST+ (except where noted), and the switch needs only minimal extra configuration. The benefit of rapid PVST+ is that you can migrate a large PVST+ install base to rapid PVST+ without having to learn the complexities of the MSTP configuration and without having to re-provision your network. In rapid-PVST+ mode, each VLAN runs its own spanning-tree instance up to the maximum supported.

NEW QUESTION 26

Which statement about DTP is true?

- A. It uses the native VLAN.
- B. It negotiates a trunk link after VTP has been configured.
- C. It uses desirable mode by default.
- D. It sends data on VLAN 1.

Answer: A

NEW QUESTION 30

Which two circumstances can cause collision domain issues on VLAN domain? (Choose two.)

- A. duplex mismatches on Ethernet segments in the same VLAN

- B. multiple errors on switchport interfaces
- C. congestion on the switch inband path
- D. a failing NIC in an end device
- E. an overloaded shared segment

Answer: AE

Explanation: Collision Domains

A collision domain is an area of a single LAN where end stations contend for access to the network because all end stations are connected to a shared physical medium. If two connected devices transmit onto the media at the same time, a collision occurs. When a collision occurs, a JAM signal is sent on the network, indicating that a collision has occurred and that devices should ignore any fragmented data associated with the collision. Both sending devices back off sending their data for a random amount and then try again if the medium is free for transmission. Therefore, collisions effectively delay transmission of data, lowering the effective throughput available to a device. The more devices that are attached to a collision domain, the greater the chances of collisions; this results in lower bandwidth and performance for each device attached to the collision domain. Bridges and switches terminate the physical signal path of a collision domain, allowing you to segment separate collision domains, breaking them up into multiple smaller pieces to provide more bandwidth per user within the new collision domains formed.

NEW QUESTION 32

Which Cisco platform can verify ACLs?

- A. Cisco Prime Infrastructure
- B. Cisco Wireless LAN Controller
- C. Cisco APIC-EM
- D. Cisco IOS-XE

Answer: C

NEW QUESTION 37

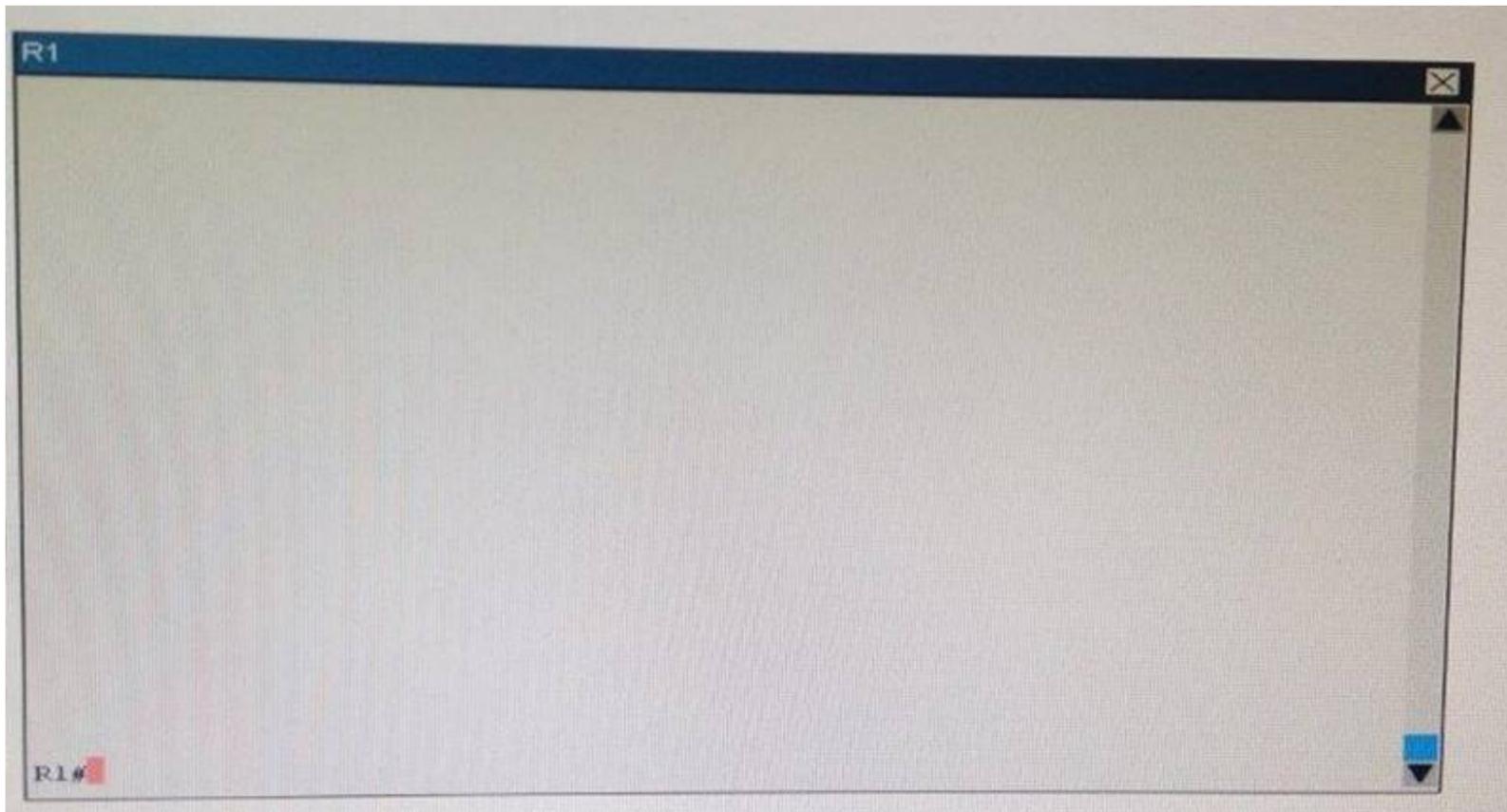
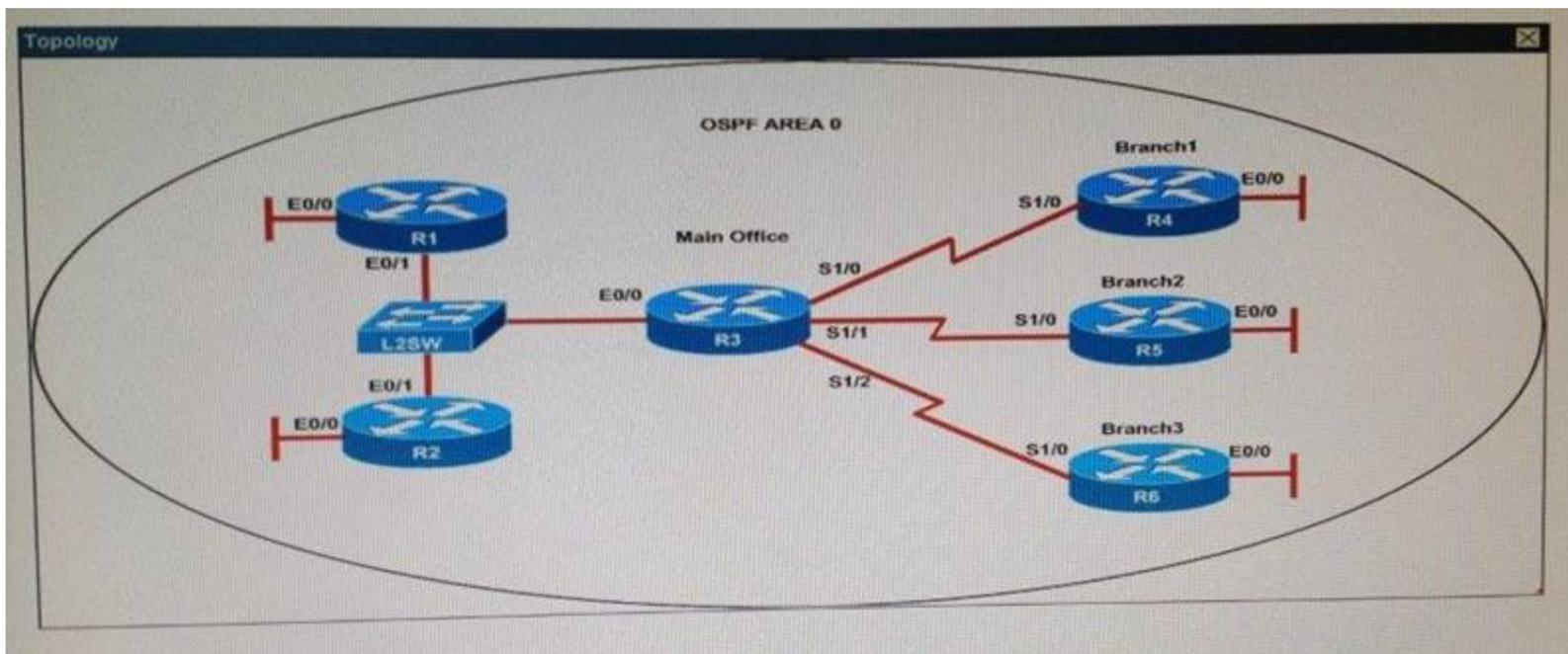
Which configuration can you apply to enable encapsulation on a subinterface?

- A. interface FastEthernet 0/0 encapsulation dot1Q 30ip address 10.1.1.30 255.255.255.0
- B. interface FastEthernet 0/0.30ip address 10.1.1.30 255.255.255.0
- C. interface FastEthernet 0/0.30 description subinterface vlan 30
- D. interface FastEthernet 0/0.30 encapsulation dot1Q 30ip address 10.1.1.30 255.255.255.0

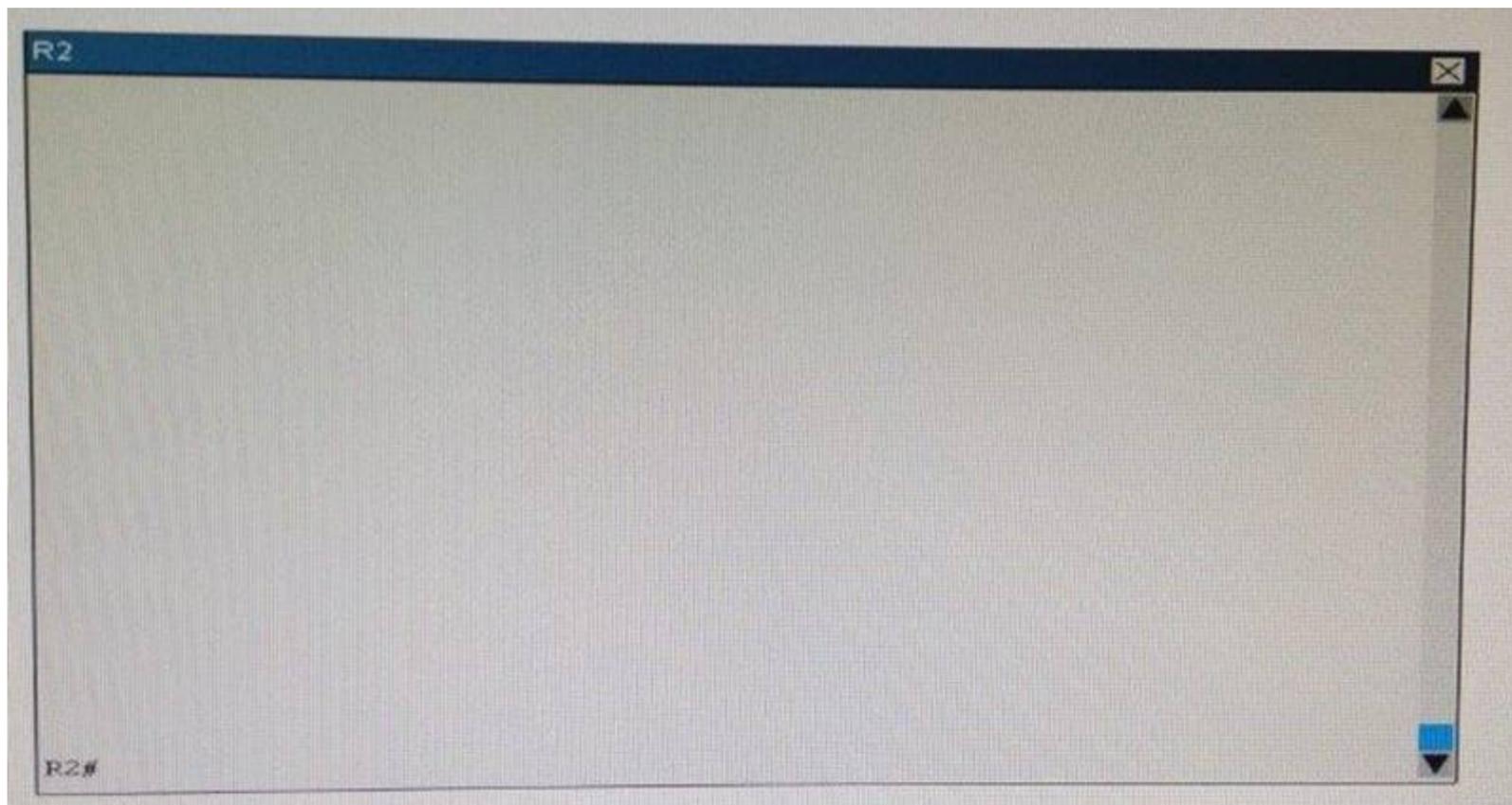
Answer: D

NEW QUESTION 38

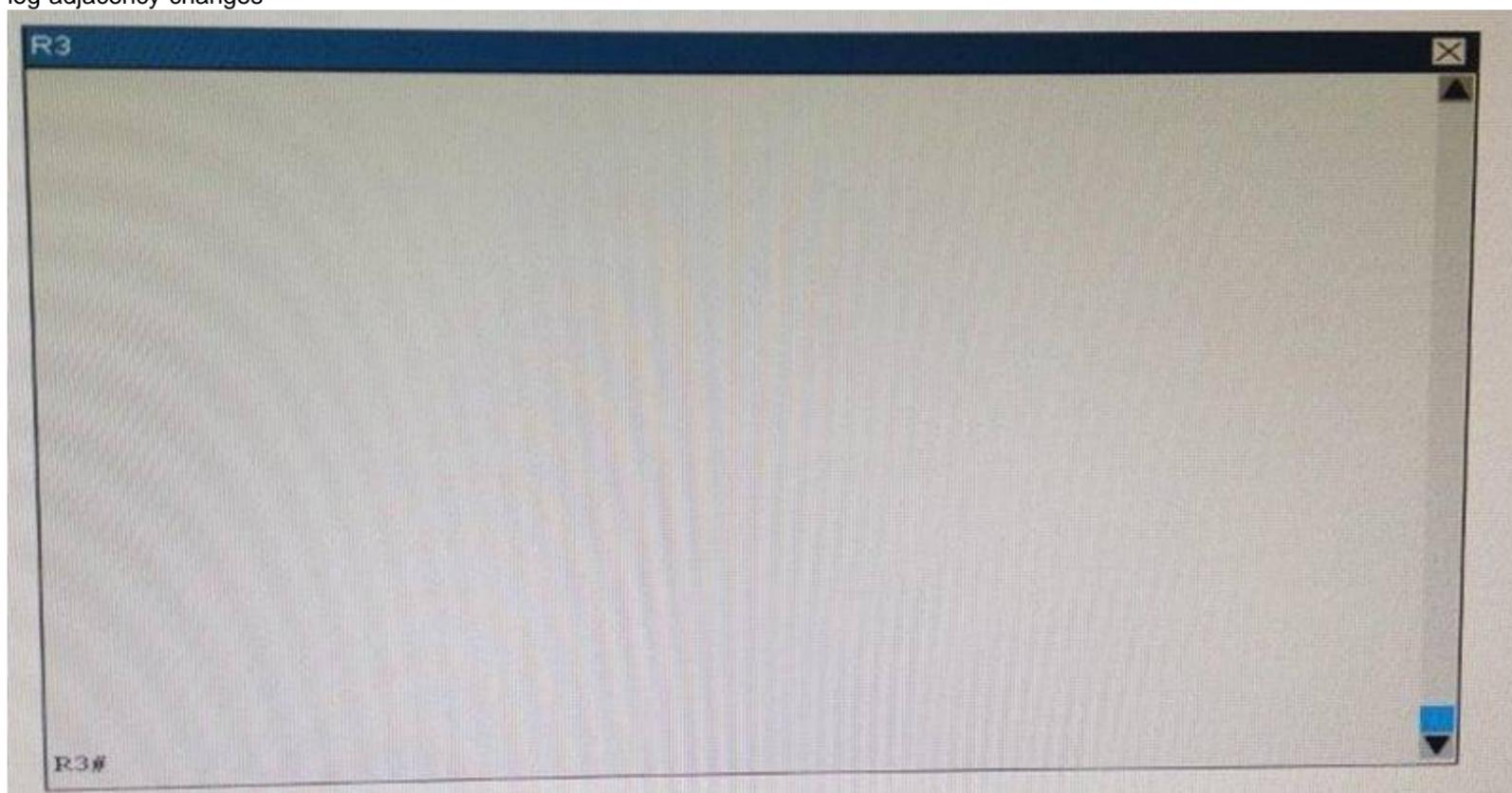
The image shows two overlapping windows from a simulation interface. The top window is titled "Instructions" and contains a list of five bullet points: 1. Enter Cisco IOS commands on the device to verify network operation and answer the multiple-choice questions. 2. THIS TASK DOES NOT REQUIRE DEVICE CONFIGURATION. 3. Click on the device to gain access to the console of the device. No console or enable passwords are required. 4. To access the multiple-choice questions, click on the numbered boxes on the left of the top panel. 5. There are four multiple-choice questions with this task. Be sure to answer all four questions before clicking the Next button. The bottom window is titled "Scenario" and contains the following text: Refer to the topology. Your company has decided to connect the main office with three other remote branch offices using point-to-point serial links. You are required to troubleshoot and resolve OSPF neighbor adjacency issues between the main office and the routers located in the remote branch offices. Use appropriate show commands to troubleshoot the issues and answer all four questions.



```
R1# show running-config interface Loopback0
description ***Loopback***
ip address 192.168.1.1 255.255.255.255
ip ospf 1 area 0
!
interface Ethernet0/0
description **Connected to R1-LAN** ip address 10.10.110.1 255.255.255.0
ip ospf 1 area 0
!
interface Ethernet0/1
description **Connected to L2SW**
ip address 10.10.230.1 255.255.255.0
ip ospf hello-interval 25 ip ospf 1 area 0
!
router ospf 1
log-adjacency-changes
```

