

Exam Questions 200-101

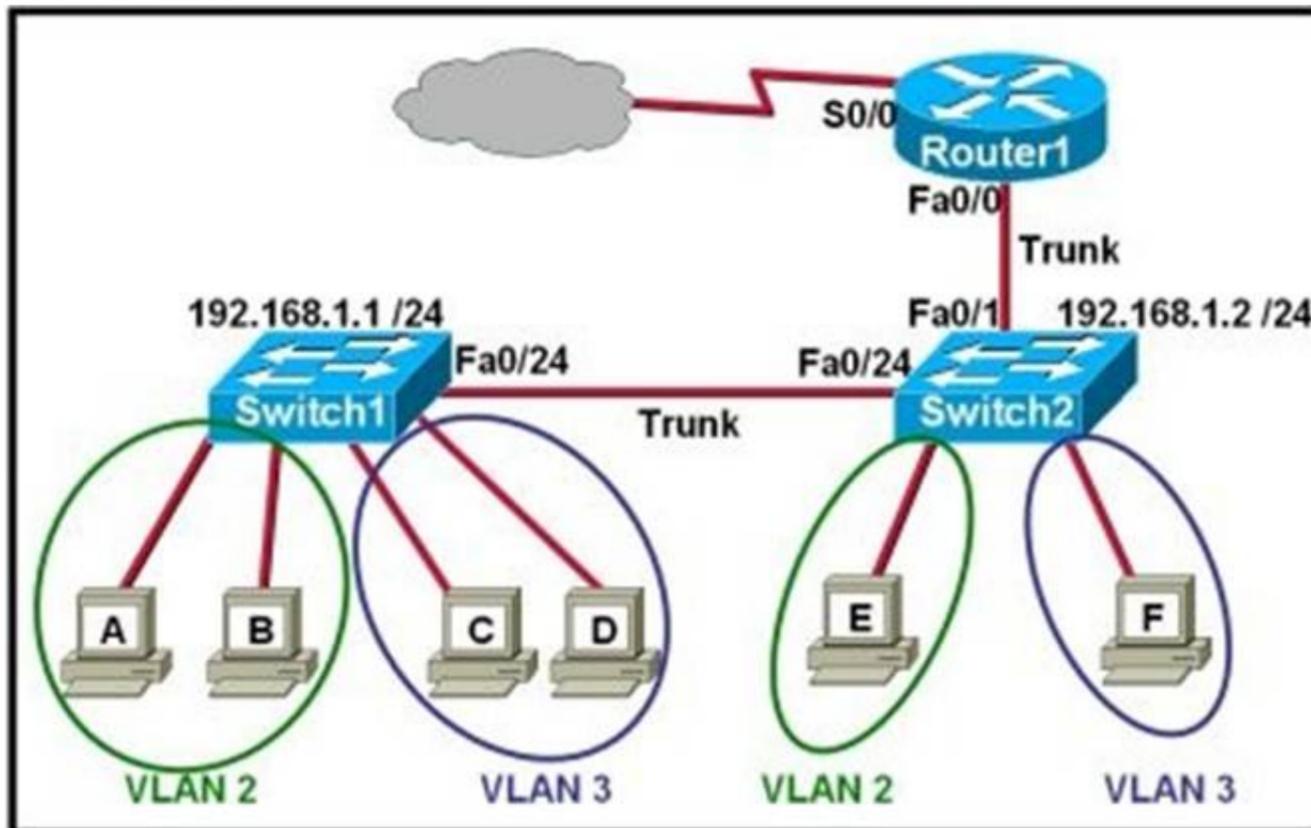
Interconnecting Cisco Networking Devices Part 2 (ICND2)

<https://www.2passeasy.com/dumps/200-101/>



NEW QUESTION 1

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 2

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_paper09186a0080094_cfa.shtml

NEW QUESTION 3

Which term describes a spanning-tree network that has all switch ports in either the blocking or forwarding state?

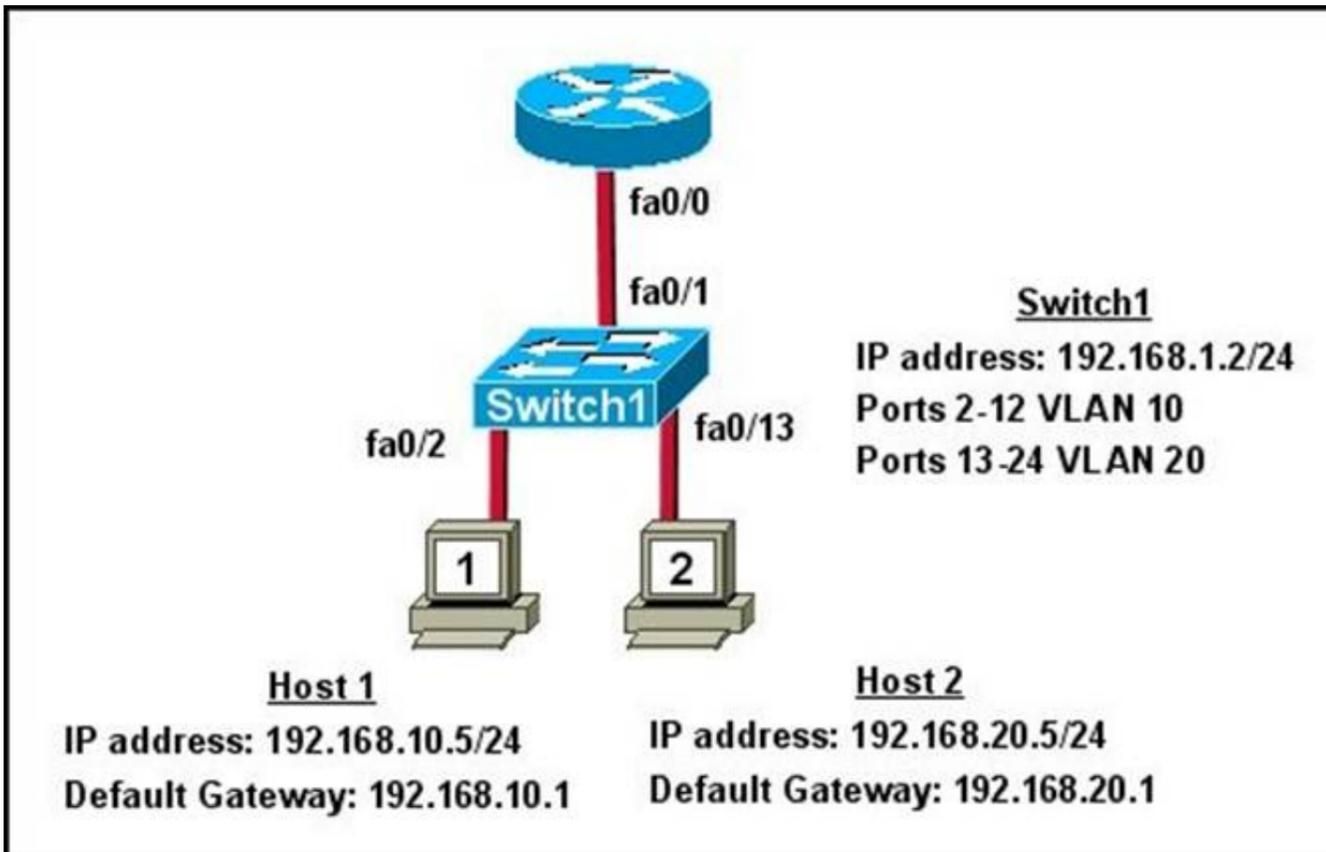
- A. converged
- B. redundant
- C. provisioned
- D. spanned

Answer: A

Explanation: Spanning Tree Protocol convergence (Layer 2 convergence) happens when bridges and switches have transitioned to either the forwarding or blocking state. When layer 2 is converged, root bridge is elected and all port roles (Root, Designated and Non-Designated) in all switches are selected.

NEW QUESTION 4

Refer to the exhibit.



What commands must be configured on the 2950 switch and the router to allow communication between host 1 and host 2? (Choose two.)

- A. Router(config)# interface fastethernet 0/0 Router(config-if)# ip address 192.168.1.1 255.255.255.0 Router(config-if)# no shut down
- B. Router(config)# interface fastethernet 0/0 Router(config-if)# no shut down Router(config)# interface fastethernet 0/0.1 Router(config-subif)# encapsulation dot1q 10 Router(config-subif)# ip address 192.168.10.1 255.255.255.0 Router(config)# interface fastethernet 0/0.2 Router(config-subif)# encapsulation dot1q 20 Router(config-subif)# ip address 192.168.20.1 255.255.255.0
- C. Router(config)# router eigrp 100 Router(config-router)# network 192.168.10.0 Router(config-router)# network 192.168.20.0
- D. Switch1(config)# vlan database Switch1(config-vlan)# vtp domain XYZ Switch1(config-vlan)# vtp server
- E. Switch1(config)# interface fastethernet 0/1 Switch1(config-if)# switchport mode trunk
- F. Switch1(config)# interface vlan 1 Switch1(config-if)# ip default-gateway 192.168.1.1

Answer: BE

Explanation: http://www.cisco.com/en/US/tech/tk389/tk815/technologies_configuration_example09186a00800949fd.shtml
<https://learningnetwork.cisco.com/servlet/JiveServlet/download/5669-2461/Router%20on%20a%20Stick.pdf>.

NEW QUESTION 5

Which port state is introduced by Rapid-PVST?

- A. learning
- B. listening
- C. discarding
- D. forwarding

Answer: C

Explanation: Spanning Tree from PVST+ to Rapid-PVST Migration Configuration Example

Reference 1: http://www.cisco.com/en/US/products/hw/switches/ps708/products_configuration_example_09186a00807b0670.shtml

Reference 2: http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cfa.shtml

PVST+ is based on IEEE802.1D Spanning Tree Protocol (STP). But PVST+ has only 3 port states (discarding, learning and forwarding) while STP has 5 port states (blocking, listening, learning, forwarding and disabled). So discarding is a new port state in PVST+.

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

Background Information

802.1D Spanning Tree Protocol (STP) has a drawback of slow convergence. Cisco Catalyst switches support three types of STPs, which are PVST+, rapid-PVST+ and MST. PVST+ is based on IEEE802.1D standard and includes Cisco proprietary extensions such as BackboneFast, UplinkFast, and PortFast. Rapid-PVST+ is based on IEEE 802.1w standard and has a faster convergence than 802.1D. RSTP (IEEE 802.1w) natively includes most of the Cisco proprietary enhancements to the 802.1D Spanning Tree, such as BackboneFast and UplinkFast. Rapid-PVST+ has these unique features:

Uses Bridge Protocol Data Unit (BPDU) version 2 which is backward compatible with the 802.1D STP, which uses BPDU version 0.

All the switches generate BPDUs and send out on all the ports every 2 seconds, whereas in 802.1D STP only the root bridge sends the configuration BPDUs.
 Port Roles—Root port, designated port, alternate port and backup port. Port States—Discarding, Learning, and Forwarding.
 Port Types—Edge Port (PortFast), Point-to-Point and Shared port.
 Rapid-PVST uses RSTP to provide faster convergence. When any RSTP port receives legacy 802.1D BPDU, it falls back to legacy STP and the inherent fast convergence benefits of 802.1w are lost when it interacts with legacy bridges.

NEW QUESTION 6

Which three of these statements regarding 802.1Q trunking are correct? (Choose three.)

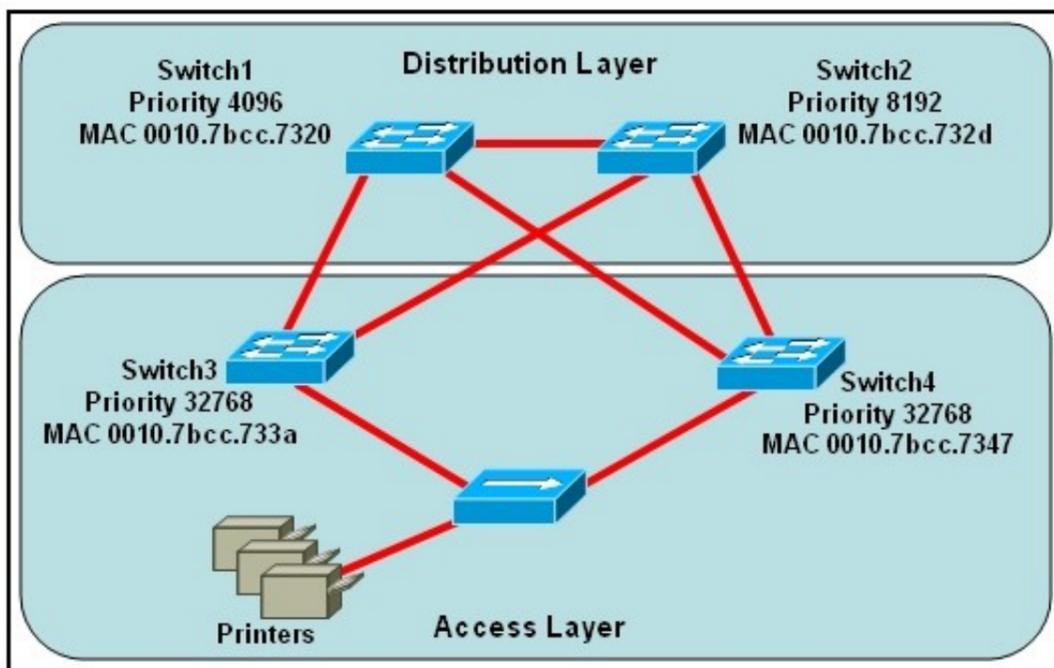
- A. 802.1Q native VLAN frames are untagged by default.
- B. 802.1Q trunking ports can also be secure ports.
- C. 802.1Q trunks can use 10 Mb/s Ethernet interfaces.
- D. 802.1Q trunks require full-duplex, point-to-point connectivity.
- E. 802.1Q trunks should have native VLANs that are the same at both ends.