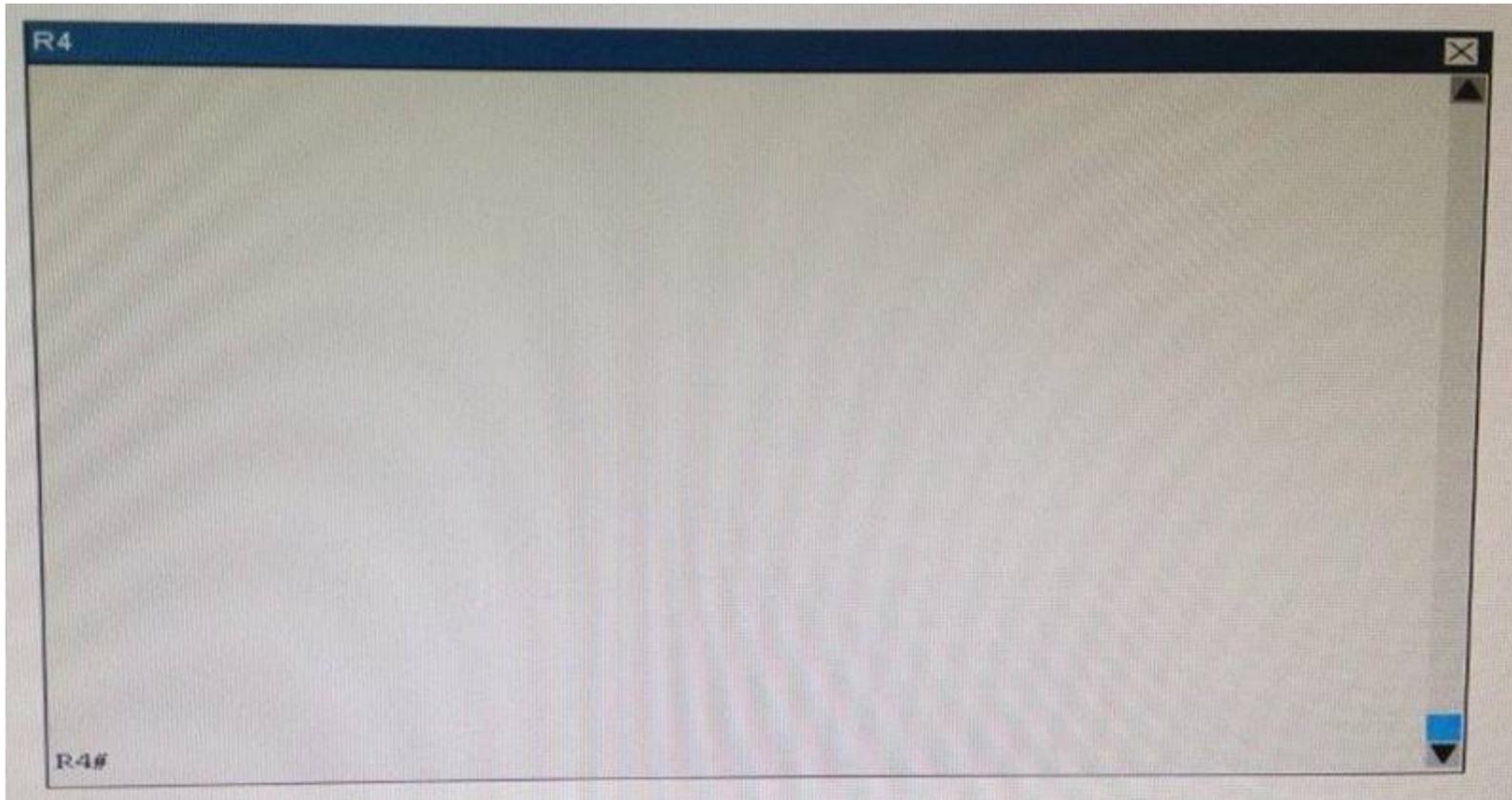


```
R2# show running-config R2
!  
interface Loopback0 description **Loopback**  
ip address 192.168.2.2 255.255.255.255  
ip ospf 2 area 0  
!  
interface Ethernet0/0  
description **Connected to R2-LAN**  
ip address 10.10.120.1 255.255.255.0  
ip ospf 2 area 0  
!  
interface Ethernet0/1  
description **Connected to L2SW**  
ip address 10.10.230.2 255.255.255.0  
ip ospf 2 area 0  
!  
router ospf 2  
log-adjacency-changes
```

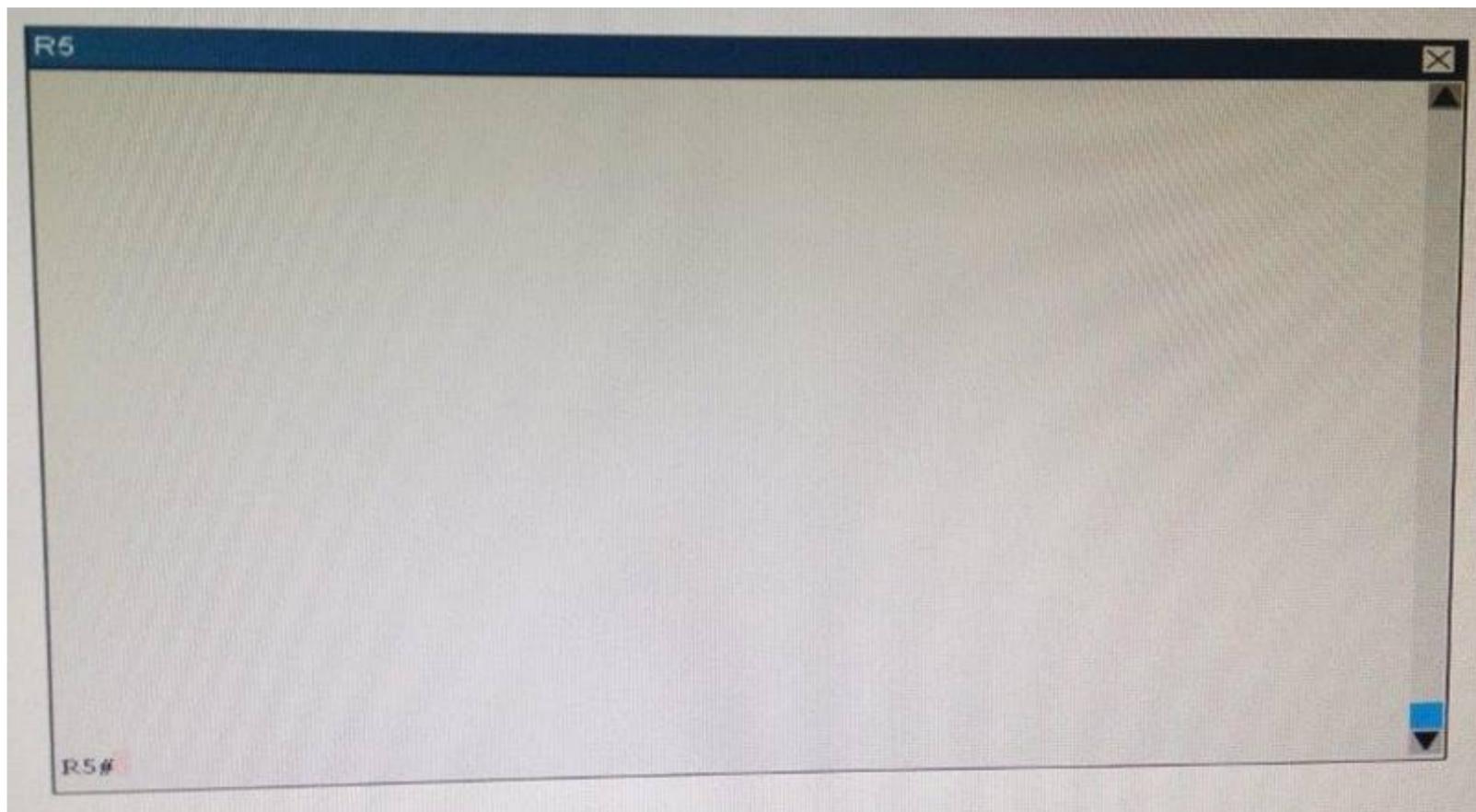


```
R3# show running-config R3  
username R6 password CISCO36  
!  
interface Loopback0 description **Loopback**  
ip address 192.168.3.3 255.255.255.255  
ip ospf 3 area 0  
!  
interface Ethernet0/0  
description **Connected to L2SW**  
ip address 10.10.230.3 255.255.255.0  
ip ospf 3 area 0  
!  
interface Serial1/0
```

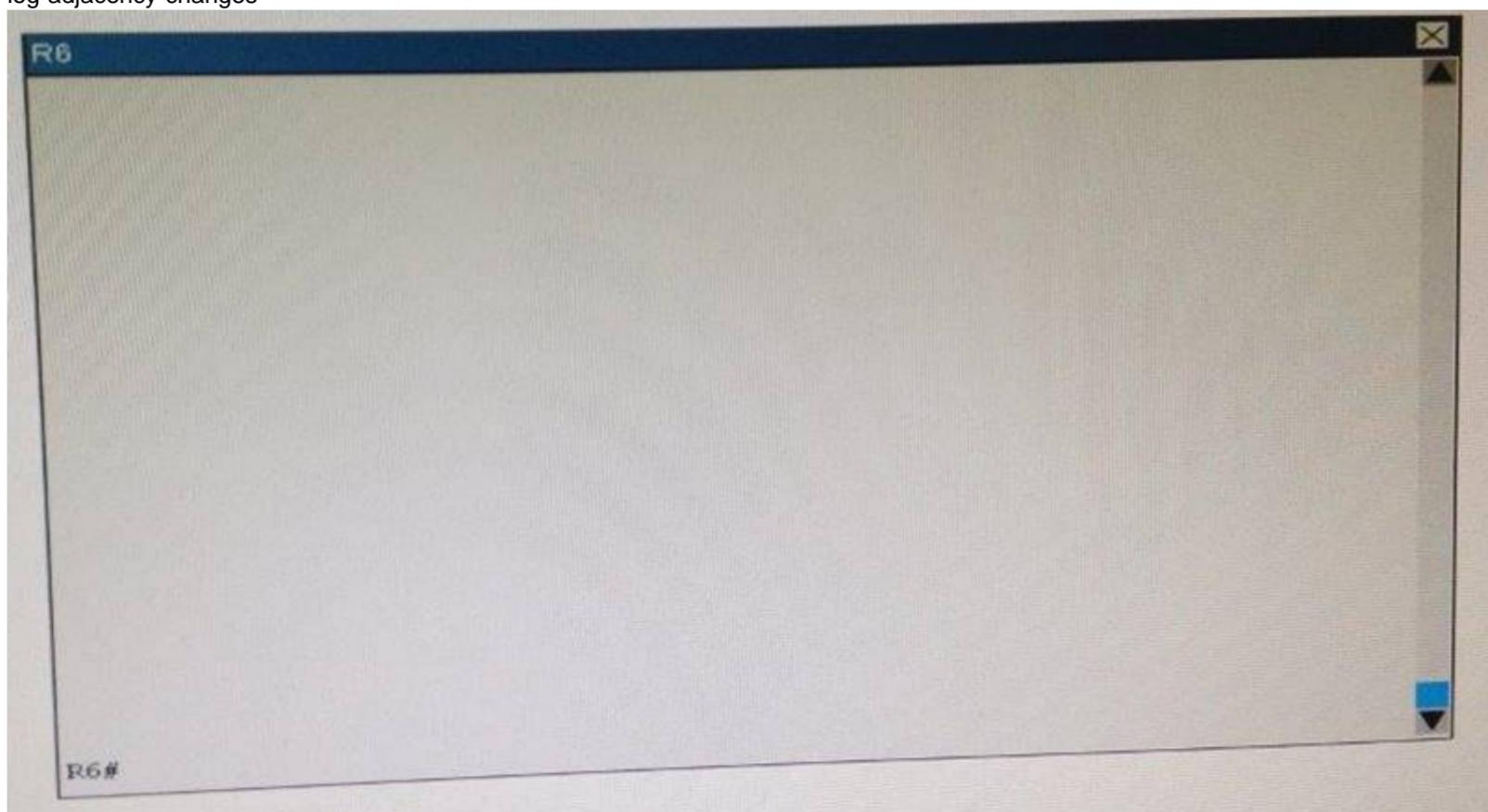
```
description **Connected to R4-Branch1 office** ip address 10.10.240.1 255.255.255.252
encapsulation ppp ip ospf 3 area 0
!
interface Serial1/1
description **Connected to R5-Branch2 office** ip address 10.10.240.5 255.255.255.252
encapsulation ppp
ip ospf hello-interval 50 ip ospf 3 area 0
!
interface Serial1/2
description **Connected to R6-Branch3 office** ip address 10.10.240.9 255.255.255.252
encapsulation ppp ip ospf 3 area 0
ppp authentication chap
!
router ospf 3
router-id 192.168.3.3
!
```



```
R4# show running-config R4
!
interface Loopback0 description **Loopback**
ip address 192.168.4.4 255.255.255.255
ip ospf 4 area 2
!
interface Ethernet0/0
ip address 172.16.113.1 255.255.255.0
ip ospf 4 area 2
!
interface Serial1/0
description **Connected to R3-Main Branch office** ip address 10.10.240.2 255.255.255.252
encapsulation ppp ip ospf 4 area 2
!
router ospf 4
log-adjacency-changes
```

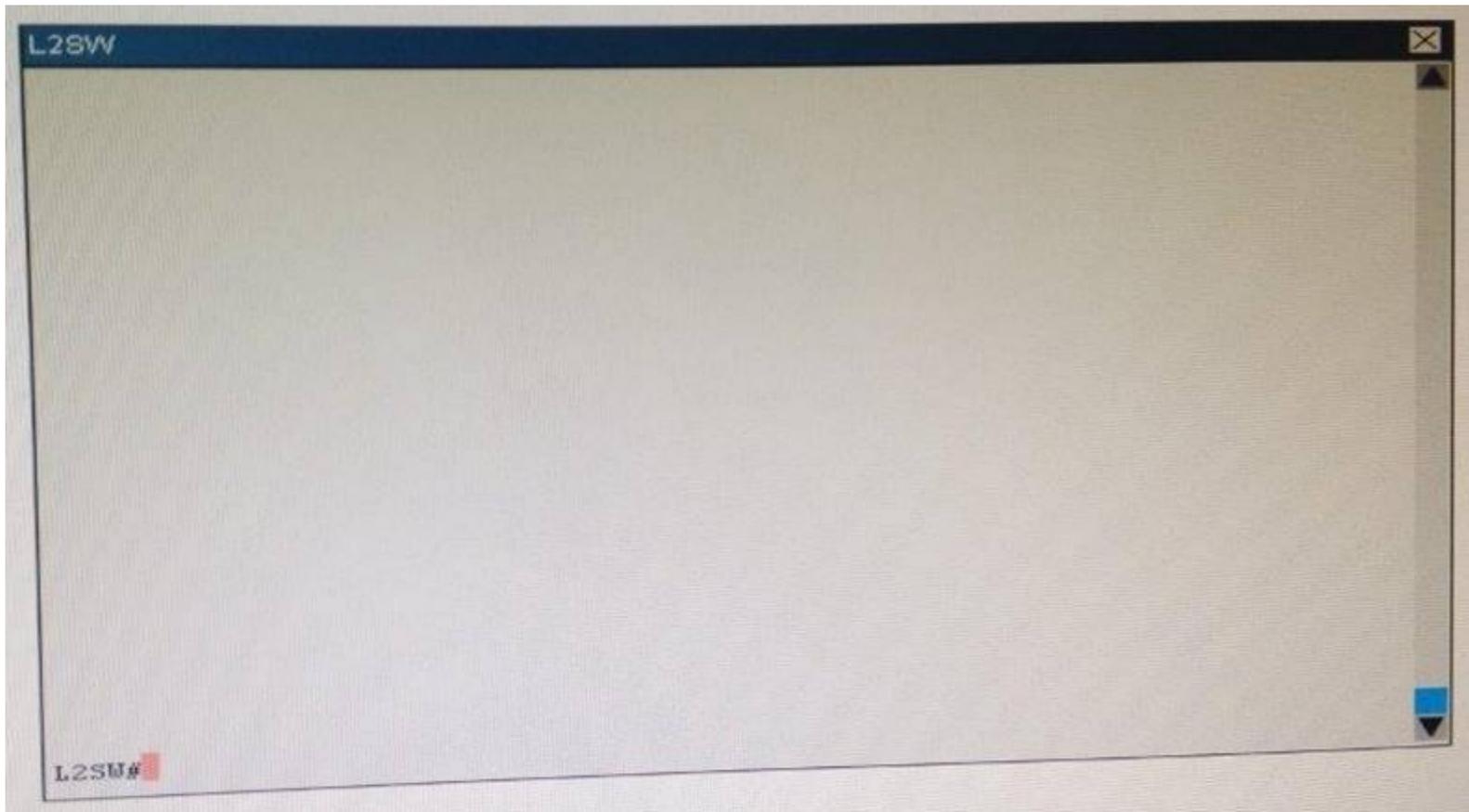


```
R5# show running-config R5
!
interface Loopback0 description **Loopback**
ip address 192.168.5.5 255.255.255.255
ip ospf 5 area 0
!
interface Ethernet0/0
ip address 172.16.114.1 255.255.255.0
ip ospf 5 area 0
!
interface Serial1/0
description **Connected to R3-Main Branch office** ip address 10.10.240.6 255.255.255.252
encapsulation ppp ip ospf 5 area 0
!
router ospf 5
log-adjacency-changes
```



```
R6# show running-config R6
username R3 password CISCO36
!
interface Loopback0 description **Loopback**
ip address 192.168.6.6 255.255.255.255
ip ospf 6 area 0
!
interface Ethernet0/0
ip address 172.16.115.1 255.255.255.0
ip ospf 6 area 0
!
interface Serial1/0
description **Connected to R3-Main Branch office** ip address 10.10.240.10 255.255.255.252
```

```
encapsulation ppp ip ospf 6 area 0
ppp authentication chap
!
router ospf 6
router-id 192.168.3.3
!
```



An OSPF neighbor adjacency is not formed between R3 in the main office and R6 in the Branch3 office. What is causing the problem?

- A. There is an area ID mismatch.
- B. There is a PPP authentication issue; the username is not configured on R3 and R6.
- C. There is an OSPF hello and dead interval mismatch.
- D. The R3 router ID is configured on R6.

Answer: D

NEW QUESTION 39

Which two switch states are valid for 802.1w? (Choose two.)

- A. listening
- B. backup
- C. disabled
- D. learning
- E. discarding

Answer: DE

Explanation: Port States

There are only three port states left in RSTP that correspond to the three possible operational states. The 802.1D disabled, blocking, and listening states are merged into a unique 802.1w discarding state.

STP (802.1D) Port State	RSTP (802.1w) Port State	Is Port Included in Active Topology?	Is Port Learning MAC Addresses?
Disabled	Discarding	No	No
Blocking	Discarding	No	No
Listening	Discarding	Yes	No
Learning	Learning	Yes	Yes
Forwarding	Forwarding	Yes	Yes

NEW QUESTION 41

Which statement about MPLS is true?

- A. It operates in Layer 1.
- B. It operates between Layer 2 and Layer 3.
- C. It operates in Layer 3.
- D. it operates in Layer 2.

Answer: B

Explanation: MPLS belongs to the family of packet-switched networks. MPLS operates at a layer that is generally considered to lie between traditional definitions of OSI Layer 2 (data link layer) and Layer 3 (network layer), and thus is often referred to as a layer 2.5 protocol.

NEW QUESTION 44

Which statement about slow inter VLAN forwarding is true?

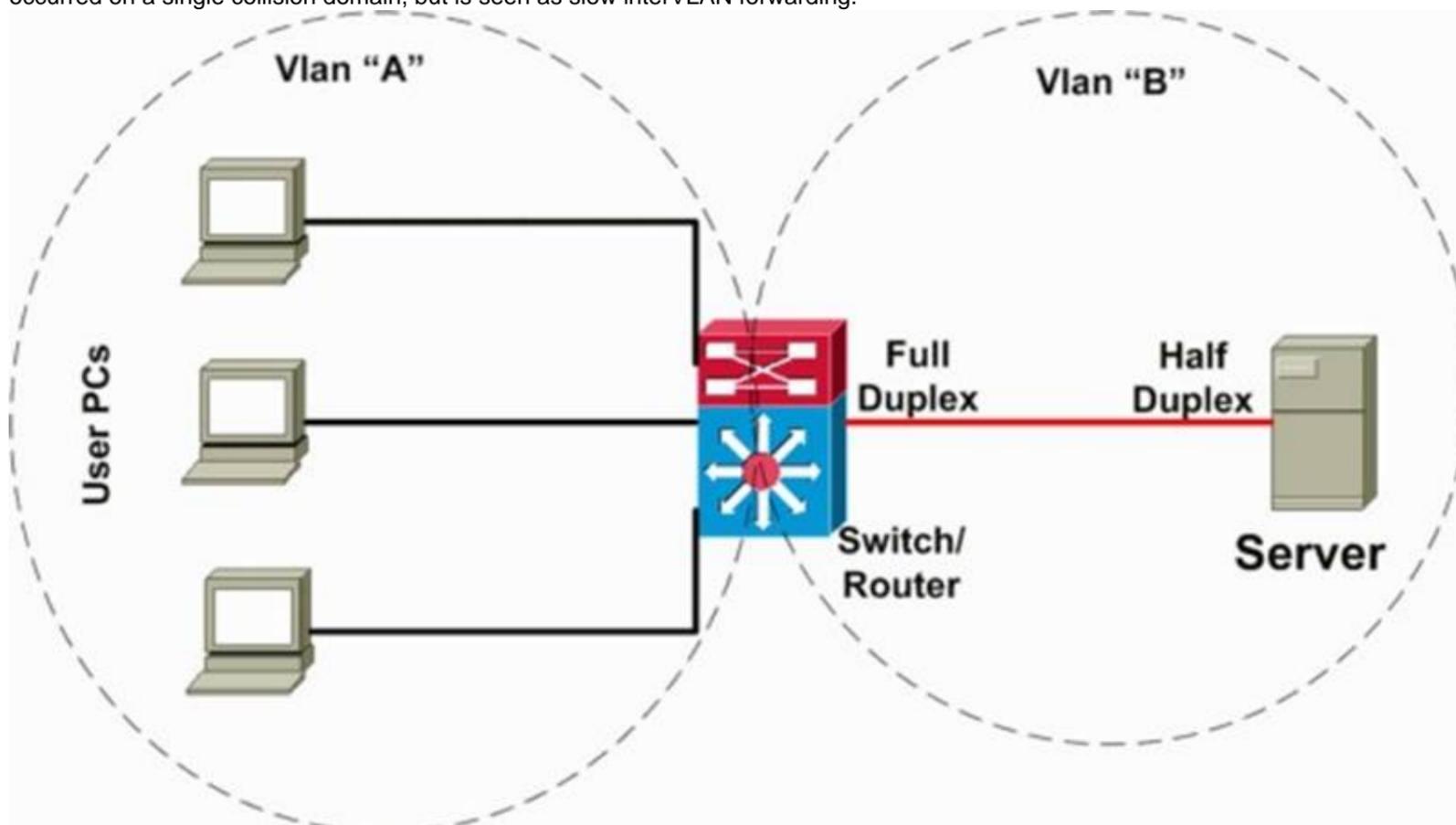
- A. The VLAN is experiencing slowness in the point-to-point collisionless connection.
- B. The VLANs are experiencing slowness because multiple devices are connected to the same hub.
- C. The local VLAN is working normally, but traffic to the alternate VLAN is forwarded slower than expected.
- D. The entire VLAN is experiencing slowness.
- E. The VLANs are experiencing slowness due to a duplex mismatch.