Answer: ACE

Explanation: CCNA Self-Study (ICND Exam): Extending Switched Networks with Virtual LANs
<http://www.ciscopress.com/articles/article.asp?p=102157&seqNum=2>

NEW QUESTION 7

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 8

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 9

Refer to the exhibit.

```

Sw12#show vlan brief
VLAN Name                Status Ports
-----
1    default              active Fa0/6, Fa0/7, Fa0/8, Fa0/9
10   Marketing            active 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 10

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 10

Which three statements about RSTP are true? (Choose three.)

- A. RSTP significantly reduces topology reconverging time after a link failure.
- B. RSTP expands the STP port roles by adding the alternate and backup roles.
- C. RSTP port states are blocking, discarding, learning, or forwarding.
- D. RSTP provides a faster transition to the forwarding state on point-to-point links than STP does.
- E. RSTP also uses the STP proposal-agreement sequence.
- F. RSTP uses the same timer-based process as STP on point-to-point links.

Answer: ABD

Explanation: http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cf_a.shtml

Convergence

Cisco enhanced the original 802.1D specification with features such as Uplink Fast, Backbone Fast, and Port Fast to speed up the convergence time of a bridged network. The drawback is that these mechanisms are proprietary and need additional configuration.

Alternate and Backup Port Roles

These two port roles correspond to the blocking state of 802.1D. A blocked port is defined as not being the designated or root port. A blocked port receives a more

useful BPDU than the one it sends out on its segment.

Remember that a port absolutely needs to receive BPDUs in order to stay blocked. RSTP introduces these two roles for this purpose.

Rapid Transition to Forwarding State

Rapid transition is the most important feature introduced by 802.1w. The legacy STA passively waited for the network to converge before it turned a port into the forwarding state. The achievement of faster convergence was a matter of tuning the conservative default parameters (forward delay and max_age timers) and often put the stability of the network at stake. The new rapid STP is able to actively confirm that a port can safely transition to the forwarding state without having to rely on any timer configuration. There is now a real feedback mechanism that takes place between RSTP-compliant bridges. In order to achieve fast convergence on a port, the protocol relies upon two new variables: edge ports and link type.

Topic 2, IP Routing Technologies

NEW QUESTION 13

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: we all know that 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 another. The process ID should be a positive integer.

NEW QUESTION 18

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

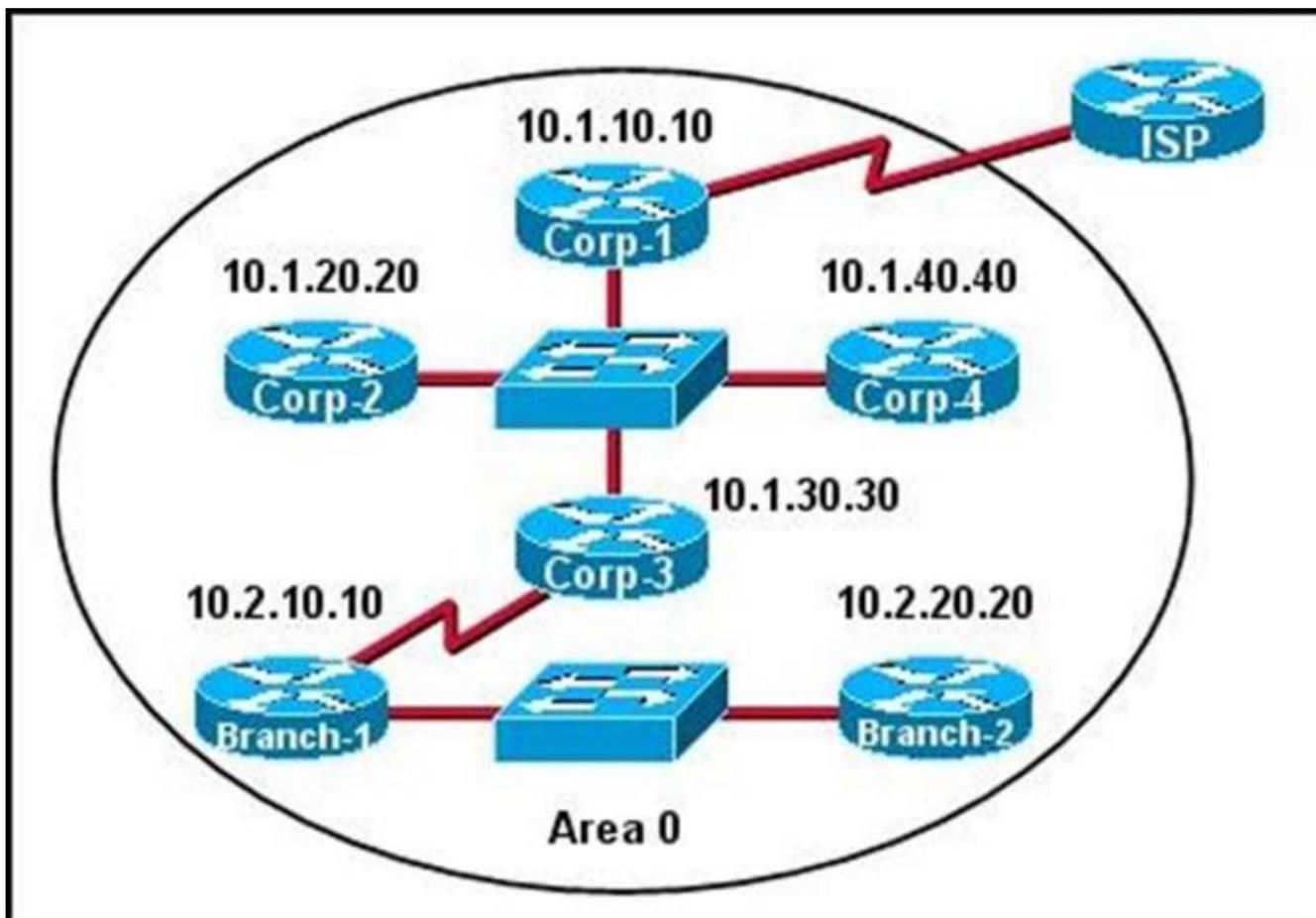
LSA: The packets flooded when a topology change occurs, causing network routers to update their topological databases and recalculate routes

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 19

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.

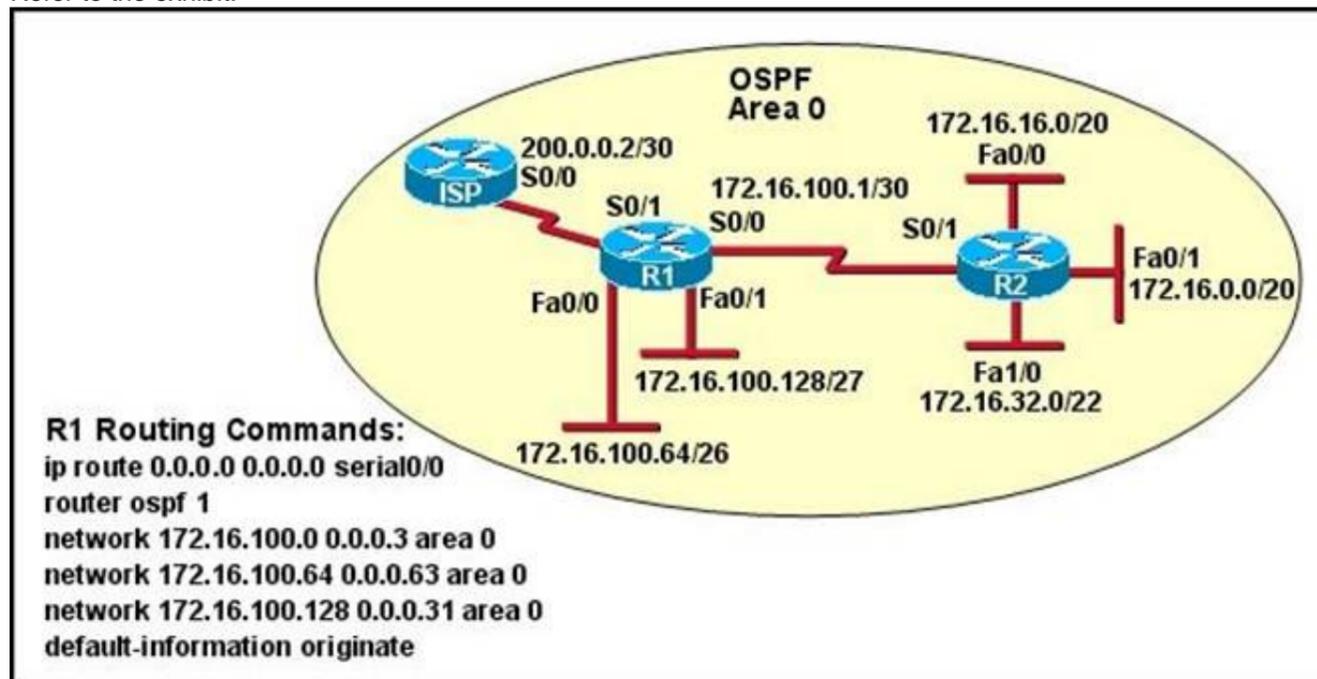
If a loopback interface is not defined, the highest IP address of all active router's physical interfaces will be chosen.

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 23

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 27

Which parameter or parameters are used to calculate OSPF cost in Cisco routers?

- A. Bandwidth
- B. Bandwidth and Delay
- C. Bandwidth, Delay, and MTU
- D. Bandwidth, MTU, Reliability, Delay, and Load

Answer: A

Explanation: http://www.cisco.com/en/US/tech/tk365/technologies_white_paper09186a0080094e9e.sht ml#t6
 OSPF Cost

The cost (also called metric) of an interface in OSPF is an indication of the overhead required to send packets across a certain interface. The cost of an interface is inversely proportional to the bandwidth of that interface. A higher bandwidth indicates a lower cost. There is more overhead (higher cost) and time delays involved in crossing a 56k serial line than crossing a 10M Ethernet line. The formula used to calculate the cost is:

Cost= 10000 0000/bandwidth in bps

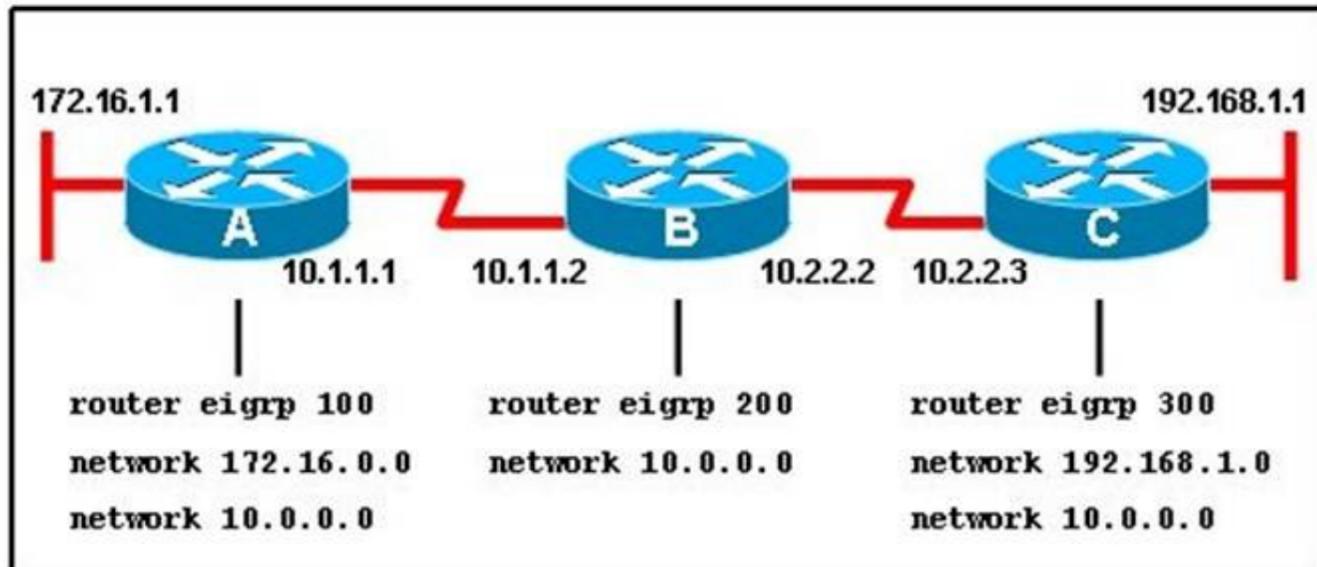
For example, it will cost 10 EXP8/10 EXP7 = 10 to cross a 10M Ethernet line and will cost

10 EXP8/1544000 =64 to cross a T1 line. By default, the cost of an interface is calculated based on the bandwidth; you can force the cost of an interface with the ip ospf cost

<value> interface sub configuration mode command.

NEW QUESTION 28

Refer to the exhibit.



When running EIGRP, what is required for RouterA to exchange routing updates with RouterC?

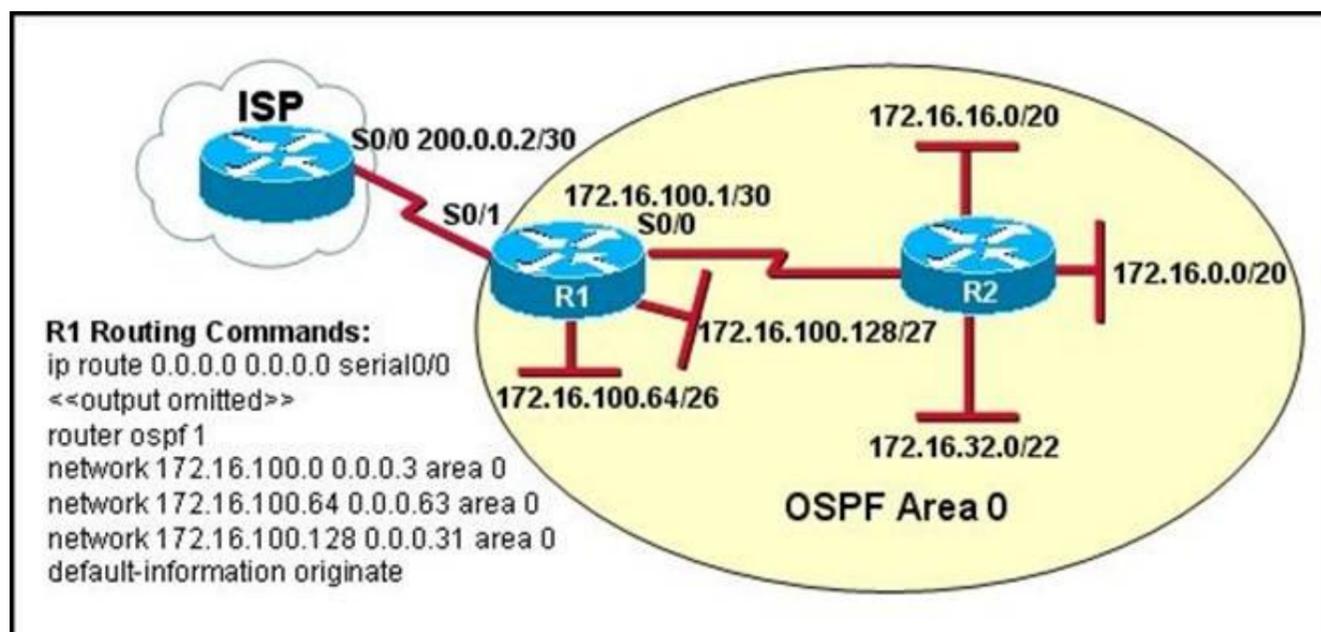
- A. AS numbers must be changed to match on all the routers
- B. Loopback interfaces must be configured so a DR is elected
- C. The no auto-summary command is needed on Router A and Router C
- D. Router B needs to have two network statements, one for each connected network

Answer: A

Explanation: Here we required same autonomous system between router A,B,C.Routing updated always exchange between in same EIGRP EIGRP autonomous system.you can configure more than one EIGRP autonomous system on the same router. This is typically done at a redistribution point where two EIGRP autonomous systems are interconnected. Individual router interfaces should only be included within a single EIGRP autonomous system. Cisco does not recommend running multiple EIGRP autonomous systems on the same set of interfaces on the router. If multiple EIGRP autonomous systems are used with multiple points of mutual redistribution, it can cause discrepancies in the EIGRP topology table if correct filtering is not performed at the redistribution points. If possible, Cisco recommends you configure only one EIGRP autonomous system in any single autonomous system.
http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080093f07.shtml

NEW QUESTION 30

Refer to the exhibit.



Assume that all of the router interfaces are operational and configured correctly. How will router R2 be affected by the configuration of R1 that is shown in the exhibit?

- A. Router R2 will not form a neighbor relationship with R1.
- B. Router R2 will obtain a full routing table, including a default route, from R1.
- C. R2 will obtain OSPF updates from R1, but will not obtain a default route from R1.
- D. R2 will not have a route for the directly connected serial network, but all other directly connected networks will be present, as well as the two Ethernet networks connected to R1.

Answer: A

Explanation: Open Shortest Path First

http://en.wikipedia.org/wiki/Open_Shortest_Path_First

The configuration of R1 shows "router ospf 1" however, the diagram also shows that both routers should be in the backbone OSPF Area of "0". When routers are in different OSPF areas they will not form a neighbor relationship.

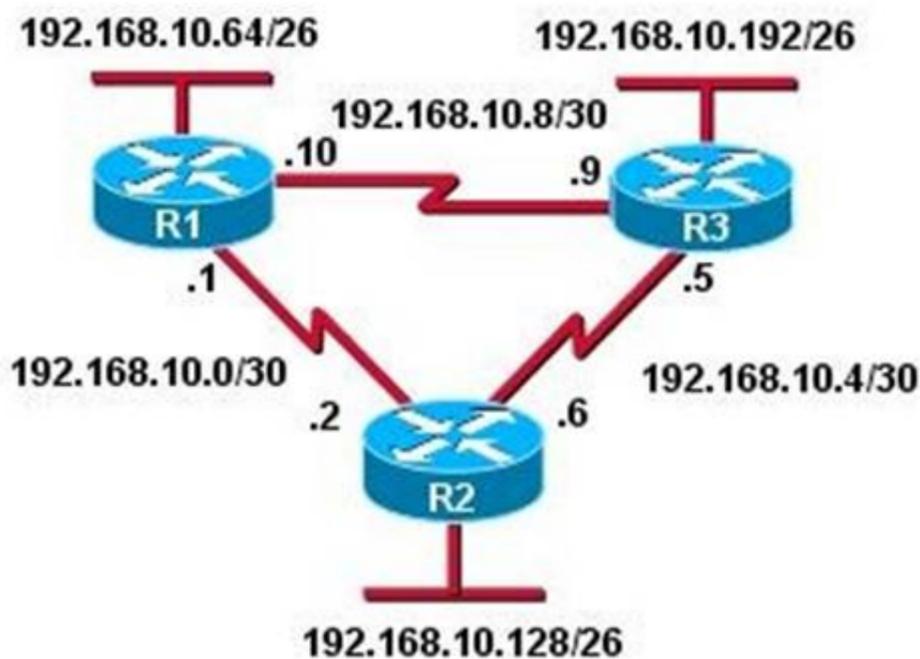
Neighbor relationships

As a link state routing protocol, OSPF establishes and maintains neighbor relationships in order to exchange routing updates with other routers. The neighbor relationship table is called an adjacency database in OSPF.

Provided that OSPF is configured correctly, OSPF forms neighbor relationships only with the routers directly connected to it. In order to form a neighbor relationship between two routers, the interfaces used to form the relationship must be in the same area. Generally an interface is only configured in a single area, however you can configure an interface to belong to multiple areas. In the second area, such an interface must be configured as a secondary interface. (A neighbor state simulation shows how neighbor state changes from Down to Full Adjacency progressively with exchanging Hello, DD, Request, Update, and Ack packets).

NEW QUESTION 35

Refer to the exhibit.



R3# show ip route