Answer: C

Explanation: Common Causes of Slow IntraVLAN and InterVLAN Connectivity

The symptoms of slow connectivity on a VLAN can be caused by multiple factors on different network layers. Commonly the network speed issue may be occurring on a lower level, but symptoms can be observed on a higher level as the problem masks itself under the term "slow VLAN". To clarify, this document defines the following new terms: "slow collision domain", "slow broadcast domain" (in other words, slow VLAN), and "slow interVLAN forwarding". These are defined in the section Three Categories of Causes, below.

In the following scenario (illustrated in the network diagram below), there is a Layer 3 (L3) switch performing interVLAN routing between the server and client VLANs. In this failure scenario, one server is connected to a switch, and the port duplex mode is configured half-duplex on the server side and full-duplex on the switch side. This misconfiguration results in a packet loss and slowness, with increased packet loss when higher traffic rates occur on the link where the server is connected. For the clients who communicate with this server, the problem looks like slow interVLAN forwarding because they do not have a problem communicating to other devices or clients on the same VLAN. The problem occurs only when communicating to the server on a different VLAN. Thus, the problem occurred on a single collision domain, but is seen as slow interVLAN forwarding.

**Three Categories of Causes**

The causes of slowness can be divided into three categories, as follows:

Slow Collision Domain Connectivity

Collision domain is defined as connected devices configured in a half-duplex port configuration, connected to each other or a hub. If a device is connected to a switch port and full-duplex mode is configured, such a point-to-point connection is collisionless. Slowness on such a segment still can occur for different reasons.

Slow Broadcast Domain Connectivity (Slow VLAN)

Slow broadcast domain connectivity occurs when the whole VLAN (that is, all devices on the same VLAN) experiences slowness.

Slow InterVLAN Connectivity (Slow Forwarding Between VLANs)

Slow interVLAN connectivity (slow forwarding between VLANs) occurs when there is no slowness on the local VLAN, but traffic needs to be forwarded to an alternate VLAN, and it is not forwarded at the expected rate.

Causes for Network Slowness Packet Loss

In most cases, a network is considered slow when higher-layer protocols (applications) require extended time to complete an operation that typically runs faster. That slowness is caused by the loss of some packets on the network, which causes higher-level protocols like TCP or applications to time out and initiate retransmission.

Hardware Forwarding Issues

With another type of slowness, caused by network equipment, forwarding (whether Layer 2 [L2] or L3) is performed slowly. This is due to a deviation from normal (designed) operation and switching to slow path forwarding. An example of this is when Multilayer Switching (MLS) on the switch forwards L3 packets between VLANs in the hardware, but due to misconfiguration, MLS is not functioning properly and forwarding is done by the router in the software (which drops the interVLAN forwarding rate significantly).

NEW QUESTION 48

Which statement about switch access ports is true?

- A. They drop packets with 802.1Q tags.
- B. A VLAN must be assigned to an access port before it is created.
- C. They can receive traffic from more than one VLAN with no voice support
- D. By default, they carry traffic for VLAN 10.

Answer: A

Explanation: "If an access port receives a packet with an 802.1Q tag in the header other than the access VLAN value, that port drops the packet without learning its MAC source address."

NEW QUESTION 50

Which component of the Cisco SDN solution serves as the centralized management system?

- A. Cisco OpenDaylight
- B. Cisco ACI
- C. Cisco APIC
- D. Cisco IWAN

Answer: B

Explanation: Cisco ACI is a comprehensive SDN architecture. This policy-based automation solution supports a business-relevant application policy language, greater scalability through a distributed enforcement system, and greater network visibility. These benefits are achieved through the integration of physical and virtual environments under one policy model for networks, servers, storage, services, and security.

NEW QUESTION 55

You enter the show ipv6 route command on an OSPF device and the device displays a route. Which conclusion can you draw about the environment?

- A. OSPF is distributing IPv6 routes to BGP.
- B. The router is designated as an ABR.
- C. The router is designated as totally stubby.
- D. OSPFv3 is in use.

Answer: A

NEW QUESTION 60

Which option describes the purpose of traffic policing?

- A. It prioritizes routing protocol traffic.
- B. It remarks traffic that is below the CIR.
- C. It drops traffic that exceeds the CIR.
- D. It queues and then transmits traffic that exceeds the CIR.

Answer: C

Explanation: Traffic policing allows you to control the maximum rate of traffic transmitted or received on an interface. Traffic policing is often configured on interfaces at the edge of a network to limit traffic into or out of the network. In most Traffic Policing configurations, traffic that falls within the rate parameters is transmitted, whereas traffic that exceeds the parameters is dropped or transmitted with a different priority.

NEW QUESTION 61

Which two pieces of information are provided by the show controllers serial 0 command? (Choose two.)

- A. the type of cable that is connected to the interface.
- B. The uptime of the interface
- C. the status of the physical layer of the interface
- D. the full configuration of the interface
- E. the interface's duplex settings

Answer: AC

Explanation: The show controller command provides hardware-related information useful to troubleshoot and diagnose issues with Cisco router interfaces. The Cisco 12000 Series uses a distributed architecture with a central command-line interface (CLI) at the Gigabit Route Processor (GRP) and a local CLI at each line card.

NEW QUESTION 62

CORRECT TEXT

Which protocol authenticates connected devices before allowing them to access the LAN?

- A. 802.1d
- B. 802.11
- C. 802.1w
- D. 802.1x

Answer: D

Explanation: 802.1X authentication involves three parties: a supplicant, an authenticator, and an authentication server. The supplicant is a client device (such as a laptop) that wishes to attach to the LAN/WLAN. The term 'supplicant' is also used interchangeably to refer to the software running on the client that provides credentials to the authenticator. The authenticator is a network device, such as an Ethernet switch or wireless access point; and the authentication server is typically a host running software supporting the RADIUS and EAP protocols.

The authenticator acts like a security guard to a protected network. The supplicant (i.e., client device) is not allowed access through the authenticator to the protected side of the network until the supplicant's identity has been validated and authorized. An analogy to this is providing a valid visa at the airport's arrival immigration before being allowed to enter the country. With 802.1X port-based authentication, the supplicant provides credentials, such as user name/password or digital certificate, to the authenticator, and the authenticator forwards the credentials to the authentication server for verification. If the authentication server determines the credentials are valid, the supplicant (client device) is allowed to access resources located on the protected side of the network.

NEW QUESTION 63

While you were troubleshooting a connection issue, a ping from one VLAN to another VLAN on the same switch failed. Which command verifies that IP routing is enabled on interfaces and the local VLANs are up?

- A. show ip interface brief
- B. show ip nat statistics
- C. show ip statistics
- D. show ip route

Answer: A

Explanation: Initiate a ping from an end device in one VLAN to the interface VLAN on another VLAN in order to verify that the switch routes between VLANs. In this example, ping from VLAN 2 (10.1.2.1) to Interface VLAN 3 (10.1.3.1) or Interface VLAN 10 (10.1.10.1). If the ping fails, verify that IP routing is enabled and that the VLAN interfaces status is up with the show ip interface brief command.

Topic 2, LAN Switching Technologies

NEW QUESTION 66

Which two of these statements regarding RSTP are correct? (Choose two.)

- A. RSTP cannot operate with PVST+.
- B. RSTP defines new port roles.
- C. RSTP defines no new port states.
- D. RSTP is a proprietary implementation of IEEE 802.1D STP.
- E. RSTP is compatible with the original IEEE 802.1D STP.

Answer: BE

Explanation: http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cf a.shtml

Port Roles

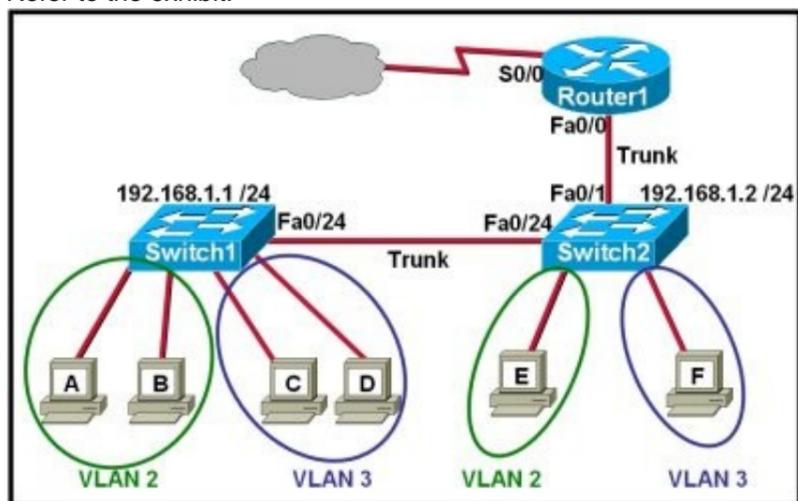
The role is now a variable assigned to a given port. The root port and designated port roles remain, while the blocking port role is split into the backup and alternate port roles. The Spanning Tree Algorithm (STA) determines the role of a port based on Bridge Protocol Data Units (BPDUs). In order to simplify matters, the thing to remember about a BPDU is there is always a method to compare any two of them and decide whether one is more useful than the other. This is based on the value stored in the BPDU and occasionally on the port on which they are received. This considered, the information in this section explains practical approaches to port roles.

Compatibility with 802.1D

RSTP is able to interoperate with legacy STP protocols. However, it is important to note that the inherent fast convergence benefits of 802.1w are lost when it interacts with legacy bridges.

NEW QUESTION 67

Refer to the exhibit.



Which two statements are true about interVLAN routing in the topology that is shown in the exhibit? (Choose two.)

- A. Host E and host F use the same IP gateway address.
- B. Router1 and Switch2 should be connected via a crossover cable.
- C. Router1 will not play a role in communications between host A and host D.
- D. The FastEthernet 0/0 interface on Router1 must be configured with subinterfaces.
- E. Router1 needs more LAN interfaces to accommodate the VLANs that are shown in the exhibit.
- F. The FastEthernet 0/0 interface on Router1 and the FastEthernet 0/1 interface on Switch2 trunk ports must be configured using the same encapsulation type.

Answer: DF

Explanation: http://www.cisco.com/en/US/tech/tk389/tk815/technologies_configuration_example09186a 00800949fd.shtml

NEW QUESTION 70

What is one benefit of PVST+?

- A. PVST+ supports Layer 3 load balancing without loops.
- B. PVST+ reduces the CPU cycles for all the switches in the network.
- C. PVST+ allows the root switch location to be optimized per VLAN.
- D. PVST+ automatically selects the root bridge location, to provide optimized bandwidth usage.

Answer: C

Explanation: Per VLAN Spanning Tree (PVST)

Introduction http://www.cisco.com/en/US/tech/tk389/tk621/tk846/tsd_technology_support_sub_protocol_home.html

Per VLAN Spanning Tree (PVST) maintains a spanning tree instance for each VLAN configured in the network. This means a switch can be the root bridge of a VLAN while another switch can be the root bridge of other VLANs in a common topology. For example, Switch 1 can be the root bridge for Voice data while Switch 2 can be the root bridge for Video data. If designed correctly, it can optimize the network traffic.

<http://www.ciscopress.com/articles/article.asp?p=102157&seqNum=4>

NEW QUESTION 72

What are two characteristics of a switch that is configured as a VTP client? (Choose two.)

- A. If a switch that is configured to operate in client mode cannot access a VTP server, then the switch reverts to transparent mode.
- B. On switches that are configured to operate in client mode, VLANs can be created, deleted, or renamed locally.
- C. The local VLAN configuration is updated only when an update that has a higher configuration revision number is received.
- D. VTP advertisements are not forwarded to neighboring switches that are configured in VTP transparent mode.
- E. VTP client is the default VTP mode.
- F. When switches in VTP client mode are rebooted, they send a VTP advertisement request to the VTP servers.

Answer: CF

Explanation: VLAN Trunking Protocol (VTP) <http://archive.networknewz.com/2004/0317.html>

VTP Modes

Server Mode Once VTP is configured on a Cisco switch, the default mode used is Server Mode. In any given VTP management domain, at least one switch must be in Server Mode. When in Server Mode, a switch can be used to add, delete, and modify VLANs, and this information will be passed to all other switches in the VTP management domain.

Client Mode When a switch is configured to use VTP Client Mode, it is simply the recipient of any VLANs added, deleted, or modified by a switch in Server Mode within the same management domain. A switch in VTP client mode cannot make any changes to VLAN information.

Transparent Mode A switch in VTP Transparent Mode will pass VTP updates received by switches in Server Mode to other switches in the VTP management domain, but will not actually process the contents of these messages. When individual VLANs are added, deleted, or modified on a switch running in transparent mode, the changes are local to that particular switch only, and are not passed to other switches in the VTP management domain.

NEW QUESTION 75

Refer to the exhibit.

```
Switch# show spanning-tree vlan 30
VLAN0030
Spanning tree enabled protocol rstp
Root ID Priority 24606
Address 00d0.047b.2800
This bridge is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Bridge ID Priority 24606 (priority 24576 sys-id-ext 30)
Address 00d0.047b.2800
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 300
Interface Role Sts Cost Prio.Nbr Type
-----
Fa1/1 Desg FWD 4 128.1 p2p
Fa1/2 Desg FWD 4 128.2 p2p
Fa5/1 Desg FWD 4 128.257 p2p
```

The output that is shown is generated at a switch. Which three statements are true? (Choose three.)

- A. All ports will be in a state of discarding, learning, or forwarding.
- B. Thirty VLANs have been configured on this switch.
- C. The bridge priority is lower than the default value for spanning tree.
- D. All interfaces that are shown are on shared media.
- E. All designated ports are in a forwarding state.
- F. This switch must be the root bridge for all VLANs on this switch.

Answer: ACE

Explanation: From the output, we see that all ports are in Designated role (forwarding state) -> A and E are correct.

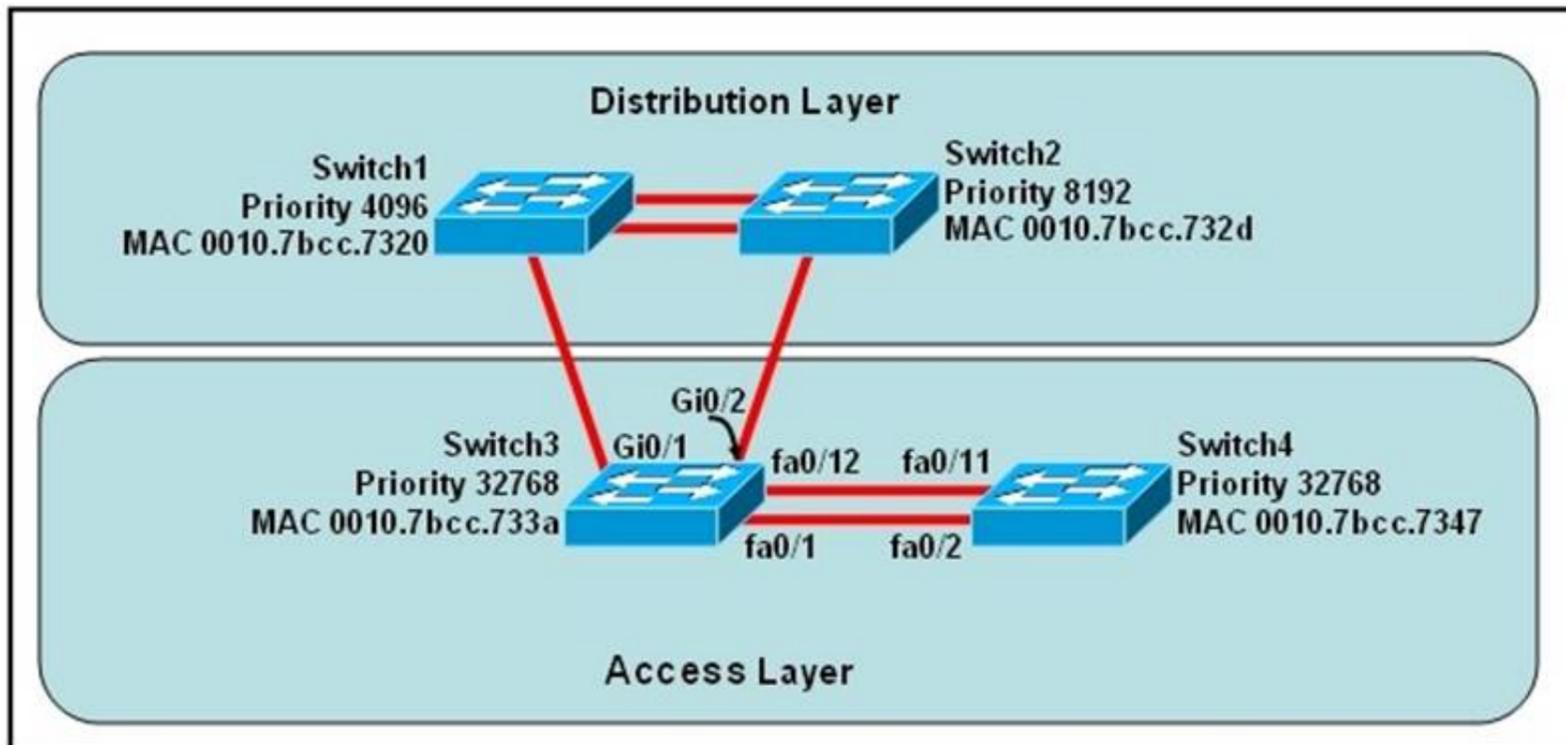
The command "show spanning-tree vlan 30 only shows us information about VLAN 30. We don't know how many VLAN exists in this switch -> B is not correct.

The bridge priority of this switch is 24606 which is lower than the default value bridge priority 32768 -> C is correct.

All three interfaces on this switch have the connection type "p2p", which means Point-to-point environment – not a shared media -> D is not correct. The only thing we can specify is this switch is the root bridge for VLAN 30 but we can not guarantee it is also the root bridge for other VLANs -> F is not correct.

NEW QUESTION 80

Refer to the exhibit.



At the end of an RSTP election process, which access layer switch port will assume the discarding role?