```
Gateway of last resort is not set
 192.168.10.0/24 is variably subnetted, 6 subnets, 2 masks
D   192.168.10.64/26 [90/2195456] via 192.168.10.9, 00:03:31, Serial0/0
D   192.168.10.0/30 [90/2681856] via 192.168.10.9, 00:03:31, Serial0/0
    [90/2681856] via 192.168.10.5, 00:03:31, Serial0/1
C   192.168.10.4/30 is directly connected, Serial0/1
C   192.168.10.8/30 is directly connected, Serial0/0
C   192.168.10.192/26 is directly connected, FastEthernet0/0
D   192.168.10.128/26 [90/2195456] via 192.168.10.5, 00:03:31, Serial0/1
```

Based on the exhibited routing table, how will packets from a host within the 192.168.10.192/26 LAN be forwarded to 192.168.10.1?

- A. The router will forward packets from R3 to R2 to R1.
- B. The router will forward packets from R3 to R1 to R2.
- C. The router will forward packets from R3 to R2 to R1 AND from R3 to R1.
- D. The router will forward packets from R3 to R1.

Answer: C

Explanation: From the routing table we learn that network 192.168.10.0/30 is learned via 2 equal- cost paths (192.168.10.9 & 192.168.10.5) - traffic to this network will be load-balanced.

NEW QUESTION 40

Which statement is true, as relates to classful or classless routing?

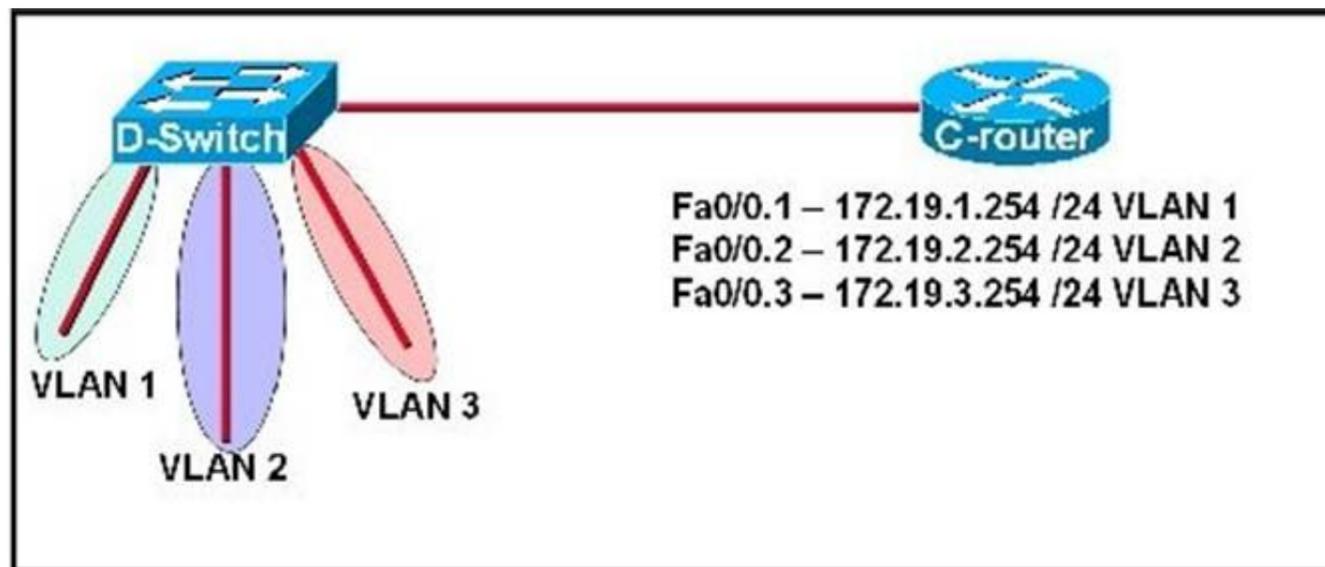
- A. Classful routing protocols send the subnet mask in routing updates.
- B. RIPv1 and OSPF are classless routing protocols.
- C. Automatic summarization at classful boundaries can cause problems on discontinuous subnets.
- D. EIGRP and OSPF are classful routing protocols and summarize routes by default.

Answer: C

Explanation: <http://www.ciscopress.com/articles/article.asp?p=174107&seqNum=3>
 RIPv1, RIPv2, IGRP, and EIGRP all auto-summarize classful boundaries by default (OSPF does not). To make discontinuous networks work, meaning you don't want classful boundaries to summarize, you need to turn off auto-summary.

NEW QUESTION 44

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_example09186a00800949fd.shtml
<https://learningnetwork.cisco.com/servlet/JiveServlet/download/5669-2461/Router%20on%20a%20Stick.pdf>.

NEW QUESTION 45

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 48

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.

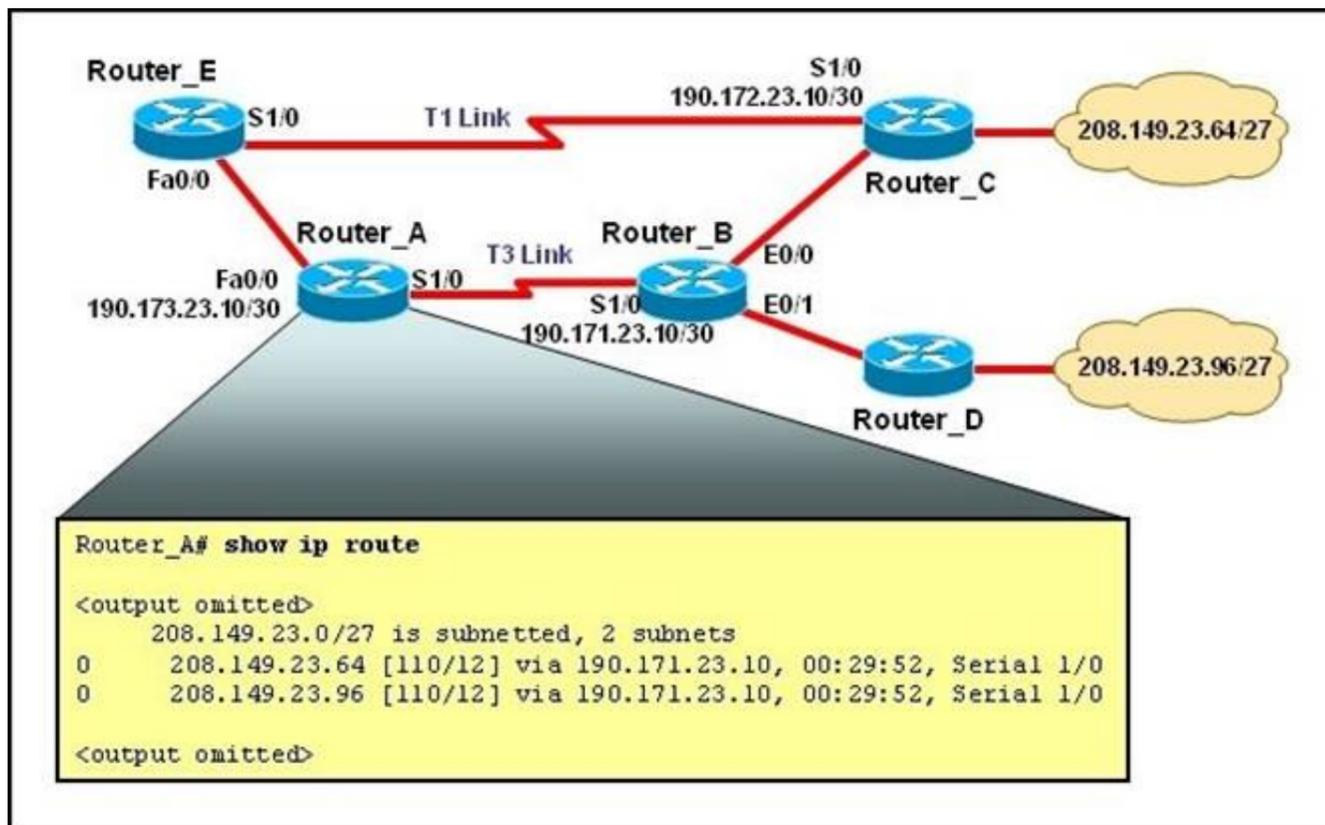
Answer: DE

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 50

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 O 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 O 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 O 208.149.23.96 [110/13] via 190.172.23.10, 00:00:16, Serial 1/0 O 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 O 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

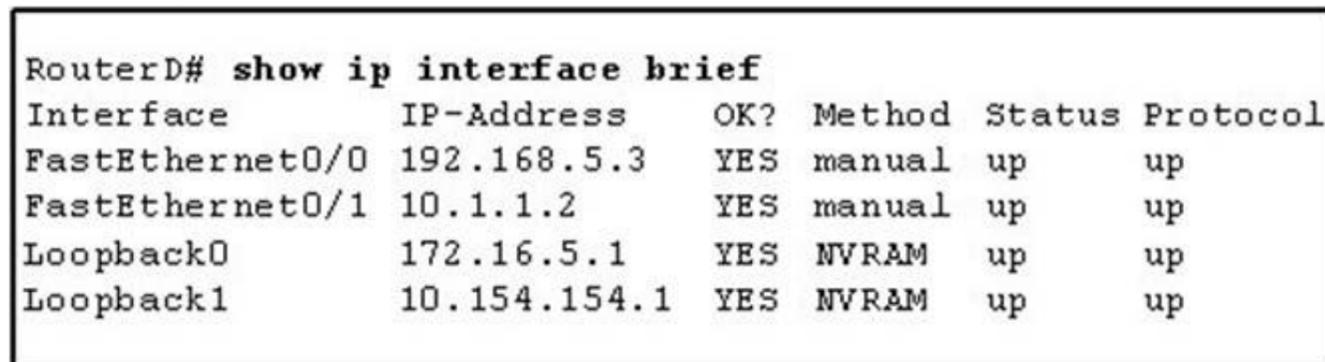
108 / Bandwidth. For FastEthernet it is 108 / 100 Mbps = 108 / 100,000,000 = 1. Therefore the cost is 12 (learned from Router_A) + 1 = 13 for both subnets - B is not correct.

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 51

Refer to the exhibit.



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 53

DRAG DROP

Drag each description on the left to the appropriate term on the right. Not all the descriptions are used.

prevents invalid updates from looping the internetwork indefinitely	holddown timer
causes a routing protocol to advertise an infinite metric for a failed route	split horizon
prevents a router from improperly reinstating a route from a regular routing update	defining a maximum
prevents information about a route from being sent in the direction from which the route was learned	route poisoning
prevents, via the use of logical subdivisions, routing updates from propagating the internetwork	triggered update
decreases convergence time by immediately sending route information in response to a topology change	

Answer:

Explanation:

prevents a router from improperly reinstating a route from a regular routing update

prevents information about a route from being sent in the direction from which the route was learned

prevents invalid updates from looping the internetwork indefinitely

causes a routing protocol to advertise an infinite metric for a failed route

decreases convergence time by immediately sending route information in response to a topology change

Reference:

<http://www.9tut.net/icnd2/icnd2-drag-and-drop-questions-2>

- + holddown timer: prevents a router from improperly reinstating a route from a regular routing update
- + split horizon: prevents information about a route from being sent in the direction from which the route was learned
- + defining a maximum: prevents invalid updates from looping the internetwork indefinitely
- + route poisoning: causes a routing protocol to advertise an infinite metric for a failed route
- + triggered update: decreases convergence time by immediately sending route information in response to a topology change

NEW QUESTION 55

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: Open Shortest Path First Reference:

http://docwiki.cisco.com/wiki/Open_Shortest_Path_First

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 60

Refer to the exhibit.

```
Switch# show port-security interface fa0/20
Port Security           : Enabled
Port Status             : Secure-up
Violation Mode          : Restrict
Aging Time              : 3 mins
Aging Type              : Inactivity
SecureStatic Address Aging : Disabled
Maximum MAC Addresses  : 2
Total MAC Addresses     : 2
Configured MAC Addresses : 0
Sticky MAC Addresses    : 2
Last Source Address:Vlan : 0009.7C10.8E8C:50
Security Violation Count : 1
```

What three actions will the switch take when a frame with an unknown source MAC address arrives at the interface? (Select three.)

- A. Send an SNMP trap.
- B. Send a syslog message.
- C. Increment the Security Violation counter.
- D. Forward the traffic.
- E. Write the MAC address to the startup-config.
- F. Shut down the port.

Answer: ABC**Explanation:** Switchport Security Concepts and Configuration<http://www.ciscopress.com/articles/article.asp?p=1722561>

Switchport Security Violations

The second piece of switchport port-security that must be understood is a security violation including what it is what causes it and what the different violation modes that exist. A switchport violation occurs in one of two situations:

When the maximum number of secure MAC addresses has been reached (by default, the maximum number of secure MAC addresses per switchport is limited to 1)

An address learned or configured on one secure interface is seen on another secure interface in the same VLAN

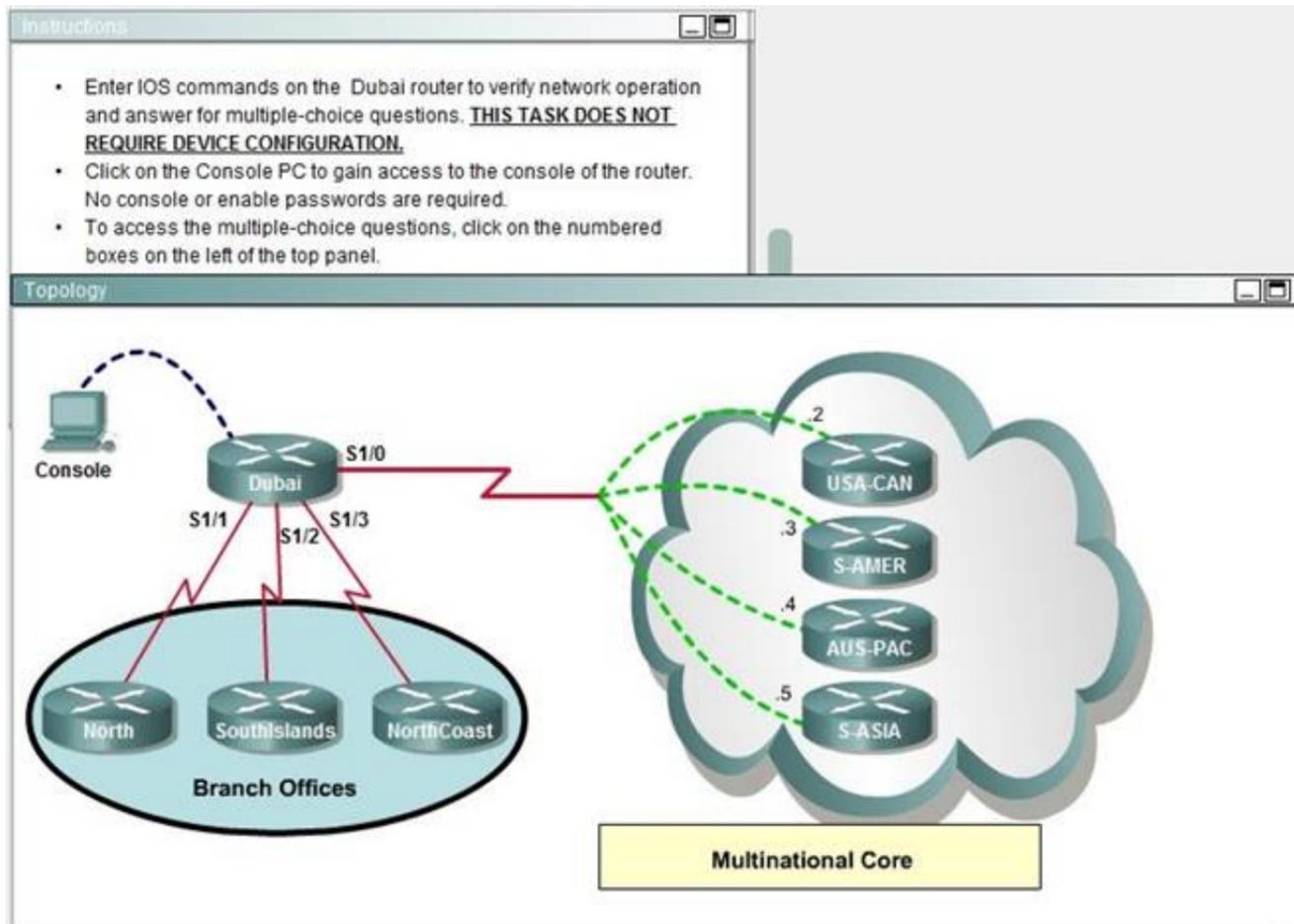
The action that the device takes when one of these violations occurs can be configured: Protect—This mode permits traffic from known MAC addresses to continue to be forwarded while dropping traffic from unknown MAC addresses when over the allowed MAC address limit. When configured with this mode, no notification action is taken when traffic is dropped.

Restrict—This mode permits traffic from known MAC addresses to continue to be forwarded while dropping traffic from unknown MAC addresses when over the allowed MAC address limit. When configured with this mode, a syslog message is logged, a Simple Network Management Protocol (SNMP) trap is sent, and a violation counter is incremented when traffic is dropped.

Shutdown—This mode is the default violation mode; when in this mode, the switch will automatically force the switchport into an error disabled (err-disable) state when a violation occurs. While in this state, the switchport forwards no traffic. The switchport can be brought out of this error disabled state by issuing the errdisable recovery cause CLI command or by disabling and re-enabling the switchport.

Shutdown VLAN—This mode mimics the behavior of the shutdown mode but limits the error disabled state the specific violating VLAN.

NEW QUESTION 62



Dubai

```

%LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to administratively down
%LINK-3-UPDOWN: Interface Serial1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/0, changed state to up
%LINK-3-UPDOWN: Interface Serial1/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/1, changed state to up
%LINK-3-UPDOWN: Interface Serial1/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/2, changed state to up
%LINK-3-UPDOWN: Interface Serial1/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/3, changed state to up
Press RETURN to get started!
Dubai>
    
```

```
Dubai#sh frame-relay map
Serial1/0 (up): ip 172.30.0.2 dlci 825 (0x7B,0x1CB0), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.3 dlci 230 (0xEA,0x38A0), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.4 dlci 694 (0x159,0x5490), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.5 dlci 387 (0x1C8,0x7080), dynamic,
                broadcast,, status defined, active
Dubai#
interface FastEthernet0/0
  no ip address
  shutdown
!
interface Serial1/0
  ip address 172.30.0.1 255.255.255.240
  encapsulation frame-relay
  no fair-queue
!
interface Serial1/1
  ip address 192.168.0.1 255.255.255.252
!
interface Serial1/2
  ip address 192.168.0.5 255.255.255.252
  encapsulation ppp
!
interface Serial1/3
  ip address 192.168.0.9 255.255.255.252
  encapsulation ppp
  ppp authentication chap
!
router rip
  version 2
  network 172.30.0.0
  network 192.168.0.0
  no auto-summary
!
line con 0
  exec-timeout 0 0
line aux 0
line vty 0 4
  password Tlnet
  login
!
end
```

Which connection uses the default encapsulation for serial interfaces on Cisco routers?

- A. The serial connection to the NorthCoast branch office.
- B. The serial connection to the North branch office.
- C. The serial connection to the Southlands branch office.
- D. The serial connection to the Multinational Core.

Answer: B

Explanation: Cisco default encapsulation is HDLC which is by default enabled on all cisco router. If we want to enable other encapsulation protocol(PPP,X.25 etc) we need to define in interface setting. But here except s1/1 all interface defined by other encapsulation protocol so we will assume default encapsulation running on s1/1 interface and s1/1 interface connected with North

NEW QUESTION 67

Instructions

- Enter IOS commands on the Dubai router to verify network operation and answer for multiple-choice questions. **THIS TASK DOES NOT REQUIRE DEVICE CONFIGURATION.**
- Click on the Console PC to gain access to the console of the router. 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.

Topology

The diagram illustrates a network topology. On the left, a 'Dubai' router is connected to three 'Branch Offices': 'North', 'SouthIslands', and 'NorthCoast'. The Dubai router has interfaces S1/1, S1/2, and S1/3 connected to the branch offices. A 'Console' PC is connected to the Dubai router. On the right, a 'Multinational Core' cloud contains four regional routers: 'USA-CAN' (labeled 2), 'S-AMER' (labeled 3), 'AUS-PAC' (labeled 4), and 'S-ASIA' (labeled 5). A red line connects the Dubai router's S1/0 interface to the core cloud. Dashed green lines connect the core routers to each other.

Dubai

```

%LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to administratively down
%LINK-3-UPDOWN: Interface Serial1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/0, changed state to up
%LINK-3-UPDOWN: Interface Serial1/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/1, changed state to up
%LINK-3-UPDOWN: Interface Serial1/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/2, changed state to up
%LINK-3-UPDOWN: Interface Serial1/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/3, changed state to up
Press RETURN to get started!
Dubai>
    
```

```
Dubai#sh frame-relay map
Serial1/0 (up): ip 172.30.0.2 dlci 825 (0x7B,0x1CB0), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.3 dlci 230 (0xEA,0x38A0), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.4 dlci 694 (0x159,0x5490), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.5 dlci 387 (0x1C8,0x7080), dynamic,
                broadcast,, status defined, active

Dubai#
interface FastEthernet0/0
  no ip address
  shutdown
!
interface Serial1/0
  ip address 172.30.0.1 255.255.255.240
  encapsulation frame-relay
  no fair-queue
!
interface Serial1/1
  ip address 192.168.0.1 255.255.255.252
!
interface Serial1/2
  ip address 192.168.0.5 255.255.255.252
  encapsulation ppp
!
interface Serial1/3
  ip address 192.168.0.9 255.255.255.252
  encapsulation ppp
  ppp authentication chap
!
router rip
  version 2
  network 172.30.0.0
  network 192.168.0.0
  no auto-summary
!
line con 0
  exec-timeout 0 0
line aux 0
line vty 0 4
  password Tlnet
  login
!
end
```

If required, what password should be configured on the DeepSouth router in the branch office to allow a connection to be established with the MidEast router?

- A. No password is required.
- B. Enable
- C. Secret
- D. Telnet
- E. Console

Answer: B

Explanation: In the diagram, DeepSouth is connected to Dubai's S1/2 interface and is configured as follows:

Interface Serial1/2

IP address 192.168.0.5 255.255.255.252

Encapsulation PPP ; Encapsulation for this interface is PPP Check out the following Cisco Link:

http://www.cisco.com/en/US/tech/tk713/tk507/technologies_configuration_example09186a_0080094333.shtml#configuringausernamefromtheroutersname

Here is a snippet of an example:

Network Diagram

If Router 1 initiates a call to Router 2, Router 2 would challenge Router 1, but Router 1 would not challenge Router 2. This occurs because the ppp authentication chap callin command is configured on Router 1. This is an example of a unidirectional authentication. In this setup, the ppp chap hostname alias-r1 command is configured on Router 1. Router 1 uses "alias-r1" as its hostname for CHAP authentication instead of "r1." The Router 2 dialer map name should match Router 1's ppp chap hostname; otherwise, two B channels are established, one for each direction.



Configurations

```

Router 1
!
 isdn switch-type basic-5ess
!
hostname r1
!
username r2 password 0 cisco

! -- Hostname of other router and shared secret
!
interface BRI0/0
 ip address 20.1.1.1 255.255.255.0
 no ip directed-broadcast
 encapsulation ppp
 dialer map ip 20.1.1.2 name r2 broadcast 572222
 dialer-group 1
 isdn switch-type basic-5ess
 ppp authentication chap callin

! -- Authentication on incoming calls only

ppp chap hostname alias-r1

! -- Alternate CHAP hostname
    
```

NEW QUESTION 69

Instructions

- Enter IOS commands on the Dubai router to verify network operation and answer for multiple-choice questions. **THIS TASK DOES NOT REQUIRE DEVICE CONFIGURATION.**
- Click on the Console PC to gain access to the console of the router. 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.

Topology

The topology diagram shows a central 'Dubai' router. It is connected to three 'Branch Offices' (North, SouthIslands, NorthCoast) via interfaces S1/1, S1/2, and S1/3. The Dubai router's S1/0 interface is connected to a 'Multinational Core' cloud. Inside the core, there are four routers labeled .2 (USA-CAN), .3 (S-AMER), .4 (AUS-PAC), and .5 (S-ASIA). A 'Console' PC is connected to the Dubai router. A red line connects the Dubai router to the core, and green dashed lines connect the core routers to numbered boxes (2, 3, 4, 5) on the left side of the topology panel.

```
Dubai

%LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to administratively down
%LINK-3-UPDOWN: Interface Serial1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/0, changed state to up
%LINK-3-UPDOWN: Interface Serial1/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/1, changed state to up
%LINK-3-UPDOWN: Interface Serial1/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/2, changed state to up
%LINK-3-UPDOWN: Interface Serial1/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/3, changed state to up
Press RETURN to get started!
Dubai>
```

```
Dubai#sh frame-relay map
Serial1/0 (up): ip 172.30.0.2 dlci 825 (0x7B,0x1CB0), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.3 dlci 230 (0xEA,0x38A0), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.4 dlci 694 (0x159,0x5490), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.5 dlci 387 (0x1C8,0x7080), dynamic,
                broadcast,, status defined, active
Dubai#
interface FastEthernet0/0
  no ip address
  shutdown
!
interface Serial1/0
  ip address 172.30.0.1 255.255.255.240
  encapsulation frame-relay
  no fair-queue
!
interface Serial1/1
  ip address 192.168.0.1 255.255.255.252
!
interface Serial1/2
  ip address 192.168.0.5 255.255.255.252
  encapsulation ppp
!
interface Serial1/3
  ip address 192.168.0.9 255.255.255.252
  encapsulation ppp
  ppp authentication chap
!
router rip
  version 2
  network 172.30.0.0
  network 192.168.0.0
  no auto-summary
!
line con 0
  exec-timeout 0 0
line aux 0
line vty 0 4
  password Tlnet
  login
!
end
```

What would be the destination Layer 2 address in the frame header for a frame that is being forwarded by Dubai to the host address of 172.30.4.4?

- A. 825
- B. 230
- C. 694
- D. 387

Answer: C

Explanation: According to command output 172.30.4.4 is using the 694 dcli value.
http://www.cisco.com/en/US/docs/ios/12_2/wan/command/reference/wrffr4.html#wp102934_3

NEW QUESTION 71

Instructions

- Enter IOS commands on the Dubai router to verify network operation and answer for multiple-choice questions. **THIS TASK DOES NOT REQUIRE DEVICE CONFIGURATION.**
- Click on the Console PC to gain access to the console of the router. 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.

Topology

The diagram shows a central 'Dubai' router connected to three 'Branch Offices' (North, SouthIslands, NorthCoast) via interfaces S1/1, S1/2, and S1/3. The Dubai router is also connected to a 'Multinational Core' cloud via interface S1/0. The core contains four regions: USA-CAN (labeled .2), S-AMER (labeled .3), AUS-PAC (labeled .4), and S-ASIA (labeled .5). A console PC is connected to the Dubai router.

Dubai

```

%LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to administratively down
%LINK-3-UPDOWN: Interface Serial11/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial11/0, changed state to up
%LINK-3-UPDOWN: Interface Serial11/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial11/1, changed state to up
%LINK-3-UPDOWN: Interface Serial11/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial11/2, changed state to up
%LINK-3-UPDOWN: Interface Serial11/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial11/3, changed state to up
Press RETURN to get started!
Dubai>
                    