- A. Switch3, port fa0/1
- B. Switch3, port fa0/12
- C. Switch4, port fa0/11
- D. Switch4, port fa0/2
- E. Switch3, port Gi0/1
- F. Switch3, port Gi0/2

Answer: C

Explanation: In this question, we only care about the Access Layer switches (Switch3 & 4). Switch 3 has a lower bridge ID than Switch 4 (because the MAC of Switch3 is smaller than that of Switch4) so both ports of Switch3 will be in forwarding state. The alternative port will surely belong to Switch4. Switch4 will need to block one of its ports to avoid a bridging loop between the two switches. But how does Switch4 select its blocked port? Well, the answer is based on the BPDUs it receives from Switch3. A BPDU is superior than another if it has:

1. A lower Root Bridge ID
2. A lower path cost to the Root
3. A lower Sending Bridge ID
4. A lower Sending Port ID

These four parameters are examined in order. In this specific case, all the BPDUs sent by Switch3 have the same Root Bridge ID, the same path cost to the Root and the same Sending Bridge ID. The only parameter left to select the best one is the Sending Port ID (Port ID = port priority + port index). In this case the port priorities are equal because they use the default value, so Switch4 will compare port index values, which are unique to each port on the switch, and because Fa0/12 is inferior to Fa0/1, Switch4 will select the port connected with Fa0/1 (of Switch3) as its root port and block the other port -> Port fa0/11 of Switch4 will be blocked (discarding role)

NEW QUESTION 82

At which layer of the OSI model is RSTP used to prevent loops?

- A. physical
- B. data link
- C. network
- D. transport

Answer: B

Explanation: RSTP and STP operate on switches and are based on the exchange of Bridge Protocol Data Units (BPDUs) between switches. One of the most important fields in BPDUs is the Bridge Priority in which the MAC address is used to elect the Root Bridge, RSTP operates at Layer 2. http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cf_a.shtml

NEW QUESTION 86

Which three statements are typical characteristics of VLAN arrangements? (Choose three.)

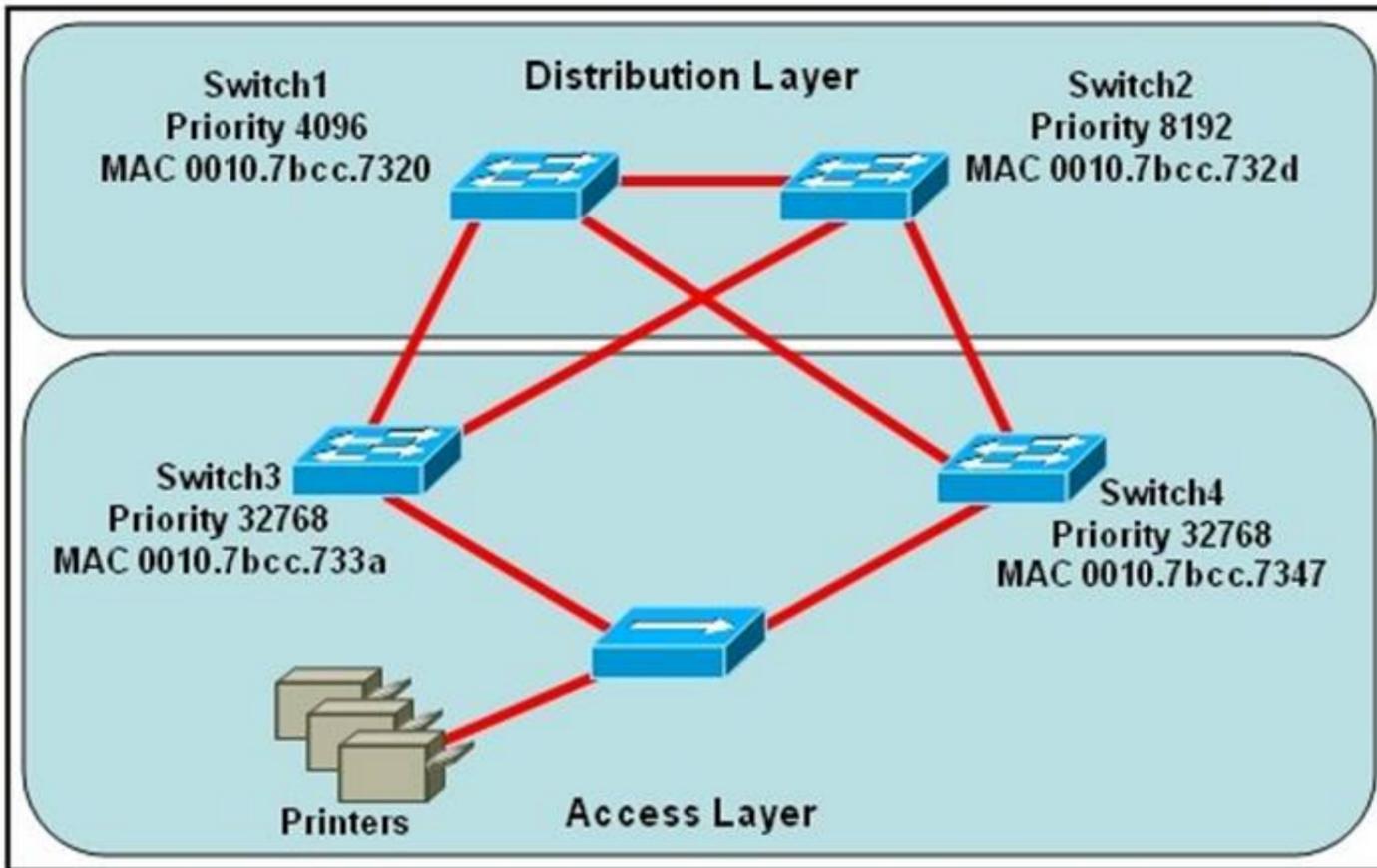
- A. A new switch has no VLANs configured.
- B. Connectivity between VLANs requires a Layer 3 device.
- C. VLANs typically decrease the number of collision domains.
- D. Each VLAN uses a separate address space.
- E. A switch maintains a separate bridging table for each VLAN.
- F. VLANs cannot span multiple switches.

Answer: BDE

Explanation: By default, all ports on a new switch belong to VLAN 1 (default & native VLAN). There are also some well-known VLANs (for example: VLAN 1002 for fddi-default; VLAN 1003 for token-ring...) configured by default -> A is not correct.
 To communicate between two different VLANs we need to use a Layer 3 device like router or Layer 3 switch -> B is correct.
 VLANs don't affect the number of collision domains, they are the same -> C is not correct. Typically, VLANs increase the number of broadcast domains. We must use a different network (or sub-network) for each VLAN. For example we can use 192.168.1.0/24 for VLAN 1, 192.168.2.0/24 for VLAN 2 -> D is correct.
 A switch maintains a separate bridging table for each VLAN so that it can send frame to ports on the same VLAN only. For example, if a PC in VLAN 2 sends a frame then the switch look-ups its bridging table and only sends frame out of its ports which belong to VLAN 2 (it also sends this frame on trunk ports) -> E is correct.
 We can use multiple switches to expand VLAN -> F is not correct.

NEW QUESTION 87

Refer to the exhibit



Which switch provides the spanning-tree designated port role for the network segment that services the printers?

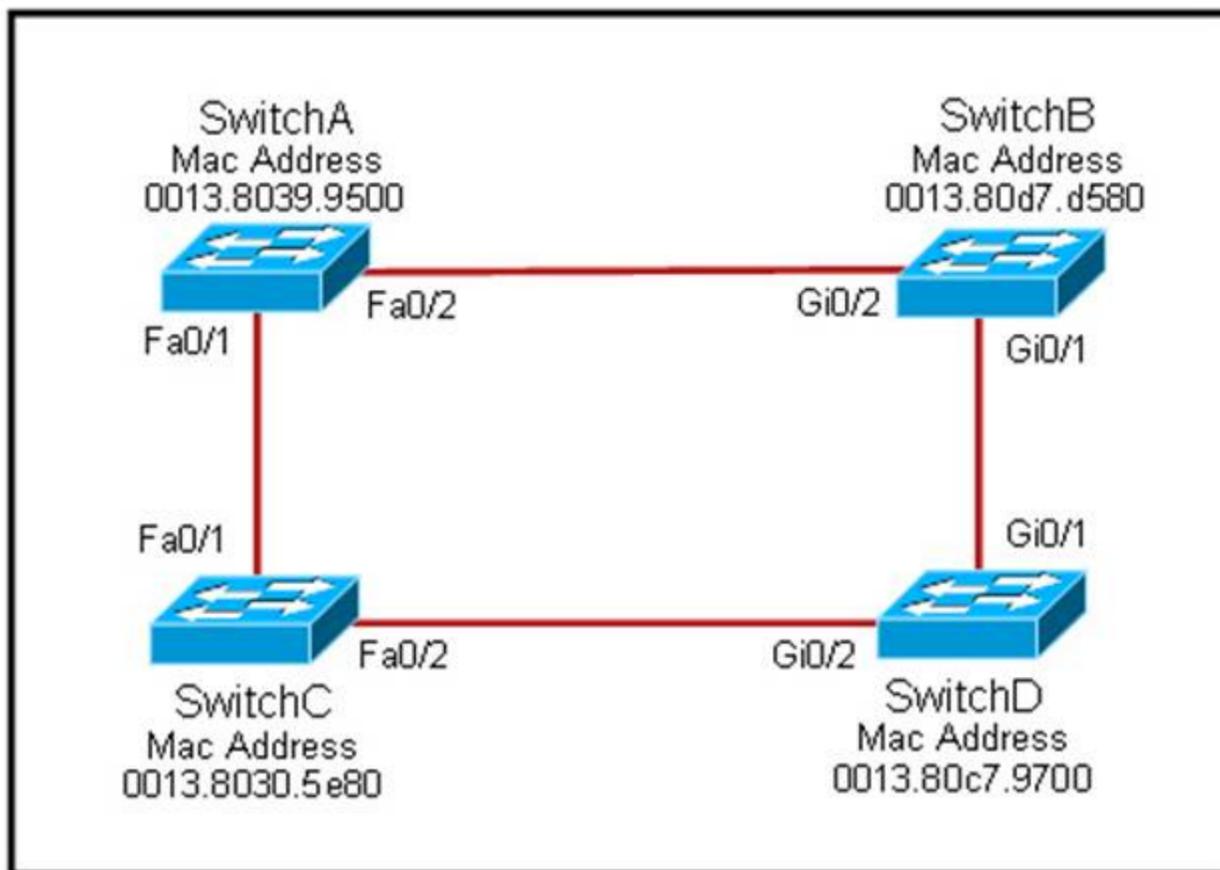
- A. Switch1
- B. Switch2
- C. Switch3
- D. Switch4

Answer: C

Explanation: First, the question asks what switch services the printers, so it can be Switch 3 or Switch 4 which is connected directly to the Printers. Designated port is a port that is in the forwarding state. All ports of the root bridge are designated ports. Switch 3 and Switch 4 has same priority so it will see on lowest MAC address and here switch 3 has lowest MAC address. So switch 3 segment will play a Designated port role. By comparing the MAC address of Switch 3 and Switch 4 we found that the MAC of Switch 3 is smaller. Therefore the interface connected to the Printers of Switch 3 will become designated interface and the interface of Switch 4 will be blocked.

NEW QUESTION 92

Refer to the exhibit.



Each of these four switches has been configured with a hostname, as well as being configured to run RSTP. No other configuration changes have been made. Which three of these show the correct RSTP port roles for the indicated switches and interfaces? (Choose three.)

- A. SwitchA, Fa0/2, designated
- B. SwitchA, Fa0/1, root
- C. SwitchB, Gi0/2, root
- D. SwitchB, Gi0/1, designated
- E. SwitchC, Fa0/2, root
- F. SwitchD, Gi0/2, root

Answer: ABF

Explanation: The question says "no other configuration changes have been made" so we can understand these switches have the same bridge priority. SwitchC has lowest MAC address so, it will become root bridge and 2 of its ports (Fa0/1 & Fa0/2) will be designated ports (DP). Because SwitchC is the root bridge the 2 ports nearest SwitchC on SwitchA (Fa0/1) and SwitchD (Gi0/2) will be root ports (RP) -> B and F are correct. SwitchB must have a root port so which port will it choose? To answer this question we need to know about STP cost and port cost. In general, "cost" is calculated based on bandwidth of the link. The higher the bandwidth on a link, the lower the value of its cost. Below are the cost values you should memorize:
 Link speed Cost
 SwitchB will choose the interface with lower cost to the root bridge as the root port so we must calculate the cost on interface Gi0/1 & Gi0/2 of SwitchB to the root bridge. This can be calculated from the "cost to the root bridge" of each switch because a switch always advertises its cost to the root bridge in its BPDU. The receiving switch will add its local port cost value to the cost in the BPDU. SwitchC advertises its cost to the root bridge with a value of 0. Switch D adds 4 (the cost value of 1Gbps link) and advertises this value (4) to SwitchB. SwitchB adds another 4 and learns that it can reach SwitchC via Gi0/1 port with a total cost of 8. The same process happens for SwitchA and SwitchB learns that it can reach SwitchC via Gi0/2 with a total cost of 23 -> Switch B chooses Gi0/1 as its root port. Now our last task is to identify the port roles of the ports between SwitchA & SwitchB. It is rather easy as the MAC address of SwitchA is lower than that of SwitchB so Fa0/2 of SwitchA will be designated port while Gi0/2 of SwitchB will be alternative port.

NEW QUESTION 96

Refer to the exhibit.

```

Sw12#show vlan brief
VLAN Name                Status Ports
-----
1    default                active
10   Marketing              active Fa0/6, Fa0/7, Fa0/8, Fa0/9
    Fa0/10, Fa0/11, Fa0/12, Fa0/13
    Fa0/14, Fa0/15
15   Accounting             active Fa0/16, Fa0/18, Fa0/19, Fa0/20
    Fa0/21, Fa0/22, Fa0/24
20   Admin                  active Fa0/2, Fa0/3, Fa0/4, Fa0/5
1002 fddi-default           active
1003 token-ring-default    active
1004 fddinet-default        active
1005 trnet-default         active
Sw12#
    
```

A technician has configured the FastEthernet 0/1 interface on Sw11 as an access link in VLAN 1. Based on the output from the show vlan brief command issued on Sw12, what will be the result of making this change on Sw11?

- A. Only the hosts in VLAN 1 on the two switches will be able to communicate with each other.
- B. The hosts in all VLANs on the two switches will be able to communicate with each other.
- C. Only the hosts in VLAN 10 and VLAN 15 on the two switches will be able to communicate with each other.
- D. Hosts will not be able to communicate between the two switches.

Answer: D

Explanation: VLANs are local to each switch's database, and VLAN information is not passed between switches without implementing VLAN Trunk Protocol (VTP). Trunks carry traffic from all VLANs to and from the switch by default but, can be configured to carry only specified VLAN traffic. Trunk links are required to pass VLAN information between switches. So Sw11 port should be trunk not access port. Additionally, there are no ports assigned to VLAN 1.

NEW QUESTION 97

Refer to the exhibit.

```

Switch# show spanning-tree interface fastethernet 0/10
Vlan      Role Sts Cost      Prio.Nbr Type
-----
VLAN0001  Root FWD 19        128.1   P2p
VLAN0002  Altn BLK 19        128.2   P2p
VLAN0003  Root FWD 19        128.2   P2p
    
```

Given the output shown from this Cisco Catalyst 2950, what is the reason that interface FastEthernet 0/10 is not the root port for VLAN 2?

- A. This switch has more than one interface connected to the root network segment in VLAN 2.
- B. This switch is running RSTP while the elected designated switch is running 802.1dSpanning Tree.
- C. This switch interface has a higher path cost to the root bridge than another in the topology.
- D. This switch has a lower bridge ID for VLAN 2 than the elected designated switch.

Answer: C

Explanation: These four parameters are examined in order to make root bridge , root port , designated port. Other switch has lowest Sending Bridge ID or Sending Port ID so vlan 2 is not the root port.

- 1. A lower Root Bridge ID
- 2. A lower path cost to the Root
- 3. A lower Sending Bridge ID
- 4. A lower Sending Port ID

Topic 3, Routing Technologies

NEW QUESTION 102

Which statement describes an EIGRP feasible successor route?

- A. A primary route, added to the routing table
- B. A backup route, added to the routing table
- C. A primary route, added to the topology table
- D. A backup route, added to the topology table

Answer: D

Explanation: Two terms that appear often in the EIGRP world are "successor" and "feasible successor". A successor is the route with the best metric to reach a destination. That route is stored in the routing table. A feasible successor is a backup path to reach that same destination that can be used immediately if the successor route fails. These backup routes are stored in the topology table.

Reference: <http://study-ccna.com/eigrp-overview>

NEW QUESTION 103

Refer to the exhibit.

```
R1#show ip eigrp topology
IP-EIGRP Topology Table for AS 100

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - Reply status

P 10.1.4.0/24, 1 successors, FD is 28160
   via Connected, FastEthernet0/0
P 10.1.2.0/24, 1 successors, FD is 28160
   via Connected, FastEthernet0/1
P 172.16.4.0/24, 1 successors, FD is 30720
   via 10.1.4.4 (30720/28160), FastEthernet0/0
   via 10.1.2.2 (30976/28416), FastEthernet0/1
P 172.16.3.0/24, 1 successors, FD is 28416
   via 10.1.2.2 (28416/25856), FastEthernet0/1
```

What address is a feasible successor?

- A. 172.16.4.0
- B. 10.1.4.4
- C. 10.1.2.2
- D. 172.16.3.0

Answer: C

Explanation: The feasible condition states: "To qualify as a feasible successor, a router must have an AD less than the FD of the current successor route". In this case, we see 10.1.2.2 shows an AD less than the current successor of 10.1.4.4

NEW QUESTION 106

Refer to the exhibit.

```
R1# show ip interface brief
Interface          IP-Address      OK? Method Status  Protocol
FastEthernet0/0    192.168.1.2     YES manual up      up
FastEthernet1/0    172.16.4.1      YES manual up      up
Serial2/0          192.168.10.2    YES manual up      up
Serial3/0          unassigned      YES unset  administratively down down
Loopback0          1.1.1.1         YES manual up      up
```

If the router R1 returns the given output and has not had its router ID set manually, what address will EIGRP use as its router ID?

- A. 192.168.1.2
- B. 172.16.4.1
- C. 192.168.10.2

D. 1.1.1.1

Answer: D

Explanation: The router ID is selected according to the following rules:

- ? manual configuration
- ? highest up/up loopback
- ? highest up/up physical interface

NEW QUESTION 108

Which two statements about the OSPF Router ID are true? (Choose two.)

- A. It identifies the source of a Type 1 LSA.
- B. It should be the same on all routers in an OSPF routing instance.
- C. By default, the lowest IP address on the router becomes the OSPF Router ID.
- D. The router automatically chooses the IP address of a loopback as the OSPF Router ID.
- E. It is created using the MAC Address of the loopback interface.

Answer: AD

Explanation: From the output of the “show ip ospf database”:

OSPF Router with ID (10.0.0.120) (Process ID 1)

Next, who are the other routers in our area?

Router Link States (Area 1)

Link ID	ADV Router	Age	Seq#	Checksum	Link count
10.0.0.111	10.0.0.111	600	0x8000023A	0x0092B3	1
10.0.0.112	10.0.0.112	1246	0x80000234	0x009CAC	1
10.0.0.113	10.0.0.113	148	0x8000022C	0x004399	3
10.0.0.120	10.0.0.120	152	0x80000240	0x0046CB	1

This tells us there are four routers in Area 1. The router with RID 10.0.0.113 has 3 links in Area 1, every one else has only 1 link. Also the router will chose the highest loopback interface as its OSPF router ID (if available).

NEW QUESTION 109

What are two benefits of using a single OSPF area network design? (Choose two.)

- A. It is less CPU intensive for routers in the single area.
- B. It reduces the types of LSAs that are generated.
- C. It removes the need for virtual links.
- D. It increases LSA response times.
- E. It reduces the number of required OSPF neighbor adjacencies.