```

```
Dubai#sh frame-relay map
Serial1/0 (up): ip 172.30.0.2 dlci 825 (0x7B,0x1CB0), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.3 dlci 230 (0xEA,0x38A0), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.4 dlci 694 (0x159,0x5490), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.5 dlci 387 (0x1C8,0x7080), dynamic,
                broadcast,, status defined, active
Dubai#
interface FastEthernet0/0
  no ip address
  shutdown
!
interface Serial1/0
  ip address 172.30.0.1 255.255.255.240
  encapsulation frame-relay
  no fair-queue
!
interface Serial1/1
  ip address 192.168.0.1 255.255.255.252
!
interface Serial1/2
  ip address 192.168.0.5 255.255.255.252
  encapsulation ppp
!
interface Serial1/3
  ip address 192.168.0.9 255.255.255.252
  encapsulation ppp
  ppp authentication chap
!
router rip
  version 2
  network 172.30.0.0
  network 192.168.0.0
  no auto-summary
!
line con 0
  exec-timeout 0 0
line aux 0
line vty 0 4
  password Tlnet
  login
!
end
```

A static map to the S-AMER location is required. Which command should be used to create this map?

- A. frame-relay map ip 172.30.0.3 825 broadcast
- B. frame-relay map ip 172.30.0.3 230 broadcast
- C. frame-relay map ip 172.30.0.3 694 broadcast
- D. frame-relay map ip 172.30.0.3 387 broadcast

Answer: B

Explanation: Frame-relay map ip 172.30.0.3 230 broadcast

172.30.0.3 is S-AMER router ip address and its configure on 230 dlci value. Check "show frame-relay map " output in the diagram.

NEW QUESTION 76

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

NEW QUESTION 77

What can be done to Frame Relay to resolve split-horizon issues?(Choose two.)

- A. Disable Inverse ARP.
- B. Create a full-mesh topology.
- C. Develop multipoint subinterfaces.
- D. Configure point-to-point subinterfaces.
- E. Remove the broadcast keyword from the frame-relay map command.

Answer: BD

Explanation: IP split horizon checking is disabled by default for Frame Relay encapsulation to allow routing updates to go in and out of the same interface. An exception is the Enhanced Interior Gateway Routing Protocol (EIGRP) for which split horizon must be explicitly disabled. Certain protocols such as AppleTalk, transparent bridging, and Internetwork Packet Exchange (IPX) cannot be supported on partially meshed networks because they require split horizon to be enabled (a packet received on an interface cannot be transmitted over the same interface, even if the packet is received and transmitted on different virtual circuits). Configuring Frame Relay subinterfaces ensures that a single physical interface is treated as multiple virtual interfaces. This capability allows you to overcome split horizon rules so packets received on one virtual interface can be forwarded to another virtual interface, even if they are configured on the same physical interface.

NEW QUESTION 82

What command visualizes the general NetFlow data on the command line?

- A. show ip flow export
- B. show ip flow top-talkers
- C. show ip cache flow
- D. show mls sampling
- E. show mls netflow ip

Answer: C

NEW QUESTION 84

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 86

Scenario

Refer to the topology. Your company has connected the routers R1, R2, and R3 with serial links. R2 and R3 are connected to the switches SW1 and SW2, respectively. SW1 and SW2 are also connected to the routers R4 and R5.

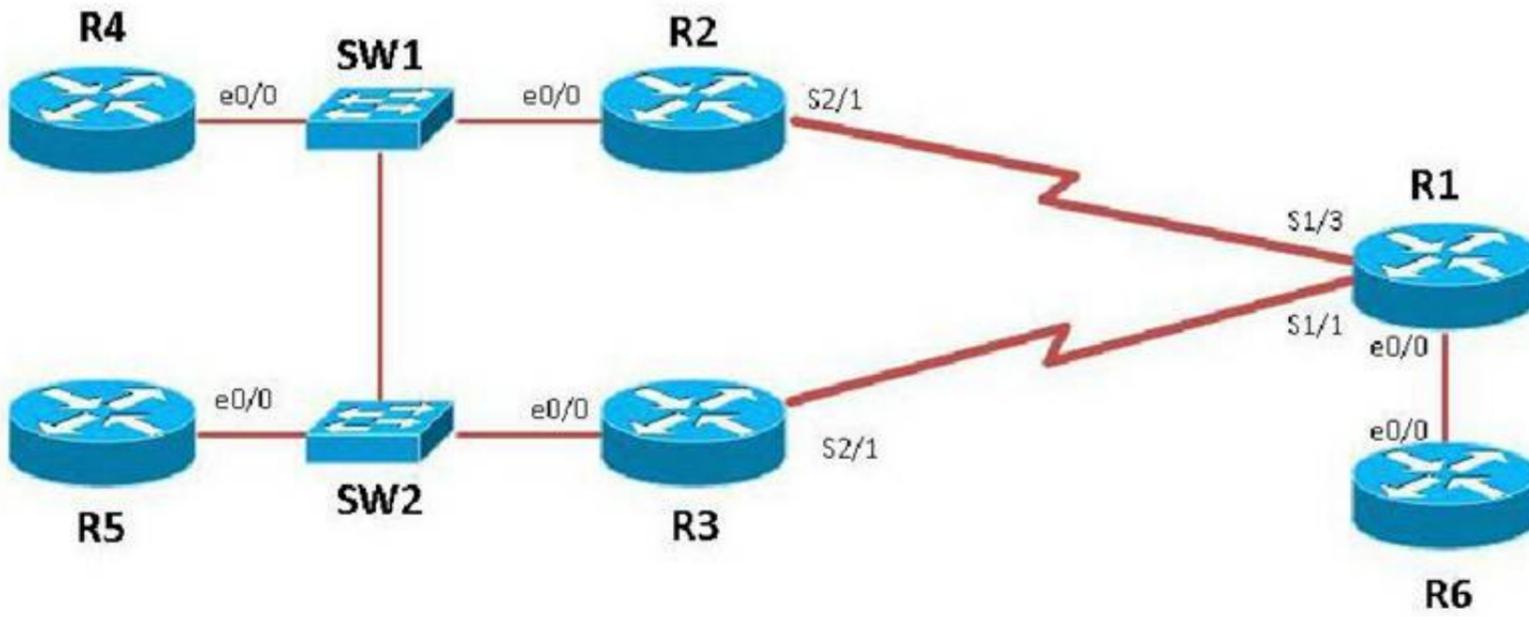
The EIGRP routing protocol is configured.

You are required to troubleshoot and resolve the EIGRP issues between the various routers.

Use the appropriate show commands to troubleshoot the issues.

Topology

EIGRP AS 1



R1

R1#

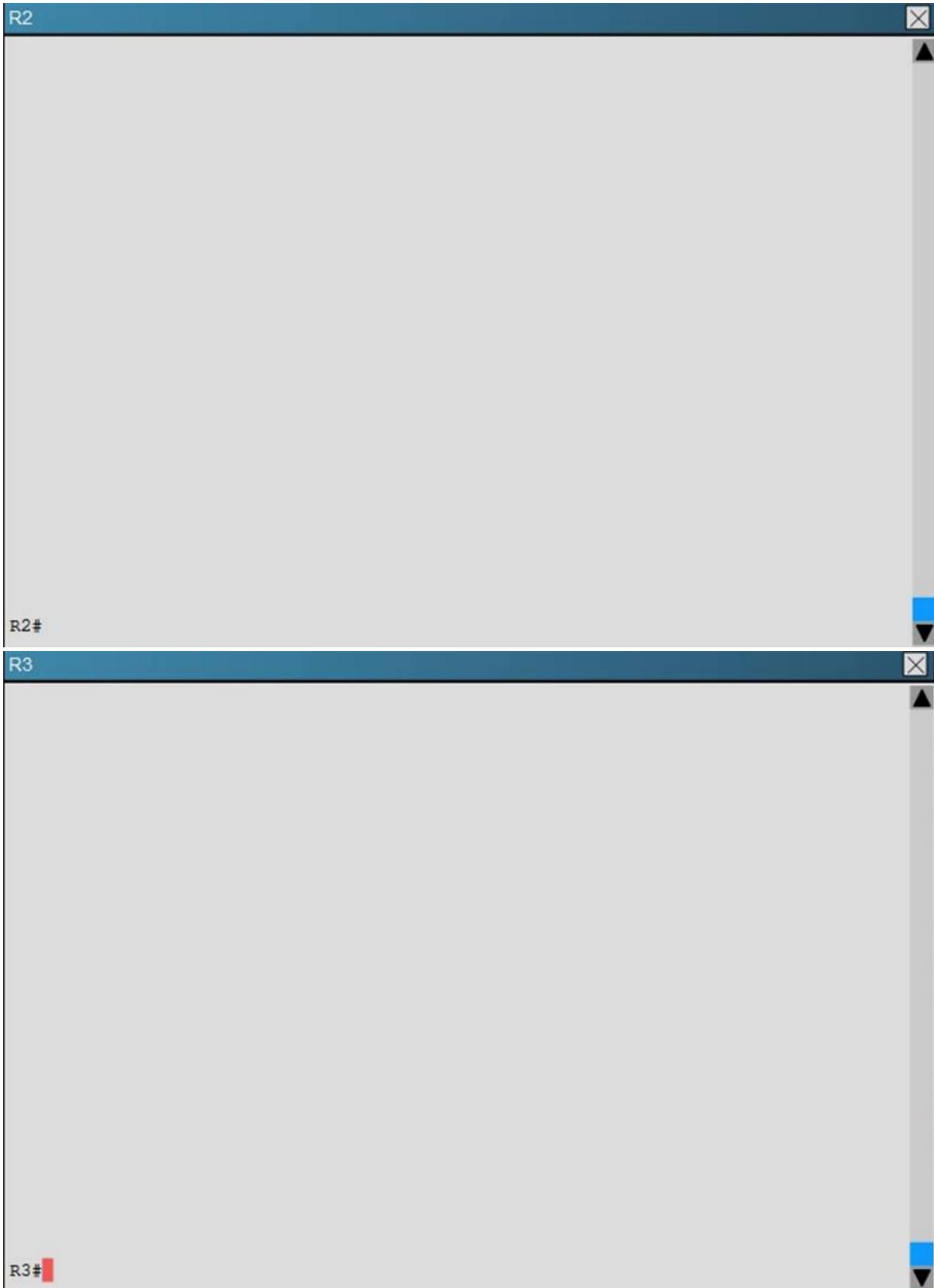
This section shows an empty terminal window for router R1, intended for configuration or command execution. The prompt 'R1#' is visible at the bottom left.

R2

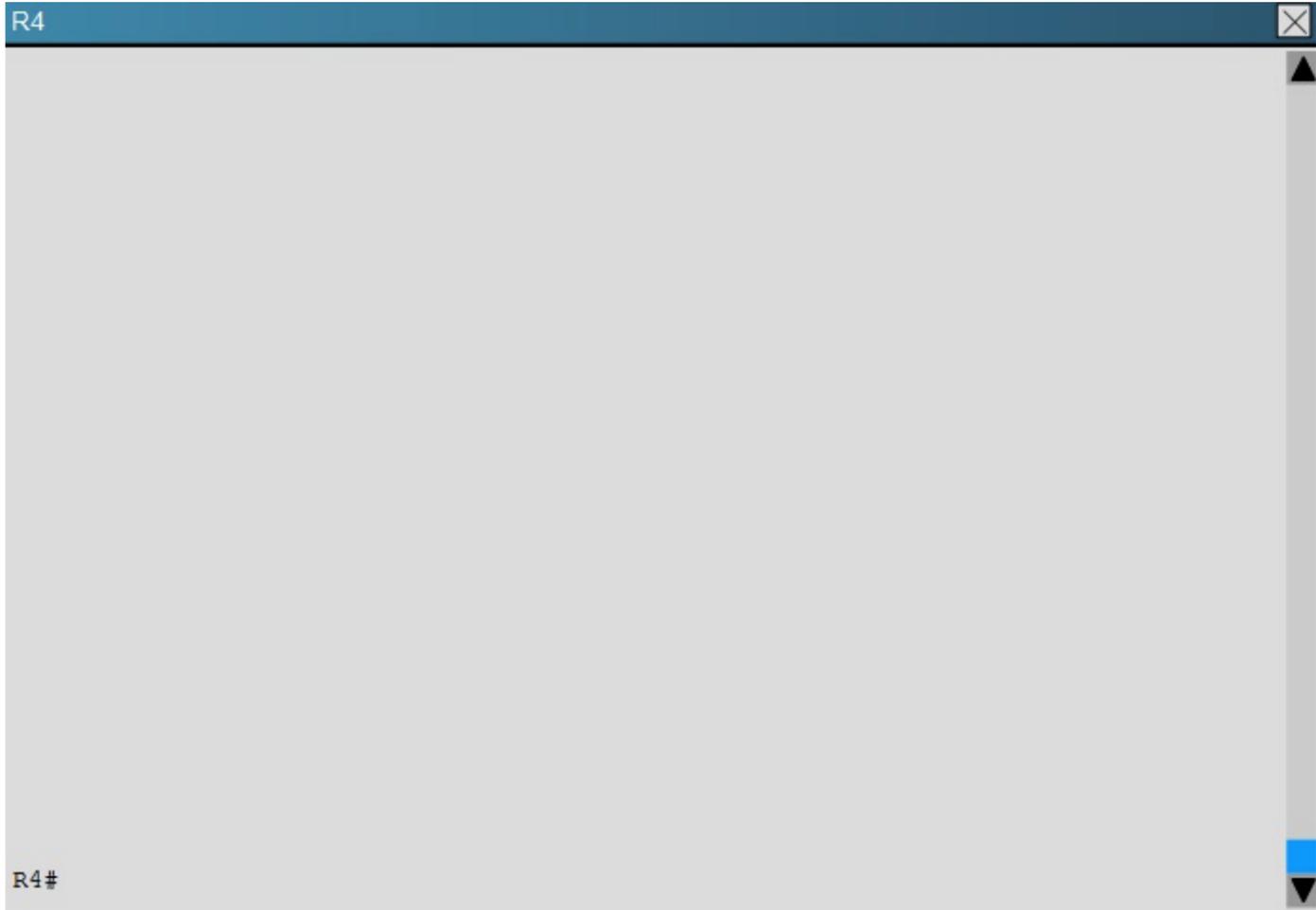
R2#

R3

R3#



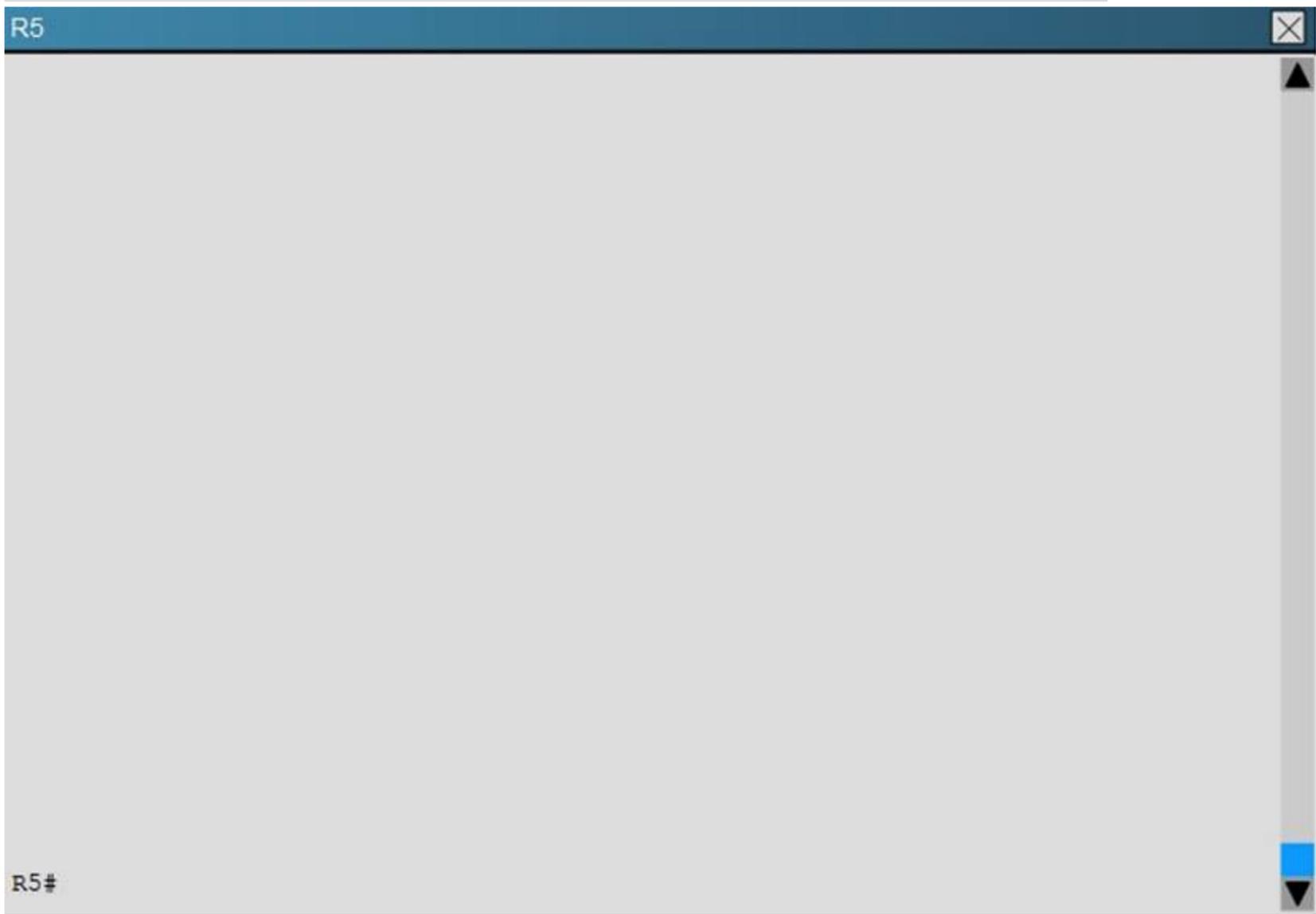
R4



R4#

This is a screenshot of a browser window titled 'R4'. The window is mostly empty, showing a light gray background. A vertical scrollbar is visible on the right side, with a blue highlight at the bottom. The text 'R4' is in the top-left corner, and 'R4#' is in the bottom-left corner.

R5



R5#

This is a screenshot of a browser window titled 'R5'. The window is mostly empty, showing a light gray background. A vertical scrollbar is visible on the right side, with a blue highlight at the bottom. The text 'R5' is in the top-left corner, and 'R5#' is in the bottom-left corner.

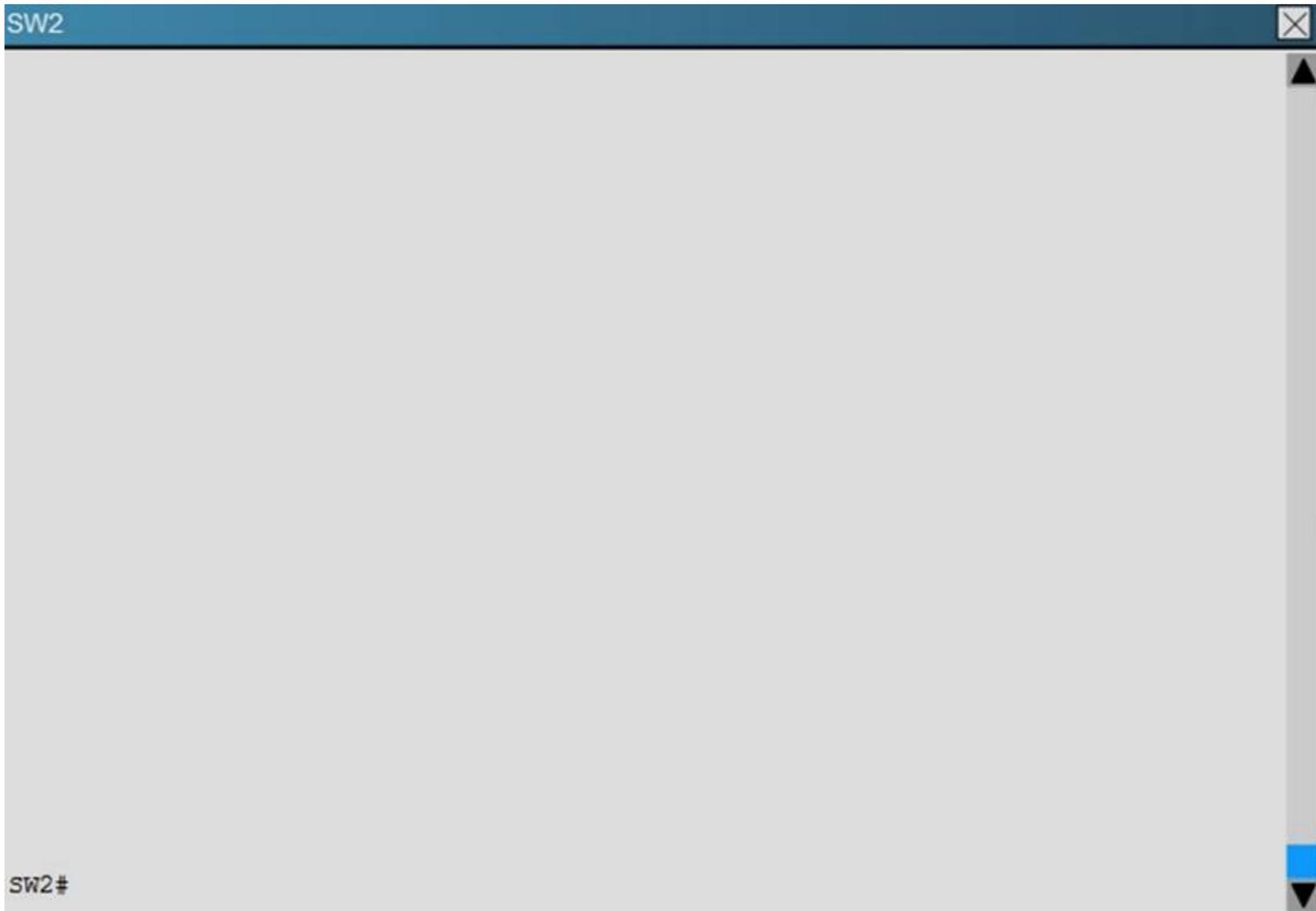
R6

R6#

SW1

SW1#

The image shows two vertically stacked terminal windows. The top window is titled 'R6' and contains the prompt 'R6#'. The bottom window is titled 'SW1' and contains the prompt 'SW1#'. Both windows are currently empty, suggesting they are ready for input but no commands have been entered or output displayed.



Study the following output taken on R1:

```
R1# Ping 10.5.5.55 source 10.1.1.1
```

```
Type escape sequence to abort.
```

```
Sending 5.100-byte ICMP Echos to 10.5.5.55, timeout is 2 seconds:
```

```
Packet sent with a source address of 10.1.1.1
```

```
Why are the pings failing?
```

- A. The network statement is missing on R5.
- B. The loopback interface is shut down on R5.
- C. The network statement is missing on R1.
- D. The IP address that is configured on the Lo1 interface on R5 is incorrect.

Answer: C

Explanation: R5 does not have a route to the 10.1.1.1 network, which is the loopback0 IP address of R1. When looking at the EIGRP configuration on R1, we see that the 10.1.1.1 network statement is missing on R1.

R1

```
no ip address
serial restart-delay 0
!
interface Serial2/2
no ip address
shutdown
serial restart-delay 0
!
interface Serial2/3
no ip address
shutdown
serial restart-delay 0
!
!
router eigrp 1
network 192.168.12.0
network 192.168.13.0
network 192.168.16.0
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
```

R1#

NEW QUESTION 90

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 172.16.1.1 255.255.255.252Main(config-if)# encapsulation ppp Main(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 95

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 99

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

NEW QUESTION 101

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

NEW QUESTION 106

What are three factors a network administrator must consider before implementing Netflow in the network? (Choose three.)

- A. CPU utilization
- B. where Netflow data will be sent
- C. number of devices exporting Netflow data
- D. port availability
- E. SNMP version
- F. WAN encapsulation

Answer: ABC

NEW QUESTION 109

What are two characteristics of Frame Relay point-to-point subinterfaces? (Choose two.)

- A. They create split-horizon issues.
- B. They require a unique subnet within a routing domain.
- C. They emulate leased lines.
- D. They are ideal for full-mesh topologies.
- E. They require the use of NBMA options when using OSPF.

Answer: BC

Explanation: <http://www.ciscopress.com/articles/article.asp?p=170741&seqNum=5>

Configuring Frame Relay Subinterfaces

On partially meshed Frame Relay networks, the problem of split horizon can be overcome by using Frame Relay subinterfaces. Frame Relay provides a mechanism to allow a physical interface to be partitioned into multiple virtual interfaces. In a similar way, using subinterfaces allows a partially meshed network to be divided into a number of smaller, fully meshed point-to-point networks. Generally, each point-to-point subnetwork is assigned a unique network address. This allows packets received on one physical interface to be sent out from the same physical interface, albeit forwarded on VCs in different subinterfaces. There are two types of subinterfaces supported by Cisco routers: point-to-point and multipoint subinterfaces.

NEW QUESTION 112

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

NEW QUESTION 114

In GLBP, which router will respond to client ARP requests?

- A. The active virtual gateway will reply with one of four possible virtual MAC addresses.
- B. All GLBP member routers will reply in round-robin fashion.
- C. The active virtual gateway will reply with its own hardware MAC address.
- D. The GLBP member routers will reply with one of four possible burned-in hardware addresses.

Answer: A

NEW QUESTION 119

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

NEW QUESTION 124

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

NEW QUESTION 125

Refer to the exhibit.

```
City#show ip interface brief

Interface          IP-Address      OK? Method Status Protocol
FastEthernet0/0    192.168.12.48  YES manual  up      up
FastEthernet0/1    192.168.12.65  YES manual  up      up
Serial0/0           192.168.12.121 YES manual  up      up
Serial0/1           unassigned     YES unset   up      up
Serial0/1.102      192.168.12.125 YES manual  up      up
Serial0/1.103      192.168.12.129 YES manual  up      up
Serial0/1.104      192.168.12.133 YES manual  up      up
City#
```

A network associate has configured OSPF with the command: City(config-router)# network 192.168.12.64 0.0.0.63 area 0
 After completing the configuration, the associate discovers that not all the interfaces are participating in OSPF. Which three of the interfaces shown in the exhibit will participate in OSPF according to this configuration statement? (Choose three.)

- A. FastEthernet0 /0
- B. FastEthernet0 /1
- C. Serial0/0
- D. Serial0/1.102
- E. Serial0/1.103
- F. Serial0/1.104

Answer: BCD

Explanation: The "network 192.168.12.64 0.0.0.63 equals to network 192.168.12.64/26. This network has:Increment: 64 (/26= 1111 1111.1111 1111.1111 1111.1100 0000)Network address: 192.168.12.64
 Broadcast address: 192.168.12.127Therefore all interface in the range of this network will join OSPF - B C D are correct.

NEW QUESTION 129

DRAG DROP

Drag the Frame Relay acronym on the left to match its definition on the right. (Not all acronyms are used.)

CIR	a router is this type of device
DCE	the most common type of virtual circuit
DTE	provides status messages between DTE and DCE devices
LMI	identifies the virtual connection between the DTE and the switch
PVC	
SVC	
DLCI	

Answer:

Explanation: 1) a router is this type of device: DTE 2) the most common type of virtual circuit: PVC 3) provides status messages between DTE and DCE devices: LMI 4) identifies the virtual connection between the DTE and the switch: DLCI

DTE
PVC
LMI
DLCI

CCNA Certification Test Prep Case Study <http://www.thebryantadvantage.com/CCNACertificationExamTutorialDirectlyConnectedSerialInterfaces.htm>
 Configuring the LMI Type on a Frame Relay Interface <http://www.ciscopress.com/articles/article.asp?p=170741&seqNum=3>
 Frame Relay DLCIs And Mappings
http://www.mcmcse.com/cisco/guides/frame_relay_dlc.html

NEW QUESTION 132

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 137

What can cause two OSPF neighbors to be stuck in the EXSTART state?

- A. There is a low bandwidth connection between neighbors.
- B. The neighbors have different MTU settings.
- C. The OSPF interfaces are in a passive state.
- D. There is only layer one connectivity between neighbors.

Answer: B

NEW QUESTION 139

What are three reasons that an organization with multiple branch offices and roaming users might implement a Cisco VPN solution instead of point-to-point WAN links? (Choose three.)

- A. reduced cost
- B. better throughput
- C. broadband incompatibility
- D. increased security
- E. scalability
- F. reduced latency

Answer: ADE

Explanation: Enhance Productivity and Cut Costs

Cisco VPN solutions provide exceptional security through encryption and authentication technologies that protect data in transit from unauthorized access and attacks. A Cisco VPN helps you:

Use highly secure communications, with access rights tailored to individual users

Quickly add new sites or users, without significantly expanding your existing infrastructure Improve productivity by extending corporate networks, applications, and collaboration tools Reduce communications costs while increasing flexibility

NEW QUESTION 141

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

NEW QUESTION 142

What are three values that must be the same within a sequence of packets for Netflow to consider them a network flow? (Choose three.)

- A. source IP address
- B. source MAC address
- C. egress interface
- D. ingress interface
- E. destination IP address
- F. IP next-hop

Answer: ADE

NEW QUESTION 145

Refer to the exhibit.