Answer: BC

Explanation: OSPF uses a LSDB (link state database) and fills this with LSAs (link state advertisement). The link types are as follows:

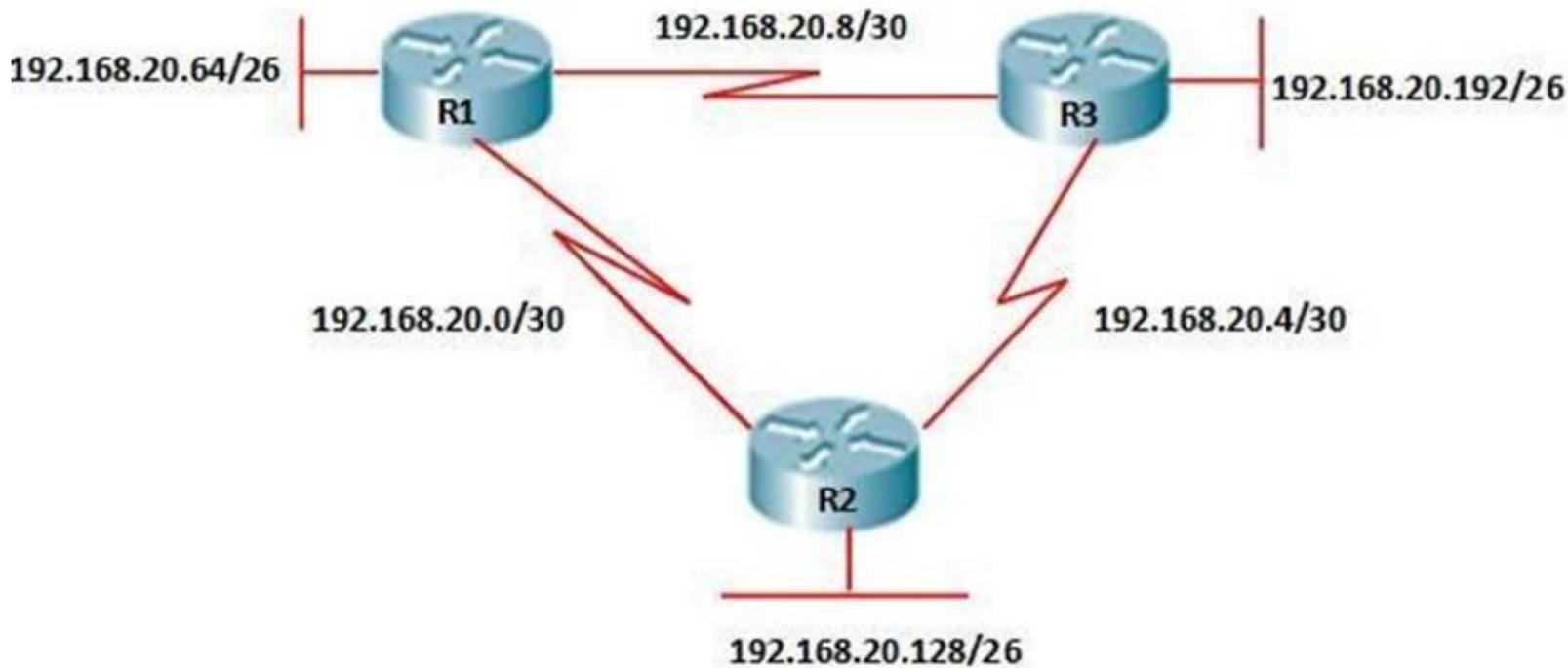
- ? LSA Type 1: Router LSA
- ? LSA Type 2: Network LSA
- ? LSA Type 3: Summary LSA
- ? LSA Type 4: Summary ASBR LSA
- ? LSA Type 5: Autonomous system external LSA
- ? LSA Type 6: Multicast OSPF LSA
- ? LSA Type 7: Not-so-stubby area LSA
- ? LSA Type 8: External attribute LSA for BGP

If all routers are in the same area, then many of these LSA types (Summary ASBR LSA, external LSA, etc) will not be used and will not be generated by any router.

All areas in an Open Shortest Path First (OSPF) autonomous system must be physically connected to the backbone area (Area 0). In some cases, where this is not possible, you can use a virtual link to connect to the backbone through a non-backbone area. You can also use virtual links to connect two parts of a partitioned backbone through a non- backbone area. The area through which you configure the virtual link, known as a transit area, must have full routing information. The transit area cannot be a stub area. Virtual links are not ideal and should really only be used for temporary network solutions or migrations. However, if all locations are in a single OSPF area this is not needed.

NEW QUESTION 113

Refer to the exhibit.



The company uses EIGRP as the routing protocol. What path will packets take from a host on 192.168.10.192/26 network to a host on the LAN attached to router R1?

```
R3# show ip route
Gateway of last resort is not set
192.168.20.0/24 is variably subnetted, 6 subnets, 2 masks
D 192.168.20.64/26 [90/2195456] via 192.168.20.9, 00:03:31, Serial0/0
D 192.168.20.0/30 [90/2681856] via 192.168.20.9, 00:03:31, Serial0/0
C 192.168.20.4/30 is directly connected, Serial0/1
C 192.168.20.8/30 is directly connected, Serial0/0
C 192.168.20.192/26 is directly connected, FastEthernet0/0
D 192.168.20.128/26 [90/2195456] via 192.168.20.5,00:03:31, Serial0/1
```

- A. The path of the packets will be R3 to R2 to R1
- B. The path of the packets will be R3 to R1 to R2
- C. The path of the packets will be both R3 to R2 to R1 and R3 to R1
- D. The path of the packets will be R3 to R1

Answer: D

Explanation: <http://www.orbitco-ccna-pastquestions.com/CCNA---EIGRP-Common-Question.php>

Looking at the output display above, the LAN attached to router R1 belongs to 192.168.20.64/26 subnet and learned this network via 192.168.20.9 which will be an IP address in 192.168.20.8/30 sub-network. This means that packets destined for 192.168.20.64 will be routed from R3 to R1.

NEW QUESTION 115

Refer to the exhibit.

```
AcmeB# show ip route
!
!
```

```
Gateway of last resort is not set
192.168.3.0/28 is variably subnetted, 6 subnets
D 192.168.3.64 [90/20625671] via 192.168.0.6, 03:17:05, Serial0/0/1
D 192.168.3.80 [90/20625671] via 192.168.0.6, 03:17:05, Serial0/1
D 192.168.3.32 [90/20625671] via 192.168.9.2, 03:17:05, Serial0/0
D 192.168.3.48 [90/20625671] via 192.168.9.2, 03:17:05, Serial0/0
D 192.168.3.0 [90/30830] via 192.168.2.10, 03:17:05, FastEthernet0/0
D 192.168.3.16 [90/175250] via 192.168.2.10, 03:17:06, FastEthernet0/0
192.168.9.0/30 is subnetted, 1 subnets
C 192.168.9.0 is directly connected, Serial0/0
192.168.0.0/30 is subnetted, 1 subnets
C 192.168.0.4 is directly connected, Serial0/1
192.168.2.0/30 is subnetted, 1 subnets
C 192.168.2.8 is directly connected, FastEthernet0/0
AcmeB#
```

A packet with a source IP address of 192.168.2.4 and a destination IP address of 10.1.1.4 arrives at the AcmeB router. What action does the router take?

- A. forwards the received packet out the Serial0/0 interface
- B. forwards a packet containing an EIGRP advertisement out the Serial0/1 interface
- C. forwards a packet containing an ICMP message out the FastEthernet0/0 interface
- D. forwards a packet containing an ARP request out the FastEthernet0/1 interface

Answer: C

Explanation: CCNA - EIGRP Common Question

<http://www.orbitco-ccna-pastquestions.com/CCNA---EIGRP-Common-Question.php>

Looking at the output above, there is no IP route for 10.1.1.4 address on AcmeB routing table. If the router can no find a specific path in its routing table to a

particular route,(In this case no path is found so AcmeB) the router will inform the source host with an ICMP message that the destination is unreachable and this will be through the same interface it has received the packet (interface Fa0/0 network 192.168.3.0/28 from the exhibit).

NEW QUESTION 117

DRAG DROP

Drag the term on the left to its definition on the right. (Not all options are used.)

holddown timer	A router learns from its neighbor that a route is down, and the router sends an update back to the neighbor with an infinite metric to that route.
poison reverse	The packets flooded when a topology change occurs, causing network routers to update their topological databases and recalculate routes.
count to infinity	This prevents sending information about a route back out the same interface that originally learned about the route.
LSA	For a given period, this causes the router to ignore any updates with poorer metrics to a lost network.
split horizon	

Answer:

Explanation: poison reverse: A router learns from its neighbor that a route is down and the router sends an update back to the neighbor with an infinite metric to that route
 LSA: The packets flooded when a topology change occurs, causing network routers to update their topological databases and recalculate routes
 split horizon: This prevents sending information about a route back out the same interface that originally learned about the route
 holddown timer: For a given period, this causes the router to ignore any updates with poorer metrics to a lost network

NEW QUESTION 120

Which two statements describe the process identifier that is used in the command to configure OSPF on a router? (Choose two.)

Router(config)# router ospf 1

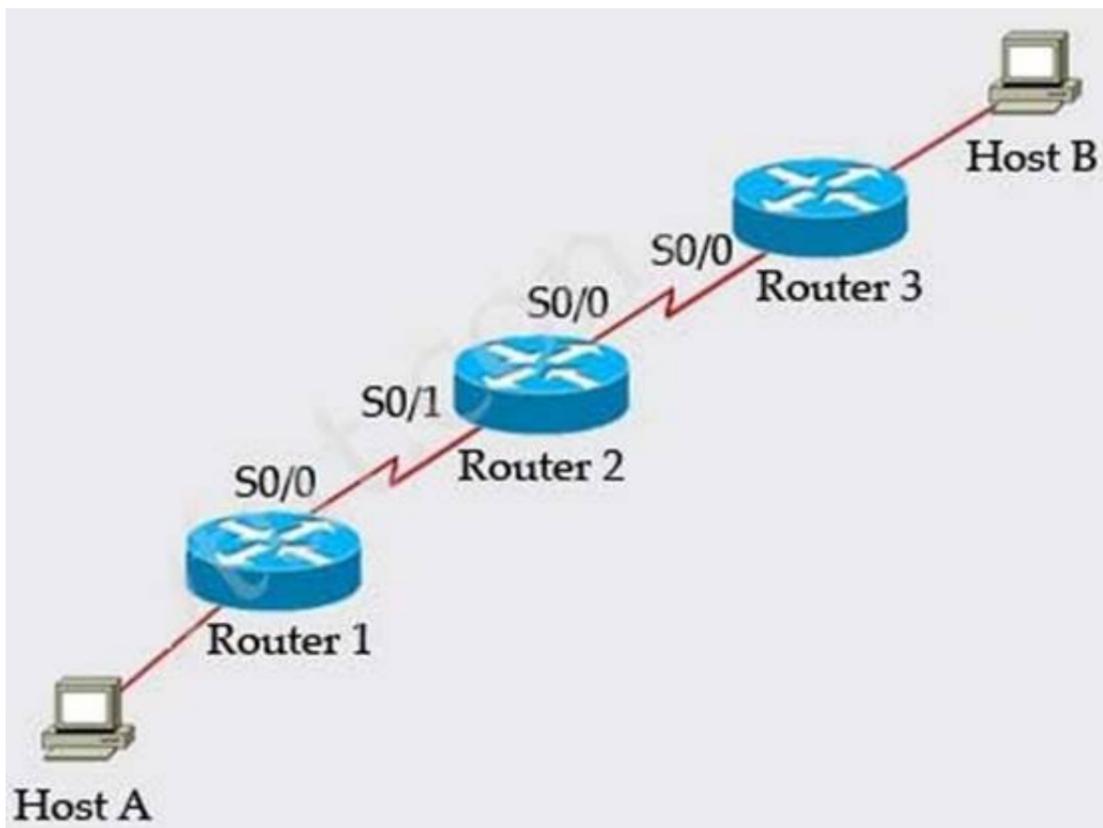
- A. All OSPF routers in an area must have the same process ID.
- B. Only one process number can be used on the same router.
- C. Different process identifiers can be used to run multiple OSPF processes
- D. The process number can be any number from 1 to 65,535.
- E. Hello packets are sent to each neighbor to determine the processor identifier.

Answer: CD

Explanation: The areas can be any number from 0 to 4.2 billion and 1 to 65,535 for the Process ID. The process ID is the ID of the OSPF process to which the interface belongs. The process ID is local to the router, and two OSPF neighboring routers can have different OSPF process IDs. (This is not true of Enhanced Interior Gateway Routing Protocol [EIGRP], in which the routers need to be in the same autonomous system). Cisco IOS Software can run multiple OSPF processes on the same router, and the process ID merely distinguishes one process from the other. The process ID should be a positive integer.

NEW QUESTION 125

Refer to the exhibit.



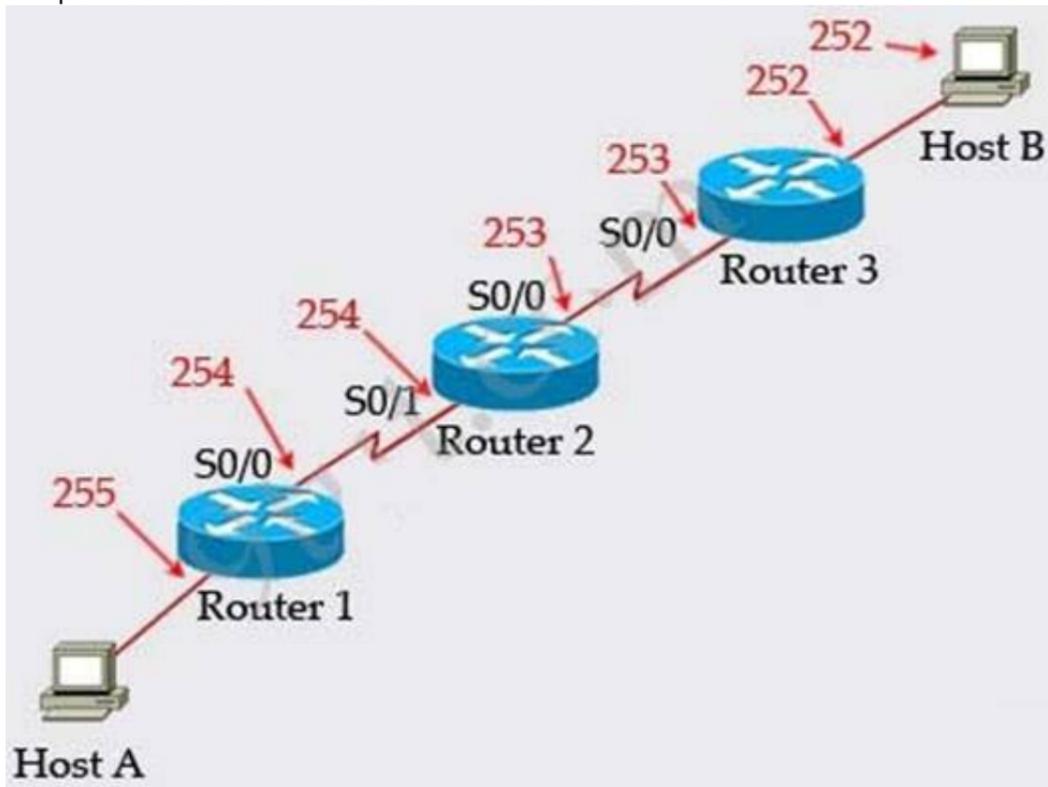
Host A pings interface S0/0 on router 3, what is the TTL value for that ping?

- A. 253
- B. 252
- C. 255
- D. 254

Answer: A

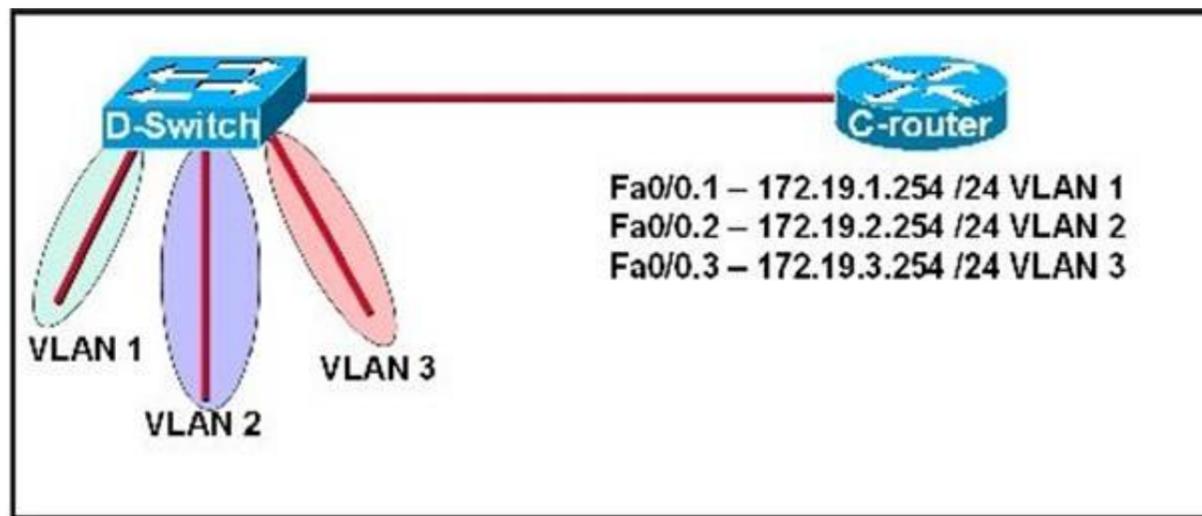
Explanation: From the CCNA ICND2 Exam book: "Routers decrement the TTL by 1 every time they forward a packet; if a router decrements the TTL to 0, it throws away the packet. This prevents packets from rotating forever." I want to make it clear that before the router forwards a packet, the TTL is still remain the same. For example in the topology above, pings to S0/1 and S0/0 of Router 2 have the same TTL.

The picture below shows TTL values for each interface of each router and for Host B. Notice that Host A initializes ICMP packet with a TTL of 255:



NEW QUESTION 130

Refer to the exhibit.



C-router is to be used as a "router-on-a-stick" to route between the VLANs. All the interfaces have been properly configured and IP routing is operational. The hosts in the VLANs have been configured with the appropriate default gateway. What is true about this configuration?

- A. These commands need to be added to the configuration: C-router(config)# router eigrp 123C-router(config-router)# network 172.19.0.0
- B. These commands need to be added to the configuration: C-router(config)# router ospf 1C-router(config-router)# network 172.19.0.0 0.0.3.255 area 0
- C. These commands need to be added to the configuration: C-router(config)# router ripC-router(config-router)# network 172.19.0.0
- D. No further routing configuration is required.

Answer: D

Explanation: http://www.cisco.com/en/US/tech/tk389/tk815/technologies_configuration_example09186a_00800949fd.shtml
<https://learningnetwork.cisco.com/servlet/JiveServlet/download/5669-2461/Router%20on%20a%20Stick.pdf>.

NEW QUESTION 134

What are the two default metrics used by EIGRP for route selection? (Choose two.)

- A. Bandwidth
- B. Delay
- C. Reliability
- D. Load
- E. MTU

Answer: AB

Explanation: EIGRP adds together weighted values of different network link characteristics in order to calculate a metric for evaluating path selection. These characteristics include:

- Delay (measured in 10s of microseconds)
- Bandwidth (measured in kilobytes per second)
- Reliability (in numbers ranging from 1 to 255; 255 being the most reliable)
- Load (in numbers ranging from 1 to 255; 255 being saturated)

Various constants (K 1 through K 5) are able to be set by a user to produce varying routing behaviors. However by default, only delay and bandwidth are used in the weighted formula to produce a single 32bit metric:

$$\left[\left(K_1 \cdot \frac{K_2 \cdot \text{Bandwidth}}{\text{Bandwidth} + 256 - \text{Load}} + (K_3 \cdot \text{Delay}) \right) \frac{K_5}{K_4 + \text{Reliability}} \right] \cdot 256$$

Note: Default K values are: K1 =K3 = 1 andK2 =K4 =K5 = 0When K5 is equal to 0 then [K5/(K4 + reliability)] is defined to be 1

Use of the default constants effectively reduces the formula above to:

$$(\text{Bandwidth} + \text{Delay}) \cdot 256$$

Reference: http://www.cisco.com/c/en/us/products/collateral/ios-nx-os-software/enhanced-interior-gateway-routing-protocol-eigrp/whitepaper_C11-720525.html

NEW QUESTION 136

What is the default administrative distance of OSPF?

- A. 90
- B. 100
- C. 110
- D. 120

Answer: C

Explanation: Default Distance Value Table
 This table lists the administrative distance default values of the protocols that Cisco supports:

Route Source	Default Distance Values
Connected interface	0
Static route	1
Enhanced Interior Gateway Routing Protocol (EIGRP) summary route	5
External Border Gateway Protocol (BGP)	20
Internal EIGRP	90
IGRP	100
OSPF	110
Intermediate System-to-Intermediate System (IS-IS)	115
Routing Information Protocol (RIP)	120
Exterior Gateway Protocol (EGP)	140
On Demand Routing (ODR)	160
External EIGRP	170
Internal BGP	200
Unknown*	255

NEW QUESTION 137

Refer to the exhibit.

```
RouterD# show ip interface brief
Interface          IP-Address      OK? Method Status Protocol
FastEthernet0/0    192.168.5.3     YES manual up      up
FastEthernet0/1    10.1.1.2        YES manual up      up
Loopback0          172.16.5.1     YES NVRAM up      up
Loopback1          10.154.154.1   YES NVRAM up      up
```

Given the output for this command, if the router ID has not been manually set, what router ID will OSPF use for this router?

- A. 10.1.1.2
- B. 10.154.154.1
- C. 172.16.5.1
- D. 192.168.5.3

Answer: C

Explanation: CCNA Tutorial: The OSPF Router ID (RID) <http://www.thebryantadvantage.com/CCNACertificationExamTutorialOSPFRouterIDRID.htm>
 When determining the Router ID (RID) of an OSPF-enabled router, OSPF will always use the numerically highest IP address on the router's loopback interfaces, regardless of whether that loopback is OSPF-enabled.
 What if there is no loopback? OSPF will then use the numerically highest IP address of the physical interfaces, regardless of whether that interface is OSPF-enabled.

NEW QUESTION 139

Which type of EIGRP route entry describes a feasible successor?

- A. a backup route, stored in the routing table
- B. a primary route, stored in the routing table
- C. a backup route, stored in the topology table
- D. a primary route, stored in the topology table

Answer: C

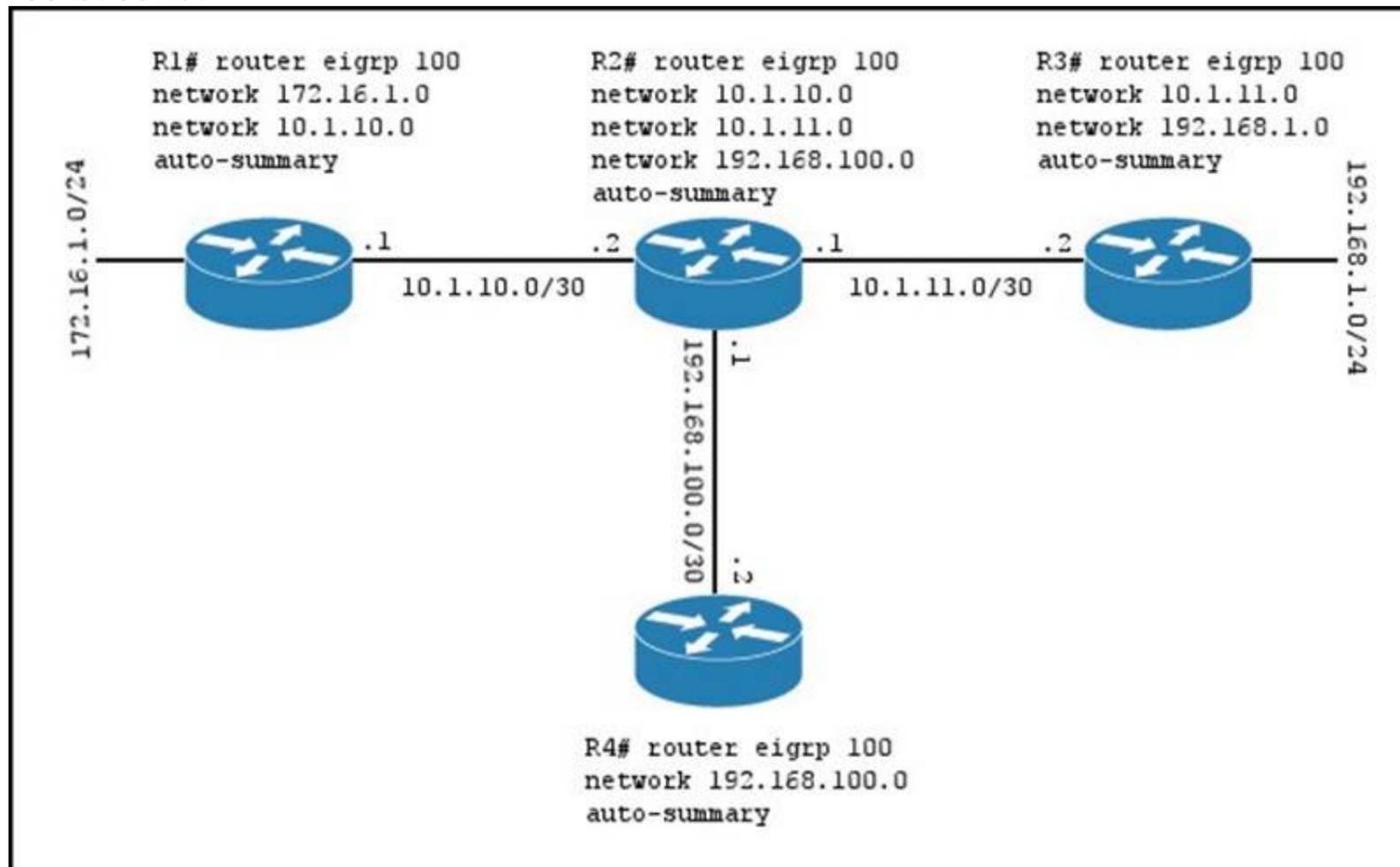
Explanation: http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080093f07.shtml

Feasible Successors

A destination entry is moved from the topology table to the routing table when there is a feasible successor. All minimum cost paths to the destination form a set. From this set, the neighbors that have an advertised metric less than the current routing table metric are considered feasible successors. Feasible successors are viewed by a router as neighbors that are downstream with respect to the destination. These neighbors and the associated metrics are placed in the forwarding table. When a neighbor changes the metric it has been advertising or a topology change occurs in the network, the set of feasible successors may have to be re-evaluated. However, this is not categorized as a route recomputation. Feasible successor is a route whose Advertised Distance (AD) is less than the Feasible Distance (FD) of the current best path. A feasible successor is a backup route, which is not stored in the routing table but, stored in the topology table.

NEW QUESTION 140

Refer to the exhibit.



Which three EIGRP routes will be present in the router R4's routing table? (Choose three.)

- A. 172.16.1.0/24
- B. 10.1.10.0/30
- C. 10.0.0.0/8
- D. 10.1.11.0/30
- E. 172.16.0.0/16
- F. 192.168.1.0/24

Answer: CEF

Explanation: EIGRP performs an auto-summarization each time it crosses a border between two different major networks, so when R2 advertises the routes to R4 it will advertise only the summarized routes of 10.0.0.0/8 and 172.16.0.0/16, along with the 192.168.1.0/24 route coming from R3.

NEW QUESTION 141

Which statement describes the process ID that is used to run OSPF on a router?

- A. It is globally significant and is used to represent the AS number.
- B. It is locally significant and is used to identify an instance of the OSPF database.
- C. It is globally significant and is used to identify OSPF stub areas.
- D. It is locally significant and must be the same throughout an area.

Answer: B

Explanation: The Process ID for OSPF on a router is only locally significant and you can use the same number on each router, or each router can have a different number-it just doesn't matter. The numbers you can use are from 1 to 65,535. Don't get this confused with area numbers, which can be from 0 to 4.2 billion.

NEW QUESTION 146

Refer to the exhibit.

```
Cisco#show ip interface brief
Interface          IP-Address      OK? Method Status      Protocol
FastEthernet0/0    192.168.1.1     YES manual up          up
FastEthernet0/1    172.16.1.1      YES manual up          up
Loopback0          1.1.1.1         YES manual up          up
Loopback1          2.2.2.2         YES manual up          up
Vlan1              unassigned      YES unset  administratively down down
```

If the router Cisco returns the given output and has not had its router ID set manually, what value will OSPF use as its router ID?

- A. 192.168.1.1
- B. 172.16.1.1
- C. 1.1.1.1
- D. 2.2.2.2

Answer: D

Explanation: If a router-id is not configured manually in the OSPF routing process the router will automatically configure a router-id determined from the highest IP address of a logical interface (loopback interface) or the highest IP address of an active interface. If more than one loopback interfaces are configured, the router will compare the IP addresses of each of the interfaces and choose the highest IP address from the loopbacks.

NEW QUESTION 149

Which commands are required to properly configure a router to run OSPF and to add network 192.168.16.0/24 to OSPF area 0? (Choose two.)

- A. Router(config)# router ospf 0
- B. Router(config)# router ospf 1
- C. Router(config)# router ospf area 0
- D. Router(config-router)# network 192.168.16.0 0.0.0.255 0
- E. Router(config-router)# network 192.168.16.0 0.0.0.255 area 0
- F. Router(config-router)# network 192.168.16.0 255.255.255.0 area 0

Answer: BE

Explanation: In the router ospf Command, the ranges from 1 to 65535 so 0 is an invalid number - B is correct but A is not correct. To configure OSPF, we need a wildcard in the "network" statement, not a subnet mask. We also need to assign an area to this process - E is correct.

NEW QUESTION 153

What are three characteristics of the OSPF routing protocol? (Choose three.)

- A. It converges quickly.
- B. OSPF is a classful routing protocol.
- C. It uses cost to determine the best route.
- D. It uses the DUAL algorithm to determine the best route.
- E. OSPF routers send the complete routing table to all directly attached routers.
- F. OSPF routers discover neighbors before exchanging routing information.

Answer: ACF

Explanation: Additional OSPF features include equal-cost, multipath routing, and routing based on upper-layer type-of-service (TOS) requests. TOS-based routing supports those upper-layer protocols that can specify particular types of service. An application, for example, might specify that certain data is urgent. If OSPF has high-priority links at its disposal, these can be used to transport the urgent datagram. OSPF supports one or more metrics. If only one metric is used, it is considered to be arbitrary, and TOS is not supported. If more than one metric is used, TOS is optionally supported through the use of a separate metric (and, therefore, a separate routing table) for each of the eight combinations created by the three IP TOS bits (the delay, throughput, and reliability bits). For example, if the IP TOS bits specify low delay, low throughput, and high reliability, OSPF calculates routes to all destinations based on this TOS designation. IP subnet masks are included with each advertised destination, enabling variable-length subnet masks. With variable-length subnet masks, an IP network can be broken into many subnets of various sizes. This provides network administrators with extra network- configuration flexibility.

NEW QUESTION 158

Which parameter would you tune to affect the selection of a static route as a backup, when a dynamic protocol is also being used?

- A. hop count
- B. administrative distance
- C. link bandwidth
- D. link delay

E. link cost

Answer: B

Explanation: What Is Administrative Distance? http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080094195.shtml
 Administrative distance is the feature that routers use in order to select the best path. Administrative distance defines the reliability of a routing protocol. Each routing protocol is prioritized in order of most to least reliable (believable) with the help of an administrative distance value. Lowest Administrative distance will be chosen first.

Route Source	Default Distance Values
Connected interface	0
Static route	1
Enhanced Interior Gateway Routing Protocol (EIGRP) summary route	5
External Border Gateway Protocol (BGP)	20
Internal EIGRP	90
IGRP	100
OSPF	110
Intermediate System-to-Intermediate System (IS-IS)	115
Routing Information Protocol (RIP)	120
Exterior Gateway Protocol (EGP)	140
On Demand Routing (ODR)	160
External EIGRP	170
Internal BGP	200
Unknown*	255

NEW QUESTION 160

When a router undergoes the exchange protocol within OSPF, in what order does it pass through each state?

- A. exstart state > loading state > exchange state > full state
- B. exstart state > exchange state > loading state > full state
- C. exstart state > full state > loading state > exchange state
- D. loading state > exchange state > full state > exstart state

Answer: B

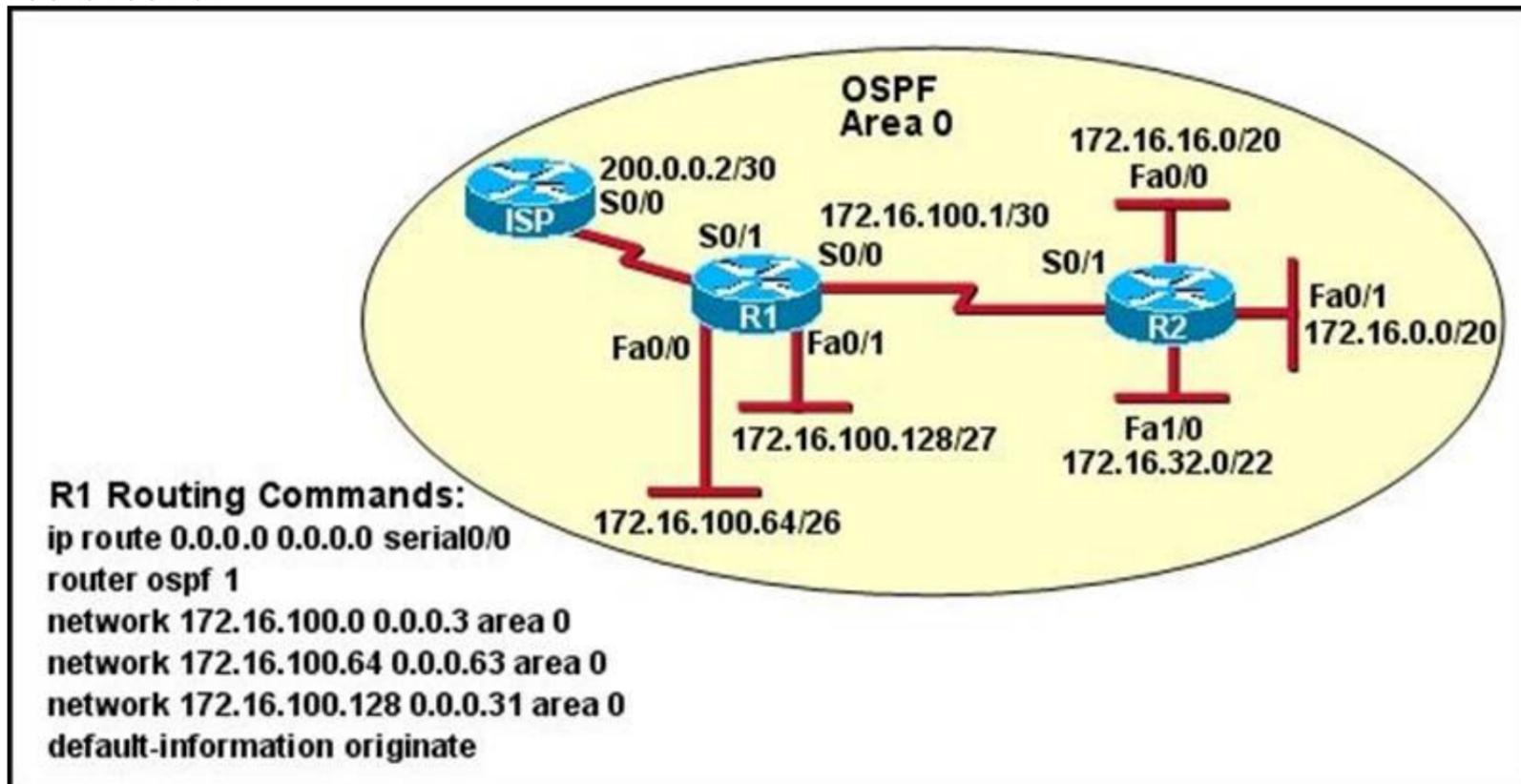
Explanation: OSPF states for adjacency formation are (in order) Down, Init, Attempt, 2-way, Exstart, Exchange, Loading and Full.

Reference:

Why Are OSPF Neighbors Stuck in Exstart/Exchange State? http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080093f0d.shtml

NEW QUESTION 161

Refer to the exhibit.



Assume that all router interfaces are operational and correctly configured. In addition, assume that OSPF has been correctly configured on router R2. How will the default route configured on R1 affect the operation of R2?

- A. Any packet destined for a network that is not directly connected to router R1 will be dropped.
- B. Any packet destined for a network that is not directly connected to router R2 will be dropped immediately.

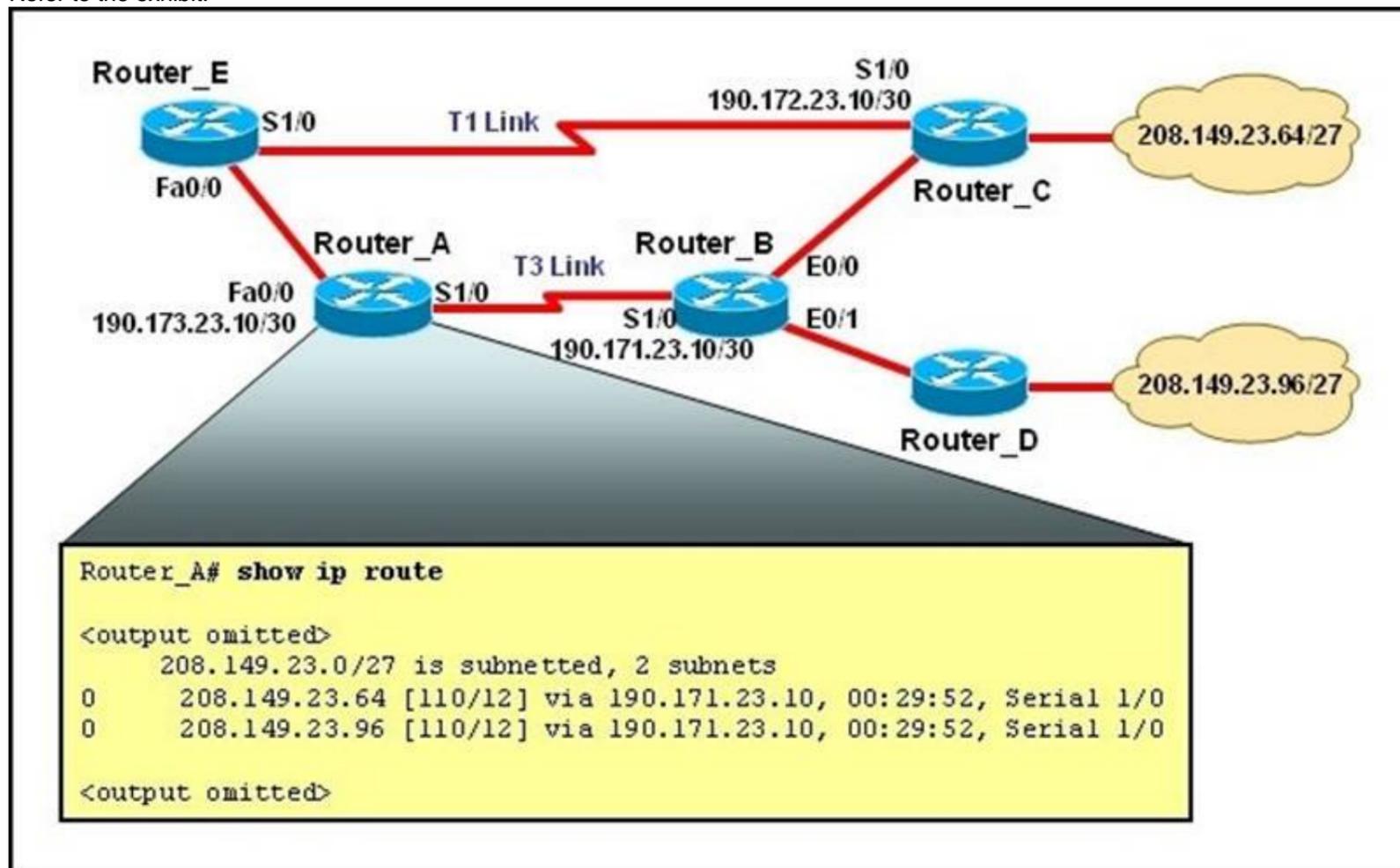
- C. Any packet destined for a network that is not directly connected to router R2 will be dropped immediately because of the lack of a gateway on R1.
- D. The networks directly connected to router R2 will not be able to communicate with the 172.16.100.0, 172.16.100.128, and 172.16.100.64 subnetworks.
- E. Any packet destined for a network that is not referenced in the routing table of router R2 will be directed to R1. R1 will then send that packet back to R2 and a routing loop will occur.