```
RouterA#show interface pos8/0/0
POS8/0/0 is up, line protocol is up
Hardware is Packet over Sonet
Keepalive set (10 sec)
Scramble disabled
LMI enq sent 2474988, LMI stat recvd 2474969, LMI upd recvd 0, DTE LMI up
Broadcast queue 0/256, broadcasts sent/dropped 25760668/0, interface broadcasts 25348176
Last input 00:00:00, output 00:00:00, output hang never
Last clearing of "show interface" counters 40w6d
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 39000 bits/sec, 60 packets/sec
 63153396 packets input, 4389121455 bytes, 0 no buffer
  Received 0 broadcasts (0 IP multicast)
   0 runs, 0 giants, 0 throttles
   0 parity
44773 input errors, 39138 CRC, 0 frame, 0 overrun, 0 ignored, 27 abort
945596253 packets output, 62753244360 bytes, 0 underruns
0 output errors, 0 applique, 0 interface resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
```

Which WAN protocol is being used?

- A. ATM
- B. HDLC
- C. Frame Relay
- D. PPP

Answer: C

Explanation: "Show interface pos8/0/0" command showing LMI enq sent which show frame-relay encapsulation enabled on this interface. Cisco supports three different Local Management Interface (LMI) types for Frame Relay: Cisco, ANSI Annex D, and Q933-A Annex A
<http://www.ciscopress.com/articles/article.asp?p=170741&seqNum=3>

NEW QUESTION 147

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 149

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 154

Which statement describes an EIGRP feasible successor route?

- A. Aprimary route, added to the routing table
- B. Abackup route, added to the routing table
- C. Aprimary route, added to the topology table
- D. Abackup route, added to the topology table

Answer: D

NEW QUESTION 155

Which three statements about HSRP operation are true? (Choose three.)

- A. The virtual IP address and virtual MA+K44C address are active on the HSRP Master router.
- B. The HSRP default timers are a 3 second hello interval and a 10 second dead interval.
- C. HSRP supports only clear-text authentication.
- D. The HSRP virtual IP address must be on a different subnet than the routers' interfaces on the same LAN.
- E. The HSRP virtual IP address must be the same as one of the router's interface addresses on the LAN.
- F. HSRP supports up to 255 groups per interface, enabling an administrative form of load balancing.

Answer: ABF

NEW QUESTION 156

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 157

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, youwould 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 161

Scenario

Refer to the topology. Your company has connected the routers R1. R2. and R3 with serial links. R2 and R3 are connected to the switches SW1 and SW2, respectively. SW1 and SW2 are also connected to the routers R4 and R5.

The EIGRP routing protocol is configured.

You are required to troubleshoot and resolve the EIGRP issues between the various routers.

Use the appropriate show commands to troubleshoot the issues.

Topology

EIGRP AS 1

R1

R1#

R2

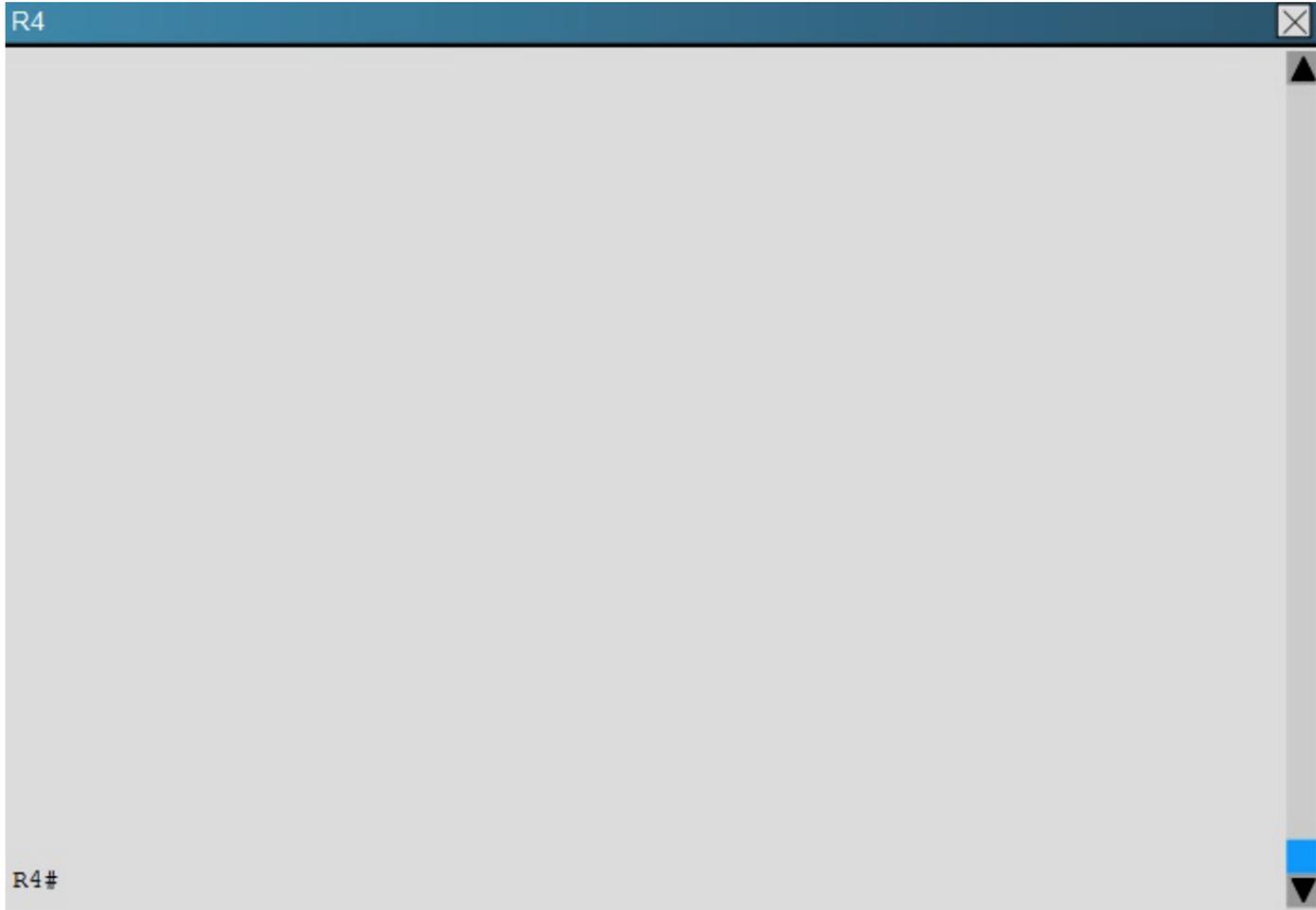
R2#

R3

R3#

The image shows two vertically stacked text input fields. The top field is labeled 'R2' in its title bar and contains the text 'R2#' at the bottom left. The bottom field is labeled 'R3' in its title bar and contains the text 'R3#' at the bottom left. Both fields have a light gray background and a vertical scrollbar on the right side. The title bars are dark blue with a close button icon in the top right corner.

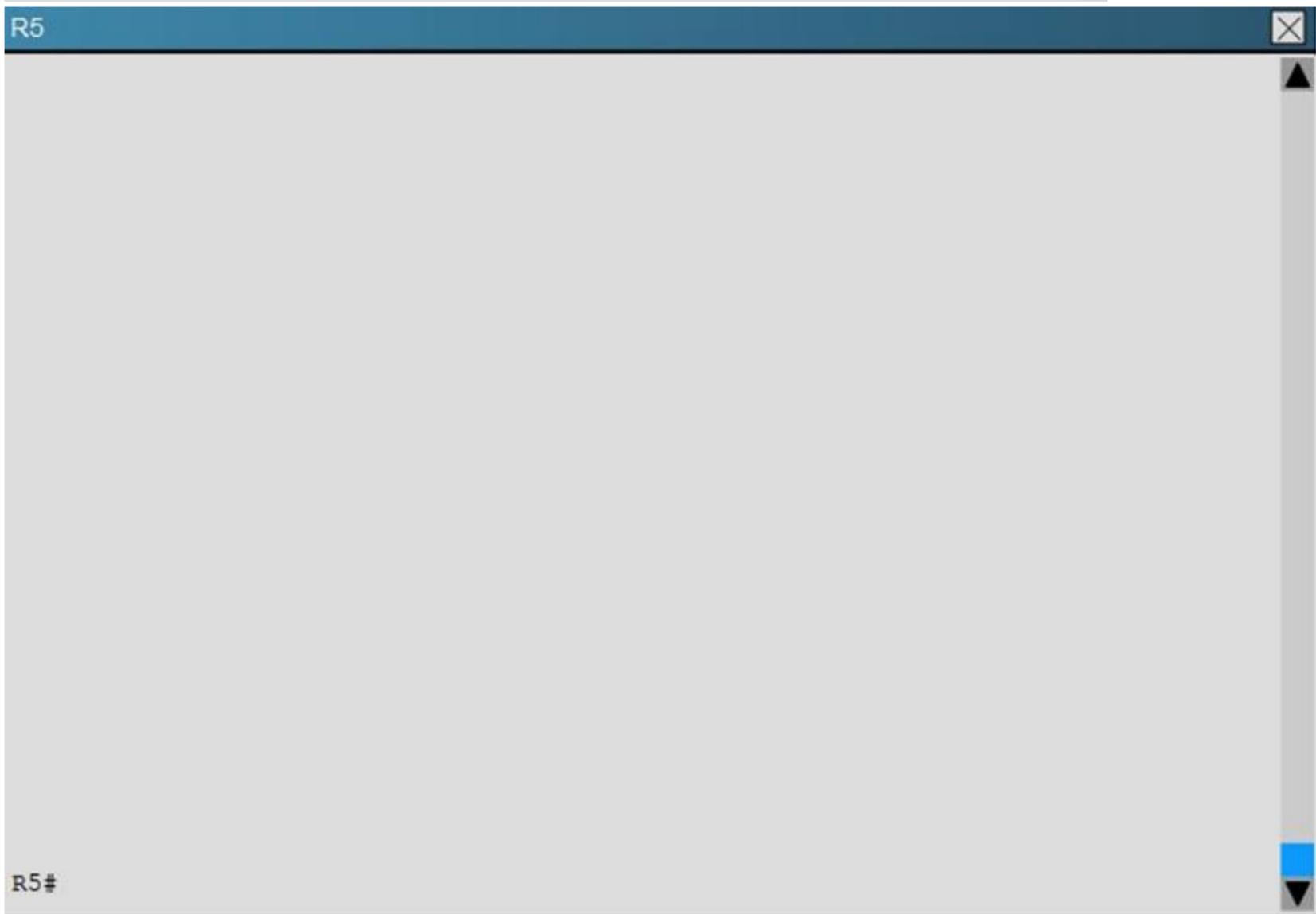
R4



R4#

This is a screenshot of a web browser window titled 'R4'. The window is mostly empty, showing a light gray background. A vertical scrollbar is visible on the right side, with a blue highlight at the bottom. The text 'R4' is in the top-left corner and 'R4#' is in the bottom-left corner.

R5



R5#

This is a screenshot of a web browser window titled 'R5'. The window is mostly empty, showing a light gray background. A vertical scrollbar is visible on the right side, with a blue highlight at the bottom. The text 'R5' is in the top-left corner and 'R5#' is in the bottom-left corner.

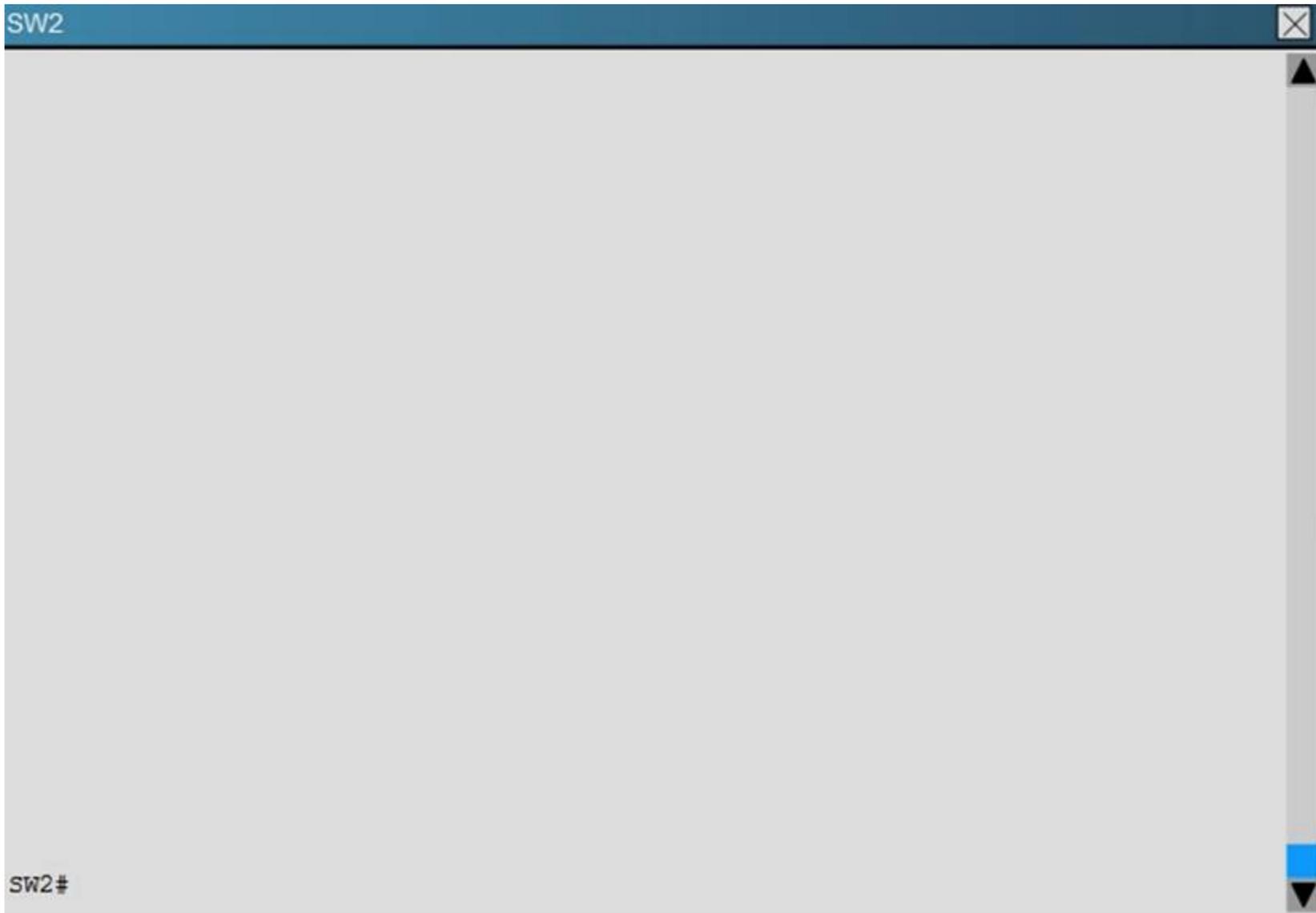
R6

R6#

SW1

SW1#

The image shows two vertically stacked terminal windows. The top window is titled 'R6' and contains the prompt 'R6#'. The bottom window is titled 'SW1' and contains the prompt 'SW1#'. Both windows are currently empty, suggesting they are ready for input but no commands have been entered. The windows have a light gray background and a dark blue title bar with a close button in the top right corner.

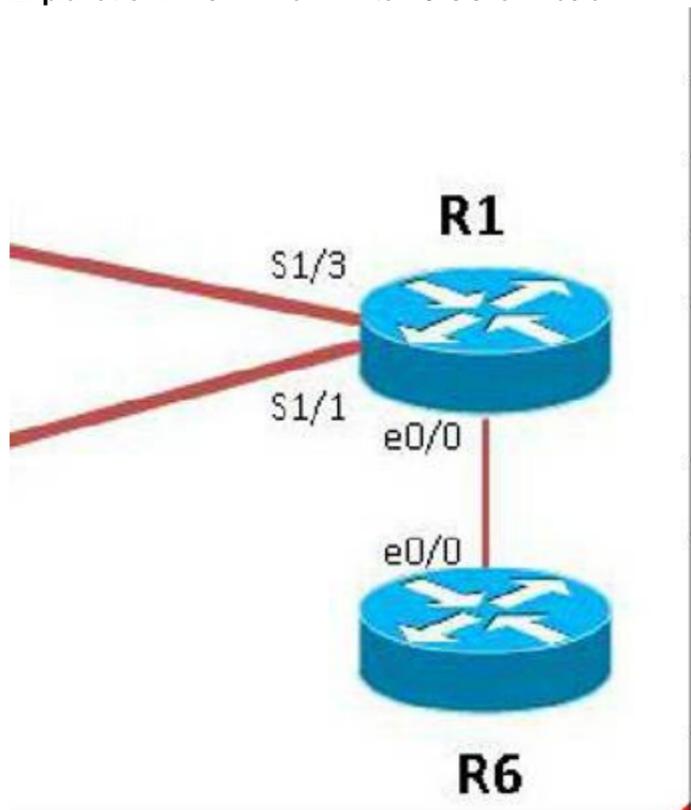


Router R6 does not form an EIGRP neighbor relationship correctly with router R1. What is the cause for this misconfiguration?

- A. The K values mismatch.
- B. The AS does not match.
- C. The network command is missing.
- D. The passive-interface command is enabled.

Answer: C

Explanation: The link from R1 to R6 is shown below:



As you can see, they are both using e0/0. The IP addresses are in the 192.168.16.0 network:

The task is to complete the NAT configuration using all IP addresses assigned by the ISP to provide internet access for the hosts in the weaver LAN. Functionality can be tested by clicking on the host provided for testing.

Configuration information:

Router name – Weaver

Inside global addresses – 198.18.184.105 - 198.18.184.110/29

Inside local addresses – 192.168.100.17 – 192.168.100.30/28

Number of inside hosts 14

Answer:

Explanation: In this case, you have to consider using NAT Overload (or PAT)

Doubleclick on the Weaver router to access the CLI

Router> enable

Router# configure terminal

First you should change the router's name to Weaver:

Router(config)#hostname Weaver

Create a NAT pool of global addresses to be allocated with their netmask:

Weaver(config)# ip nat pool mypool 198.18.184.105 198.18.184.110 netmask 255.255.255.248

Create a standard access control list that permits the addresses that are to be translated: Weaver(config)#access-list 1 permit 192.168.100.16 0.0.0.15

Establish dynamic source translation, specifying the access list that was defined in the prior step:

Weaver(config)#ip nat inside source list 1 pool mypool overload

Finally, we should save all your work with the following command:

Weaver#copy running-config startup-config (Don't forget this)

Check your configuration by going to "Host for testing" and type:

C : \>ping 192.0.2.114

The ping should work well and you will be replied from 192.0.2.114

This command translates all source addresses that pass access list 1, which means a source address from 192.168.100.17 to 192.168.100.30, into an address from the pool named mypool (the pool contains addresses from 198.18.184.105 to 198.18.184.110) Overload keyword allowsto map multiple IP addresses to a single registered IP address (many-to- one) by using different ports.

The question said that appropriate interfaces have been configured for NAT inside and NAT outside statements.

This is how to configure the NAT inside and NAT outside, just for your understanding: Weaver(config)#interface fa0/0

Weaver(config-if)#ip nat inside

Weaver(config-if)#exit

Weaver(config)#interface s0/0

Weaver(config-if)#ip nat outside

Weaver(config-if)#end

NEW QUESTION 173

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 177

A network administrator needs to configure port security on a switch. Which two statements are true? (Choose two.)

- A. The network administrator can apply port security to dynamic access ports.
- B. When dynamic MAC address learning is enabled on an interface, the switch can learn new addresses, up to the maximum defined.
- C. The sticky learning feature allows the addition of dynamically learned addresses to the running configuration.