Answer: E

Explanation: First, notice that the more-specific routes will always be favored over less-specific routes regardless of the administrative distance set for a protocol. In this case, because we use OSPF for three networks (172.16.100.0 0.0.0.3, 172.16.100.64 0.0.0.63, 172.16.100.128 0.0.0.31) so the packets destined for these networks will not be affected by the default route. The default route configured on R1 "ip route 0.0.0.0 0.0.0.0 serial0/0" will send any packet whose destination network is not referenced in the routing table of router R1 to R2, it doesn't drop anything so answers A, B and C are not correct. D is not correct too because these routes are declared in R1 and the question says that "OSPF has been correctly configured on router R2, so network directly connected to router R2 can communicate with those three subnetworks. As said above, the default route configured on R1 will send any packet destined for a network that is not referenced in its routing table to R2; R2 in turn sends it to R1 because it is the only way and a routing loop will occur.

NEW QUESTION 166

Refer to the exhibit.



The network is converged. After link-state advertisements are received from Router_A, what information will Router_E contain in its routing table for the subnets 208.149.23.64 and 208.149.23.96?

- A. O 208.149.23.64 [110/13] via 190.173.23.10, 00:00:07, FastEthernet 0/0 208.149.23.96 [110/13] via 190.173.23.10, 00:00:16, FastEthernet 0/0
- B. O 208.149.23.64 [110/1] via 190.172.23.10, 00:00:07, Serial 1/0 208.149.23.96 [110/3] via 190.173.23.10, 00:00:16, FastEthernet 0/0
- C. O 208.149.23.64 [110/13] via 190.172.23.10, 00:00:07, Serial 1/0 208.149.23.96 [110/13] via 190.172.23.10, 00:00:16, Serial 1/0 208.149.23.96 [110/13] via 190.173.23.10, 00:00:16, FastEthernet 0/0
- D. O 208.149.23.64 [110/3] via 190.172.23.10, 00:00:07, Serial 1/0 208.149.23.96 [110/3] via 190.172.23.10, 00:00:16, Serial 1/0

Answer: A

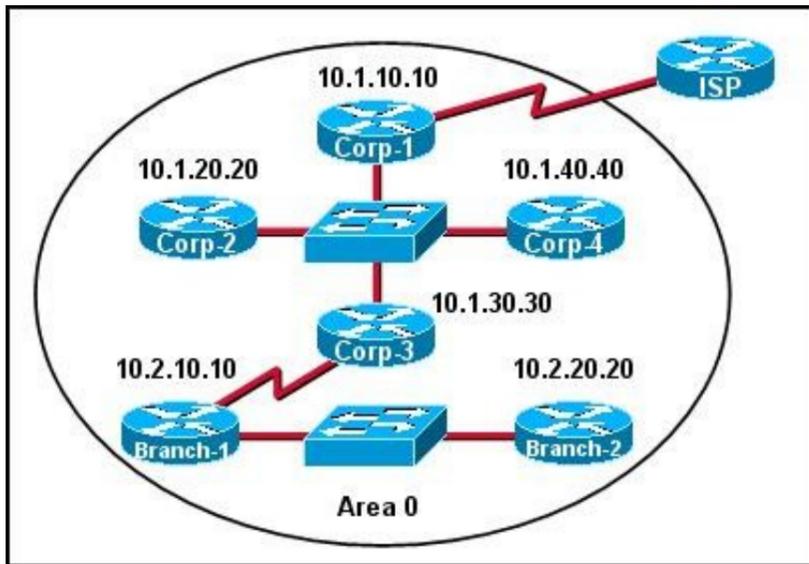
Explanation: Router_E learns two subnets subnets 208.149.23.64 and 208.149.23.96 via Router_A through FastEthernet interface. The interface cost is calculated with the formula 108 / Bandwidth. For FastEthernet it is 108 / 100 Mbps = 108 / 100,000,000 = 1. Therefore the cost is 12 (learned from Router_A) + 1 = 13 for both subnets - B is not correct.

The cost through T1 link is much higher than through T3 link (T1 cost = 108 / 1.544 Mbps = 64; T3 cost = 108 / 45 Mbps = 2) so surely OSPF will choose the path through T3 link -> Router_E will choose the path from Router_A through FastEthernet0/0, not Serial1/0 - C & D are not correct.

In fact, we can quickly eliminate answers B, C and D because they contain at least one subnet learned from Serial1/0 - they are surely incorrect.

NEW QUESTION 171

Refer to Exhibit:



The internetwork infrastructure of company XYZ consists of a single OSPF area as shown in the graphic. There is concern that a lack of router resources is impeding internetwork performance. As part of examining the router resources, the OSPF DRs need to be known. All the router OSPF priorities are at the default and the router IDs are shown with each router. Which routers are likely to have been elected as DR? (Choose two.)

- A. Corp-1
- B. Corp-2
- C. Corp-3
- D. Corp-4
- E. Branch-1
- F. Branch-2

Answer: DF

Explanation: There are 2 segments on the topology above which are separated by Corp-3 router. Each segment will have a DR so we have 2 DRs. To select which router will become DR they will compare their router-IDs. The router with highest (best) router-ID will become DR. The router-ID is chosen in the order below:

The highest IP address assigned to a loopback (logical) interface.

If a loopback interface is not defined, the highest IP address of all active router's physical interfaces will be chosen.

In this question, the IP addresses of loopback interfaces are not mentioned so we will consider IP addresses of all active router's physical interfaces. Router Corp-4 (10.1.40.40)

& Branch-2 (10.2.20.20) have highest "active" IP addresses so they will become DRs.

NEW QUESTION 176

Which statements are true about EIGRP successor routes? (Choose two.)

- A. A successor route is used by EIGRP to forward traffic to a destination.
- B. Successor routes are saved in the topology table to be used if the primary route fails.
- C. Successor routes are flagged as 'active' in the routing table.
- D. A successor route may be backed up by a feasible successor route.
- E. Successor routes are stored in the neighbor table following the discovery process.

Answer: AD

Explanation: Introduction to EIGRP

http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080093f07.shtml

Feasible Successors

A destination entry is moved from the topology table to the routing table when there is a feasible successor. All minimum cost paths to the destination form a set. From this set, the neighbors that have an advertised metric less than the current routing table metric are considered feasible successors.

Feasible successors are viewed by a router as neighbors that are downstream with respect to the destination.

These neighbors and the associated metrics are placed in the forwarding table.

When a neighbor changes the metric it has been advertising or a topology change occurs in the network, the set of feasible successors may have to be re-evaluated. However, this is not categorized as a route recomputation.

NEW QUESTION 179

What is the default maximum number of equal-cost paths that can be placed into the routing table of a Cisco OSPF router?

- A. 2
- B. 4
- C. 16
- D. unlimited

Answer: B

Explanation: 4 is the default number of routes that OSPF will include in routing table if more than 4 equal cost routes exist for the same subnet. However, OSPF can include up to 16 equal cost routes in the routing table and perform load balancing amongst them. In order to configure this feature, you need to use the OSPF subcommand maximum-paths, i.e. maximum-paths 16.

NEW QUESTION 182

What can be done to secure the virtual terminal interfaces on a router? (Choose two.)

- A. Administratively shut down the interface.
- B. Physically secure the interface.
- C. Create an access list and apply it to the virtual terminal interfaces with the access-group command.
- D. Configure a virtual terminal password and login process.
- E. Enter an access list and apply it to the virtual terminal interfaces using the access-class command.

Answer: DE

Explanation: It is a waste to administratively shut down the interface. Moreover, someone can still access the virtual terminal interfaces via other interfaces -> A is not correct.

We can not physically secure a virtual interface because it is "virtual" -> B is not correct. To apply an access list to a virtual terminal interface we must use the "access-class" command. The "access-group" command is only used to apply an access list to a physical interface -> C is not correct; E is correct. The most simple way to secure the virtual terminal interface is to configure a username & password to prevent unauthorized login -> D is correct.

NEW QUESTION 183

What are two enhancements that OSPFv3 supports over OSPFv2? (Choose two.)

- A. It requires the use of ARP.
- B. It can support multiple IPv6 subnets on a single link.
- C. It supports up to 2 instances of OSPFv3 over a common link.
- D. It routes over links rather than over networks.

Answer: BD

Explanation: Here is a list of the differences between OSPFv2 and OSPFv3:

- ? They use different address families (OSPFv2 is for IPv4-only, OSPFv3 can be used for IPv6-only or both protocols)
 - ? OSPFv3 introduces new LSA types
 - ? OSPFv3 has different packet format
 - ? OSPFv3 uses different flooding scope bits (U/S2/S1)
 - ? OSPFv3 adjacencies are formed over link-local IPv6 communications
 - ? OSPFv3 runs per-link rather than per-subnet
 - ? OSPFv3 supports multiple instances on a single link, Interfaces can have multiple IPv6 addresses
 - ? OSPFv3 uses multicast addresses FF02::5 (all OSPF routers), FF02::6 (all OSPF DRs)
 - ? OSPFv3 Neighbor Authentication done with IPsec (AH)
 - ? OSPFv2 Router ID (RID) must be manually configured, still a 32-bit number
- Reference: <http://www.networkworld.com/article/2225270/cisco-subnet/ospfv3-for-ipv4-and-ipv6.html>

NEW QUESTION 185

A router is running three routing processes: RIP, OSPF, and EIGRP, each configured with default characteristics. Each process learns a route to the same remote network.

If there are no static routes to the destination and none of the routes were redistributed, which route will be placed in the IP routing table?

- A. the route learned through EIGRP
- B. the route learned through OSPF
- C. the route learned through RIP
- D. the route with the lowest metric
- E. all three routes with the router load balancing

Answer: A

Explanation: Reference: http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080094195.shtml

Administrative distance is the feature that routers use in order to select the best path. Administrative distance defines the reliability of a routing protocol. Each routing protocol is prioritized in order of most to least reliable (believable) with the help of an administrative distance value. Lowest Administrative distance will be chosen first.

NEW QUESTION 189

What OSPF command, when configured, will include all interfaces into area 0?

- A. network 0.0.0.0 255.255.255.255 area 0
- B. network 0.0.0.0 0.0.0.0 area 0
- C. network 255.255.255.255 0.0.0.0 area 0
- D. network all-interfaces area 0

Answer: A

Explanation: Example 3-1 displays OSPF with a process ID of 1 and places all interfaces configured with an IP address in area 0. The network command network 0.0.0.0 255.255.255.255 area 0

dictates that you do not care (255.255.255.255) what the IP address is, but if an IP address is enabled on any interface, place it in area 0.

Example 3-1 Configuring OSPF in a Single Area

```
router ospf 1
```

```
network 0.0.0.0 255.255.255.255 area 0
```

Reference: <http://www.ciscopress.com/articles/article.asp?p=26919&seqNum=3>

Topic 4, WAN Technologies

NEW QUESTION 193

A network administrator needs to configure a serial link between the main office and a remote location. The router at the remote office is a non-Cisco router. How should the network administrator configure the serial interface of the main office router to make the connection?

- A. Main(config)# interface serial 0/0Main(config-if)# ip address 172.16.1.1 255.255.255.252 Main(config-if)# no shut
- B. Main(config)# interface serial 0/0Main(config-if)# ip address 172.16.1.1 255.255.255.252 Main(config-if)# encapsulation pppMain(config-if)# no shut
- C. Main(config)# interface serial 0/0Main(config-if)# ip address 172.16.1.1 255.255.255.252 Main(config-if)# encapsulation frame-relayMain(config-if)# authentication chap Main(config-if)# no shut
- D. Main(config)# interface serial 0/0Main(config-if)#ip address 172.16.1.1 255.255.255.252 Main(config-if)#encapsulation ietfMain(config-if)# no shut

Answer: B

Explanation: Cisco High-Level Data Link Controller (HDLC) is the Cisco proprietary protocol for sending data over synchronous serial links using HDLC. So HDLC runs only in Cisco router. PPP is not proprietary protocol it's a open source every cisco router and non-cisco router understand the PPP protocol. So we need to configure the PPP protocol if connection is between cisco and non-cisco router.

NEW QUESTION 197

What is the advantage of using a multipoint interface instead of point-to-point subinterfaces when configuring a Frame Relay hub in a hub-and-spoke topology?

- A. It avoids split-horizon issues with distance vector routing protocols.
- B. IP addresses can be conserved if VLSM is not being used for subnetting.
- C. A multipoint interface offers greater security compared to point-to-point subinterface configurations.
- D. The multiple IP network addresses required for a multipoint interface provide greater addressing flexibility over point-to-point configurations.

Answer: B

Explanation: You do not have to assign a separate subnet per sub-interface .if you're using a Class A network (10.x.x.x/8), you blow the whole network on a few connections (if you used VLSM, you could use a better mask, limit the addresses used). if you used 10.0.0.0/8, you would not be assigning the entire /8 to a single network. You would select a subnet mask for the network and then, you would have to use that mask with all subnets of the network. So if you chose a /24 mask, that would mean that you would have to use a /24 mask for even point-to-point links.

NEW QUESTION 199

Which VLAN bridge priority value is assigned by the set span tree root command?

- A. 8192
- B. 16384
- C. 28672
- D. 32768

Answer: A

Explanation: 1. Explanations: The set spantree priority command provides a third method to specify the root switch: Source Cisco Website2. Switch-15> (enable)set spantree priority 81923. Spantree 1 bridge priority set to 8192.

NEW QUESTION 200

Which command is used to enable CHAP authentication, with PAP as the fallback method, on a serial interface?

- A. Router(config-if)# ppp authentication chap fallback ppp
- B. Router(config-if)# ppp authentication chap pap
- C. Router(config-if)# authentication ppp chap fallback ppp
- D. Router(config-if)# authentication ppp chap pap

Answer: B

Explanation: The command "ppp authentication chap pap" command indicates the CHAP authentication is used first. If it fails or is rejected by other side then uses PAP instead. If you want to use PAP first (then CHAP) you can use the "ppp authentication pap chap" command Reference: http://www.cisco.com/en/US/docs/ios/12_2/security/configuration/guide/scfathen.html

NEW QUESTION 202

When you are troubleshooting an ACL issue on a router, which command can help you to verify which interfaces are affected by the ACL?

- A. show ip access-lists
- B. show access-lists
- C. show interface
- D. show ip interface
- E. list ip interface

Answer: D

NEW QUESTION 203

Refer to the exhibit.

```
R1# show frame-relay map
Serial0/0 (up): ip 172.16.3.1 dlcI 100 (0x64, 0x1840), dynamic
broadcast, status defined, active
```

What is the meaning of the term dynamic as displayed in the output of the show frame-relay map command shown?

- A. The Serial0/0 interface is passing traffic.
- B. The DLCI 100 was dynamically allocated by the router
- C. The Serial0/0 interface acquired the IP address of 172.16.3.1 from a DHCP server
- D. The DLCI 100 will be dynamically changed as required to adapt to changes in the Frame Relay cloud
- E. The mapping between DLCI 100 and the end station IP address 172.16.3.1 was learned through Inverse ARP

Answer: E

Explanation: The term dynamic indicates that the DLCI number and the remote router IP address 172.16.3.1 are learned via the Inverse ARP process.

Inverse ARP is a technique by which dynamic mappings are constructed in a network, allowing a device such as a router to locate the logical network address and associate it with a permanent virtual circuit (PVC).

NEW QUESTION 207

The output of the show frame-relay pvc command shows "PVC STATUS = INACTIVE". What does this mean?

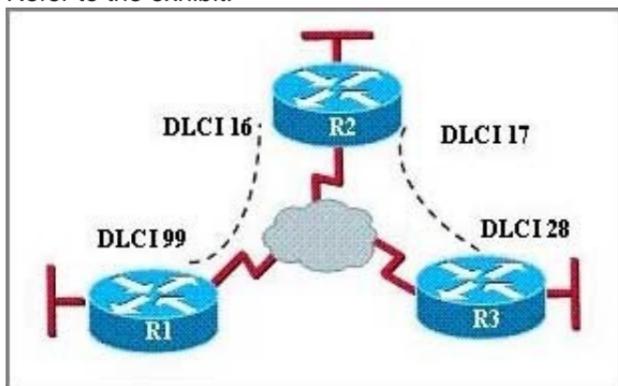
- A. The PVC is configured correctly and is operating normally, but no data packets have been detected for more than five minutes.
- B. The PVC is configured correctly, is operating normally, and is no longer actively seeking the address of the remote router.
- C. The PVC is configured correctly, is operating normally, and is waiting for interesting traffic to trigger a call to the remote router.
- D. The PVC is configured correctly on the local switch, but there is a problem on the remote end of the PVC.
- E. The PVC is not configured on the local switch.

Answer: D

Explanation: The PVC STATUS displays the status of the PVC. The DCE device creates and sends the report to the DTE devices. There are 4 statuses:
 ACTIVE: the PVC is operational and can transmit data
 INACTIVE: the connection from the local router to the switch is working, but the connection to the remote router is not available
 DELETED: the PVC is not present and no LMI information is being received from the Frame Relay switch
 STATIC: the Local Management Interface (LMI) mechanism on the interface is disabled (by using the "no keepalive" command). This status is rarely seen.

NEW QUESTION 208

Refer to the exhibit.



Which statement describes DLCI 17?

- A. DLCI 17 describes the ISDN circuit between R2 and R3.
- B. DLCI 17 describes a PVC on R2. It cannot be used on R3 or R1.
- C. DLCI 17 is the Layer 2 address used by R2 to describe a PVC to R3.
- D. DLCI 17 describes the dial-up circuit from R2 and R3 to the service provider.

Answer: C

Explanation: DLCI stands for Data Link Connection Identifier. DLCI values are used on Frame Relay interfaces to distinguish between different virtual circuits. DLCIs have local significance because, the identifier references the point between the local router and the local Frame Relay switch to which the DLCI is connected.

NEW QUESTION 209

The command frame-relay map ip 10.121.16.8 102 broadcast was entered on the router. Which of the following statements is true concerning this command?

- A. This command should be executed from the global configuration mode.
- B. The IP address 10.121.16.8 is the local router port used to forward data.
- C. 102 is the remote DLCI that will receive the information.
- D. This command is required for all Frame Relay configurations.
- E. The broadcast option allows packets, such as RIP updates, to be forwarded across the PVC.

Answer: E

Explanation: The command frame-relay map ip 10.121.16.8 102 broadcast means to map the remote IP 10.121.16.8 to the local DLCI 102. When the "broadcast" keyword is included, it turns Frame Relay network as a broadcast network, which can forward broadcasts.

NEW QUESTION 211

In which solution is a router ACL used?

- A. filtering packets that are passing through a router
- B. to change the default administrative distance of a route in the route table
- C. protecting a server from unauthorized access
- D. controlling path selection, based on the route metric

Answer: A

NEW QUESTION 216

Whats DTP's default in a switch

- A. ON
- B. OFF
- C. Dynamic ?Desirable?
- D. Dynamic Auto

Answer: D

NEW QUESTION 220

Which encapsulation type is a Frame Relay encapsulation type that is supported by Cisco routers?

- A. IETF
- B. ANSI Annex D
- C. Q9333-A Annex A
- D. HDLC

Answer: A

Explanation: Cisco supports two Frame Relay encapsulation types: the Cisco encapsulation and the IETF Frame Relay encapsulation, which is in conformance with RFC 1490 and RFC 2427. The former is often used to connect two Cisco routers while the latter is used to connect a Cisco router to a non-Cisco router. You can test with your Cisco router when typing the command Router(config-if)#encapsulation frame-relay ? on a WAN link.

Note: Three LMI options are supported by Cisco routers are ansi, Cisco, and Q933a. They represent the ANSI Annex D, Cisco, and ITU Q933-A (Annex A) LMI types, respectively. HDLC is a WAN protocol same as Frame-Relay and PPP so it is not a Frame Relay encapsulation type.

```
R1<config-if>#encapsulation frame-relay ?
 ietf Use RFC1490/RFC2427 encapsulation
<cr>
```

NEW QUESTION 223

Which two statements about using the CHAP authentication mechanism in a PPP link are true? (Choose two.)

- A. CHAP uses a two-way handshake.
- B. CHAP uses a three-way handshake.
- C. CHAP authentication periodically occurs after link establishment.
- D. CHAP authentication passwords are sent in plaintext.
- E. CHAP authentication is performed only upon link establishment.
- F. CHAP has no protection from playback attacks.

Answer: BC

Explanation: Understanding and Configuring PPP CHAP Authentication

http://www.cisco.com/en/US/tech/tk713/tk507/technologies_tech_note09186a00800b4131.shtml

One-Way and Two-Way Authentication

CHAP is defined as a one-way authentication method. However, you use CHAP in both directions to create a two-way authentication. Hence, with two-way CHAP, a separate three-way handshake is initiated by each side. In the Cisco CHAP implementation, by default, the called party must authenticate the calling party (unless authentication is completely turned off). Therefore, a one-way authentication initiated by the called party is the minimum possible authentication. However, the calling party can also verify the identity of the called party, and this results in a two-way authentication. One-way authentication is often required when you connect to non-Cisco devices.

NEW QUESTION 224

Refer to the exhibit

```
R1# show access-lists
Extended IP access list 175
10 deny tcp any any time-range nonworkhours (active)
20 permit tcp any any time-range workhours (inactive)
```

While you troubleshoot a connectivity issue to a PC behind R1, you enter the show access- lists command to generate this output. Which reason for the problem is most likely true?

- A. The permit all ACL entry on R1 is inactive.
- B. The ACL of R1 is misconfigured.
- C. A deny all ACL entry is currently active on R1.
- D. An implicit deny is causing R1 to block network traffic.

Answer: D

NEW QUESTION 226

Which Layer 2 protocol encapsulation type supports synchronous and asynchronous circuits and has built-in security mechanisms?

- A. HDLC
- B. PPP
- C. X.25
- D. Frame Relay

Answer: B

Explanation: High-Level Data Link Control (HDLC) - HDLC is the default encapsulation type on point-to- point, dedicated links, and circuit-switched connections. It is used typically when communicating between two Cisco devices. It is a bit-oriented synchronous data link layer protocol.
 Point-to-Point Protocol (PPP) - Provides router-to-router and host-to network connections over synchronous and asynchronous circuits. PPP was designed to work with several network layer protocols, such as IP, and IPX. PPP also has built in security mechanisms such as PAP and CHAP X.25/Link Access Procedure, Balanced (LAPB) - ITU-T standard that defines how connections between DTE and DCE are maintained for remote terminal access and computer communications in public data networks. X.25 specifies LAPB, a data line layer protocol. X.25 is a predecessor to Frame Relay.
 Frame Relay - Industry standard, switched data link layer protocol that handles multiple virtual circuits. It is a next-generation to X.25 that is streamlined to eliminate some of the time-consuming processes (such as error correction and flow control) that were employed in X.25.

Field	Description
Serial 1 (administratively down)	Identifies a Frame Relay interface and its status (up or down).
ip 131.108.177.177	Destination IP address.
dldci 177 (0xB1,0x2C10)	DLCI that identifies the logical connection being used to reach this interface. This value is displayed in three ways: its decimal value (177), its hexadecimal value (0xB1), and its value as it would appear on the wire (0x2C10).
static	Indicates whether this is a static or dynamic entry.
CISCO	Indicates the encapsulation type for this map; either CISCO or IETF.
TCP/IP Header Compression (inherited), passive (inherited)	Indicates whether the TCP/IP header compression characteristics were inherited from the interface or were explicitly configured for the IP map.

NEW QUESTION 228

What command is used to verify the DLCI destination address in a Frame Relay static configuration?

- A. show frame-relay pvc
- B. show frame-relay lmi
- C. show frame-relay map
- D. show frame relay end-to-end

Answer: C

Explanation: Cisco Frame Relay Configurations <http://www.ciscopress.com/articles/article.asp?p=170741&seqNum=9> show frame-relay map

The show frame-relay map privileged EXEC mode command shows the contents of the next hop protocol address to DLCI mapping table on the router. The table contains both dynamic mapped and static mapped entries. The below example shows a sample output of the show frame-relay map command.

```
Router#show frame-relay map
Serial1/2 (up): ip 172.16.1.4 dlci 401(0x191,0x6410), dynamic, broadcast,, status defined, active
Serial1/2 (up): ip 172.16.1.5 dlci 501(0x1F5,0x7C50), dynamic, broadcast,, status defined, active
Serial1/2 (up): ip 172.16.1.2 dlci 301(0x12D,0x48D0), dynamic, broadcast,, status defined, active
```

NEW QUESTION 229

Which WAN solution is secured by default?

- A. VPN
- B. DSL
- C. LCP
- D. PPP

Answer: A

NEW QUESTION 232

Which two actions must you take to configure a PAgP EtherChannel between two switches, S1 and S2? (Choose two.)

- A. Configure the channel-group 1 mode auto command on S1.
- B. Configure the channel-group 1 mode desirable command on S2.
- C. Configure the channel-group 1 mode active command on S2.
- D. Configure the channel-group 1 mode on command on S2.
- E. Configure the channel-group 1 mode active command on S1.

Answer: AB

NEW QUESTION 234

The command show frame-relay map gives the following output:

```
Serial 0 (up): ip 192.168.151.4 dlci 122, dynamic, broadcast, status defined, active
```

Which statements represent what is shown?(Choose three.)

- A. 192.168.151.4 represents the IP address of the remote router
- B. 192.168.151.4 represents the IP address of the local serial interface
- C. DLCI 122 represents the interface of the remote serial interface
- D. DLCI 122 represents the local number used to connect to the remote address
- E. broadcast indicates that a dynamic routing protocol such as RIP v1 can send packets across this PVC
- F. active indicates that the ARP process is working

Answer: ADE

Explanation: http://www.cisco.com/en/US/docs/ios/12_2/wan/command/reference/wrfr4.html#wp102934_3

Field	Description
Serial 1 (administratively down)	Identifies a Frame Relay interface and its status (up or down).
ip 131.108.177.177	Destination IP address.
dlci 177 (0xB1,0x2C10)	DLCI that identifies the logical connection being used to reach this interface. This value is displayed in three ways: its decimal value (177), its hexadecimal value (0xB1), and its value as it would appear on the wire (0x2C10).
static	Indicates whether this is a static or dynamic entry.
CISCO	Indicates the encapsulation type for this map; either CISCO or IETF.
TCP/IP Header Compression (inherited), passive (inherited)	Indicates whether the TCP/IP header compression characteristics were inherited from the interface or were explicitly configured for the IP map.

NEW QUESTION 238

Which three responses does TACAS+ give while querying. (Choose three)

- A. error
- B. accept
- C. continue
- D. persist
- E. fault

Answer: ABC

NEW QUESTION 241

Users have been complaining that their Frame Relay connection to the corporate site is very slow. The network administrator suspects that the link is overloaded. Based on the partial output of the Router # show frame relay pvc command shown in the graphic, which output value indicates to the local router that traffic sent to the corporate site is experiencing congestion?

```
PVC Statistics for interface Serial0 (Frame Relay DTE)

   Active  Inactive  Deleted  Static
Local     1           0         0        0
Switched  0           0         0        0
Unused    0           0         0        0

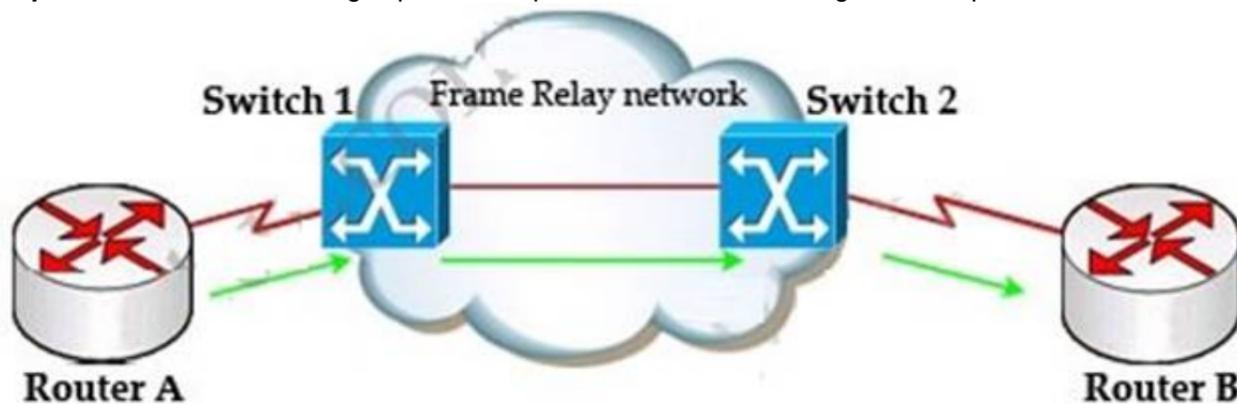
DLCI = 100, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE =
Serial0

input pkts 1300      output pkts 1270      in bytes 22121000
out bytes 21802000   dropped pkts 4        in FECN pkts 147
in BECN pkts 192    out FECN pkts 259     out BECN pkts 214
in DE pkts 0        out DE pkts 0
out bcst pkts 107   out bcst bytes 19722
pvc create time 00:25:50, last time pvc status changed 00:25:40
```

- A. DLCI=100
- B. last time PVC status changed 00:25:40
- C. in BECN packets 192
- D. in FECN packets 147
- E. in DF packets 0

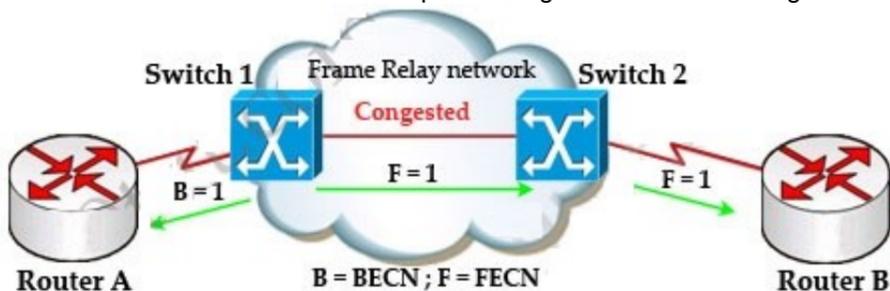
Answer: C

Explanation: First we should grasp the concept of BECN & FECN through an example:



Suppose Router A wants to send data to Router B through a Frame Relay network. If the network is congested, Switch 1 (a DCE device) will set the FECN bit value of that frame to 1, indicating that frame experienced congestion in the path from source to destination. This frame is forwarded to Switch 2 and to Router B (with the FECN bit = 1).

Switch 1 knows that the network is congesting so it also sends frames back to Router A with BECN bit set to 1 to inform that path through the network is congested.



In general, BECN is used on frames traveling away from the congested area to warn source devices that congestion has occurred on that path while FECN is used to alert receiving devices if the frame experiences congestion.

BECN also informs the transmitting devices to slow down the traffic a bit until the network returns to normal state.

The question asks "which output value indicates to the local router that traffic sent to the corporate site is experiencing congestion" which means it asks about the returned parameter which indicates congestion ->BECN.

NEW QUESTION 243

Which form of NAT maps multiple private IP addresses to a single registered IP address by using different ports?

- A. static NAT
- B. dynamic NAT
- C. overloading
- D. overlapping
- E. port loading

Answer: C

NEW QUESTION 248

Which WAN topology provides a direct connection from each site to all other sites on the network?

- A. single-homed
- B. full mesh
- C. point-to-point
- D. hub-and-spoke

Answer: B

NEW QUESTION 253

Which WAN technology uses labels to make decisions about data forwarding?

- A. Metro Ethernet
- B. Frame Relay
- C. MPLS
- D. ISDN
- E. VSAT

Answer: C

NEW QUESTION 256

Which routing protocols are compatible with stubs. (Choose two)

- A. OSPF
- B. EIGRP
- C. EGP
- D. BGP
- E. IS-IS
- F. RIP

Answer: AB

NEW QUESTION 260

Which three approaches can be used while migrating from an IPv4 addressing scheme to an IPv6 scheme?
(Choose three)

- A. enable dual-stack routing
- B. configure IPv6 directly
- C. configure IPv4 tunnels between IPv6 islands
- D. use proxying and translation to translate IPv6 packets into IPv4 packets
- E. statically map IPv4 addresses to IPv6 addresses
- F. use DHCPv6 to map IPv4 addresses to IPv6 addresses

Answer: ACD

NEW QUESTION 265

Which two statistics appear in show frame-relay map output? (Choose two.)

- A. the number of BECN packets that are received by the router
- B. the value of the local DLCI
- C. the number of FECN packets that are received by the router
- D. the status of the PVC that is configured on the router
- E. the IP address of the local router

Answer: BD

Explanation: Frame Relay Commands (map-class frame-relay through threshold ecn)

http://www.cisco.com/en/US/docs/ios/12_2/wan/command/reference/wrffr4.html#wp102934 3

Examples

The following is sample output from the show frame-relay map command: Router#show frame-relay map Serial 1 (administratively down): ip 10.108.177.177 dlci 177 (0xB1,0x2C10), static, broadcast,

CISCO

TCP/IP Header Compression (inherited), passive (inherited)

NEW QUESTION 268

Which protocol is an open standard protocol framework that is commonly used in VPNs, to provide secure end-to-end communications?

- A. RSA
- B. L2TP
- C. IPsec
- D. PPTP

Answer: C

Explanation: Internet Protocol Security (IPsec) is a technology protocol suite for securing Internet Protocol (IP) communications by authenticating and/or encrypting each IP packet of a communication session. IPsec also includes protocols for establishing mutual authentication between agents at the beginning of the session and negotiation of cryptographic keys to be used during the session.

NEW QUESTION 272

Which command allows you to verify the encapsulation type (CISCO or IETF) for a Frame Relay link?

- A. show frame-relay lmi
- B. show frame-relay map
- C. show frame-relay pvc
- D. show interfaces serial

Answer: B

Explanation: map will show frame relay encapsulation (cisco or ietf) http://www.cisco.com/en/US/docs/ios/12_2/wan/command/reference/wrfr4.html#wp102934 3
 "show frame-relay map" will show frame relay encapsulation type (CISCO or IETF)

Field	Description
Serial 1 (administratively down)	Identifies a Frame Relay interface and its status (up or down).
ip 131.108.177.177	Destination IP address.
dldci 177 (0xB1,0x2C10)	DLCI that identifies the logical connection being used to reach this interface. This value is displayed in three ways: its decimal value (177), its hexadecimal value (0xB1), and its value as it would appear on the wire (0x2C10).
static	Indicates whether this is a static or dynamic entry.
CISCO	Indicates the encapsulation type for this map; either CISCO or IETF.
TCP/IP Header Compression (inherited), passive (inherited)	Indicates whether the TCP/IP header compression characteristics were inherited from the interface or were explicitly configured for the IP map.

NEW QUESTION 277

Which two statements about static NAT translations are true? (choose two)

- A. They are always present in the NAT table.
- B. They allow connection to be initiated from the outside.
- C. They can be configured with access lists, to allow two or more connections to be initiated from the outside.
- D. They require no inside or outside interface markings because addresses are statically defined.

Answer: AB

NEW QUESTION 281

Which identification number is valid for an extended ACL?

- A. 1
- B. 64
- C. 99
- D. 100
- E. 299
- F. 1099

Answer: D

NEW QUESTION 285

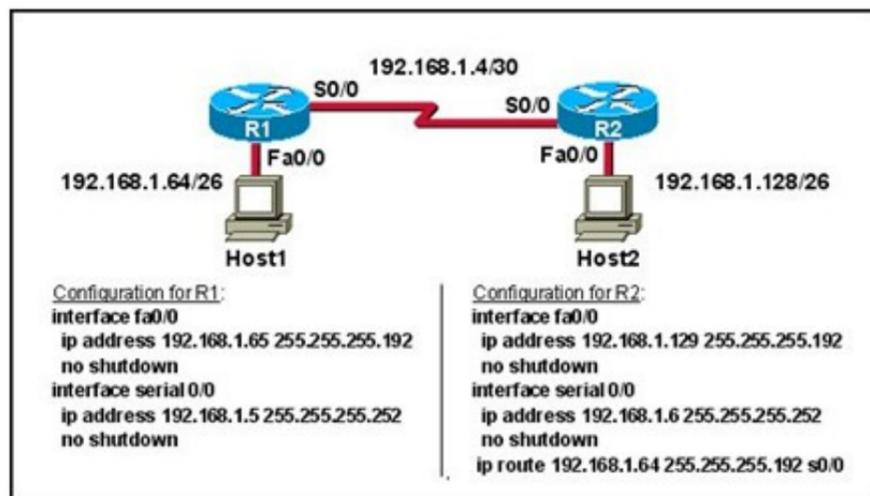
Which device classes are used over serial links? (Choose two)

- A. DCE
- B. DTE
- C. LCP
- D. HDLC
- E. PPP
- F. LMI

Answer: AB

NEW QUESTION 287

Refer to the exhibit.



A technician pastes the configurations in the exhibit into the two new routers shown. Otherwise, the routers are configured with their default configurations. A ping from Host1 to Host2 fails, but the technician is able to ping the S0/0 interface of R2 from Host1. The configurations of the hosts have been verified as correct. What is the cause of the problem?

- A. The serial cable on R1 needs to be replaced.
- B. The interfaces on R2 are not configured properly.
- C. R1 has no route to the 192.168.1.128 network.
- D. The IP addressing scheme has overlapping subnetworks.
- E. The ip subnet-zero command must be configured on both routers.

Answer: C

Explanation: Whenever a node needs to send data to another node on a network, it must first know where to send it. If the node cannot directly connect to the destination node, it has to send it via other nodes along a proper route to the destination node. A remote network is a network that can only be reached by sending the packet to another router. Remote networks are added to the routing table using either a dynamic routing protocol or by configuring static routes. Static routes are routes to networks that a network administrator manually configured. So R should have static route for the 192.168.1.128.

NEW QUESTION 291

What occurs on a Frame Relay network when the CIR is exceeded?

- A. All TCP traffic is marked discard eligible.
- B. All UDP traffic is marked discard eligible and a BECN is sent.
- C. All TCP traffic is marked discard eligible and a BECN is sent.
- D. All traffic exceeding the CIR is marked discard eligible.

Answer: D

Explanation: Committed information rate (CIR): The minimum guaranteed data transfer rate agreed to by the Frame Relay switch. Frames that are sent in excess of the CIR are marked as discard eligible (DE) which means they can be dropped if the congestion occurs within the Frame Relay network.
 Note: In the Frame Relay frame format, there is a bit called Discard eligible (DE) bit that is used to identify frames that are first to be dropped when the CIR is exceeded.

NEW QUESTION 293

Which IPsec security protocol should be used when confidentiality is required?

- A. MD5
- B. PSK
- C. AH
- D. ESP

Answer: D

NEW QUESTION 294

What about HSRP IP Address is true?

- A. If its part of the LAN
- B. Part of all other networks
- C. Local to the interface
- D. Appears in the routing table
- E. Acts as default route for that interface

Answer: E

NEW QUESTION 298

Which feature can you implement to reserve bandwidth for voip calls across the call path?

- A. PQ
- B. Round Robin
- C. CBWFQ
- D. RSPV

Answer: D

NEW QUESTION 300

What does the frame-relay interface-dlci command configure?

- A. local DLCI on the subinterface
- B. remote DLCI on the main interface
- C. remote DCLI on the subinterface
- D. local DLCI on the main interface

Answer: A

Explanation: Frame Relay for ICND Exam <http://www.ciscopress.com/articles/article.asp?p=100603&seqNum=3>

To assign a data-link connection identifier (DLCI) to a specified Frame Relay subinterface on the router or access server, or to assign a specific permanent virtual circuit (PVC) to a DLCI, or to apply a virtual template configuration for a PPP session, use the frame-relay interface-dlci interface configuration command

Example 4-23 Example of frame-relay interface-dlci Command and the Output of show frame-relay map

R4(config)#interface s1/2.403 point-to-point R4(config-subif)#frame-relay interface-dlci ?

<16-1007> Define a switched or locally terminated DLCI R4(config-subif)#frame-relay interface-dlci 403 ?

cisco Use CISCO Encapsulation

ietf Use RFC1490/RFC2427 Encapsulation

ppp Use RFC1973 Encapsulation to support PPP over FR protocol Optional protocol information for remote end

<cr>

R4#show frame-relay map

Serial1/2.403 (up): point-to-point dlci, dlci 403(0xC9,0x3090), broadcast status defined, active

R4#

NEW QUESTION 304

.....

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