- D. The network administrator can configure static secure or sticky secure MAC addresses in the voice VLAN.
- E. The network administrator can apply port security to EtherChannels.

Answer: BC

NEW QUESTION 179

It has become necessary to configure an existing serial interface to accept a second Frame Relay virtual circuit. Which of the following are required to solve this?

(Choose three)

- A. configure static frame relay map entries for each subinterface network.
- B. remove the ip address from the physical interface
- C. create the virtual interfaces with the interface command
- D. configure each subinterface with its own IP address
- E. disable split horizon to prevent routing loops between the subinterface networks
- F. encapsulate the physical interface with multipoint PPP

Answer: BCD

Explanation: How To Configure Frame Relay Subinterfaces

<http://www.orbit-computer-solutions.com/How-To-Configure-Frame-Relay-Subinterfaces.php>

Step to configure Frame Relay subinterfaces on a physical interface:

1. Remove any network layer address (IP) assigned to the physical interface. If the physical interface has an address, frames are not received by the local subinterfaces.

2. Configure Frame Relay encapsulation on the physical interface using the encapsulation frame-relay command.

3. For each of the defined PVCs, create a logical subinterface. Specify the port number, followed by a period (.) and the subinterface number. To make troubleshooting easier, it is suggested that the subinterface number matches the DLCI number.

4. Configure an IP address for the interface and set the bandwidth.

5. Configure the local DLCI on the subinterface using the frame-relay interface-dlci command.

Configuration Example: R1>enable R1#configure terminal

R1(config)#interface serial 0/0/0 R1(config-if)#no ip address

R1(config-if)#encapsulation frame-relay R1(config-if)#no shutdown

R1(config-if)#exit

R1(config-subif)#interface serial 0/0/0.102 point-to-point

R1(config-subif)#ip address 192.168.1.245 255.255.255.252

R1(config-subif)#frame-relay interface-dlci 102 R1(config-subif)#end

R1#copy running-config startup-config

NEW QUESTION 181

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 183

Which feature does PPP use to encapsulate multiple protocols?

- A. NCP
- B. LCP
- C. IPCP
- D. IPXP

Answer: A

Explanation: Network Core Protocol (NCP) is the component that encapsulates and configures multiple network layer protocols.

NEW QUESTION 186

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: Why Are OSPF Neighbors Stuck in Exstart/Exchange State? Reference:

http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080093f0d.shtml

NEW QUESTION 187

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, Serial0/01
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

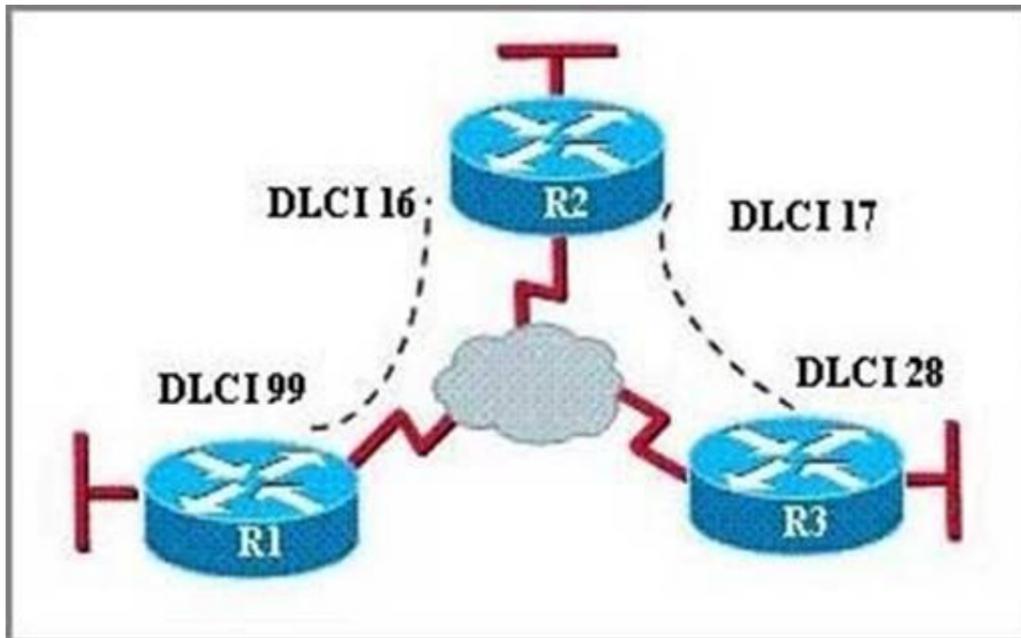
Explanation: CCNA - EIGRP Common Question

<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 189

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.

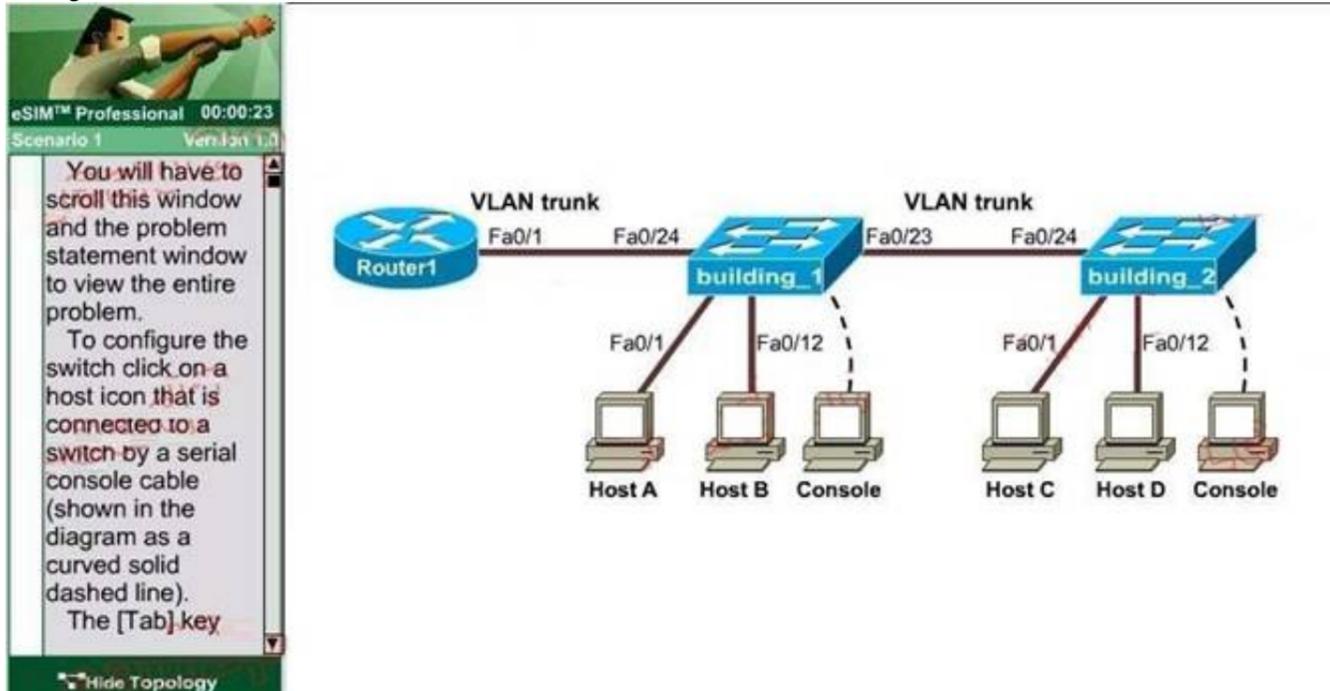
Answer: C

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 194

CORRECT TEXT

A new switch is being added to the River Campus LAN. You will work to complete this process by first configuring the building_2 switch with an IP address and default gateway. For the switch host address, you should use the last available IP address on the management subnet. In addition, the switch needs to be configured to be in the same VTP domain as the building_1 switch and also needs to be configured as a VTP client. Assume that the IP configuration and VTP configuration on building_1 are complete and correct. The configuration of the router is not accessible for this exercise. You must accomplish the following tasks: Determine and configure the IP host address of the new switch. Determine and configure the default gateway of the new switch. Determine and configure the correct VTP domain name for the new switch. Configure the new switch as a VTP client.



Answer:

Explanation: The question states we can't access the router so we can only get required information from switch building_1. Click on the PC connected with switch building_1 (through a console line) to access switch building_1's CLI. On this switch use the show running-config command:
building_1#show running-config
Next use the show vtp status command to learn about the vtp domain on this switch building_1#show vtp status
(Notice: the IP address, IP default-gateway and VTP domain name might be different!!!) You should write down these 3 parameters carefully.
Configuring the new switch
+ Determine and configure the IP host address of the new switch The question requires "for the switch host address, you should use the last available IP address on the management subnet". The building_1 switch's IP address, which is 192.168.22.50 255.255.255.224, belongs to the management subnet.
Increment: 32 (because 224 = 1110 0000)
Network address: 192.168.22.32
Broadcast address: 192.168.22.63
->The last available IP address on the management subnet is 192.168.22.62 and it hasn't been used (notice that the IP address of Fa0/1 interface of the router is also the default gateway address 192.168.22.35).
Also notice that the management IP address of a switch should be configured in Vlan1 interface. After it is configured, we can connect to it via telnet or SSH to manage it. Switch2#configure terminal
Switch2(config)#interface Vlan1
Switch2(config-if)#ip address 192.168.22.62 255.255.255.224
Switch2(config-if)#no shutdown (not really necessary since VLAN interfaces are not physical and are not shut down but, no harm in doing so and is good practice for physical ports)
+ Determine and configure the default gateway of the new switch The default gateway of this new switch is same as that of building_1 switch, which is 192.168.22.35 Switch2(config-if)#exit
Switch2(config)#ip default-gateway 192.168.22.35
+ Determine and configure the correct VTP domain name for the new switch The VTP domain name shown on building_1 switch is Cisco so we have to use it in the new switch (notice: the VTP domain name will be different in the exam and it is case sensitive so be careful)
Switch2(config)#vtp domain Cisco
+ Configure the new switch as a VTP client Switch2(config)#vtp mode client
We should check the new configuration with the "show running-config" & "show vtp status"; also try pinging from the new switch to the the default gateway to make sure it works well. Finally save the configuration:
Switch2(config)#exit
Switch2#copy running-config startup-config

NEW QUESTION 196

Which of these represents an IPv6 link-local address?

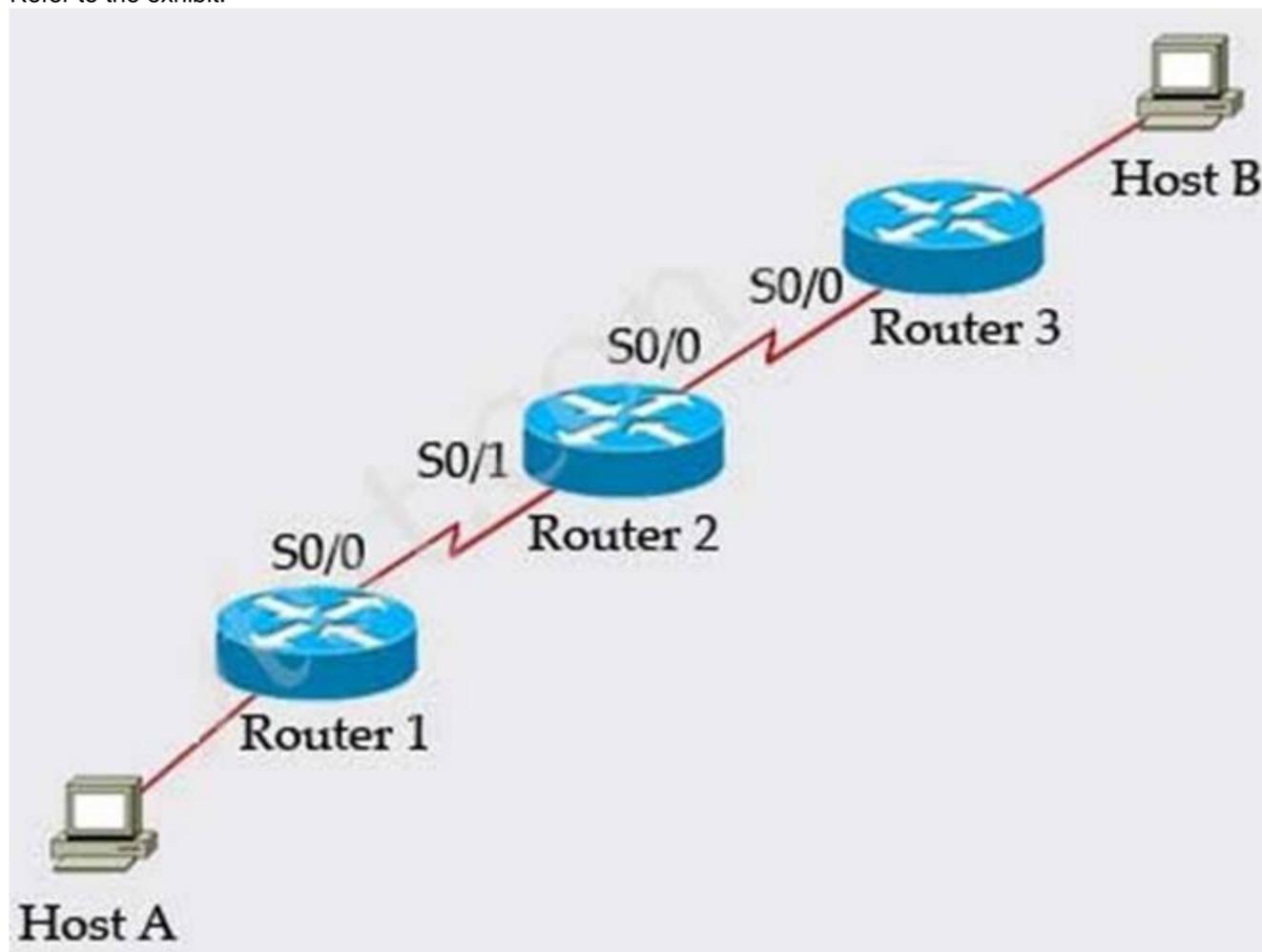
- A. FE80::380e:611a:e14f:3d69
- B. FE81::280f:512b:e14f:3d69
- C. FEFE:0345:5f1b::e14d:3d69
- D. FE08::280e:611:a:f14f:3d69

Answer: A

Explanation: Understanding IPv6 Link Local Address Reference:
http://www.cisco.com/en/US/tech/tk872/technologies_configuration_example09186a0080b_a1d07.shtml
The purpose of this document is to provide an understanding of IPv6 Link-local address in a network. A linklocal address is an IPv6 unicast address that can be automatically configured on any interface using the linklocal prefix FE80::/10 (1111 1110 10) and the interface identifier in the modified EUI-64 format. Link-local addresses are not necessarily bound to the MAC address (configured in a EUI-64 format). Link-local addresses can also be manually configured in the FE80::/10 format using the ipv6 address link-local command.

NEW QUESTION 197

Refer to the exhibit.



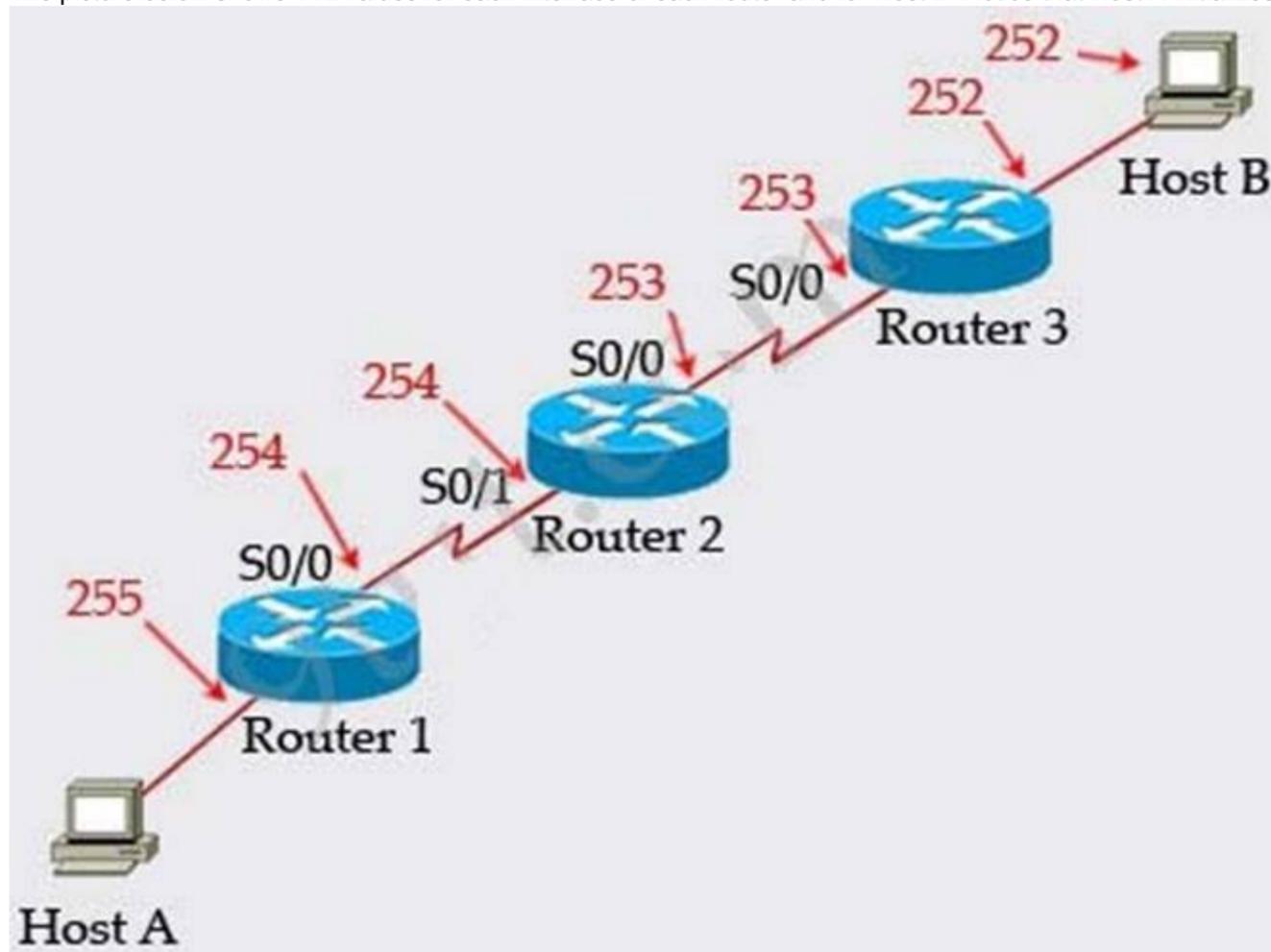
Host A pings interface S0/0 on router 3, what is the TTL value for that ping?

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

Answer: A

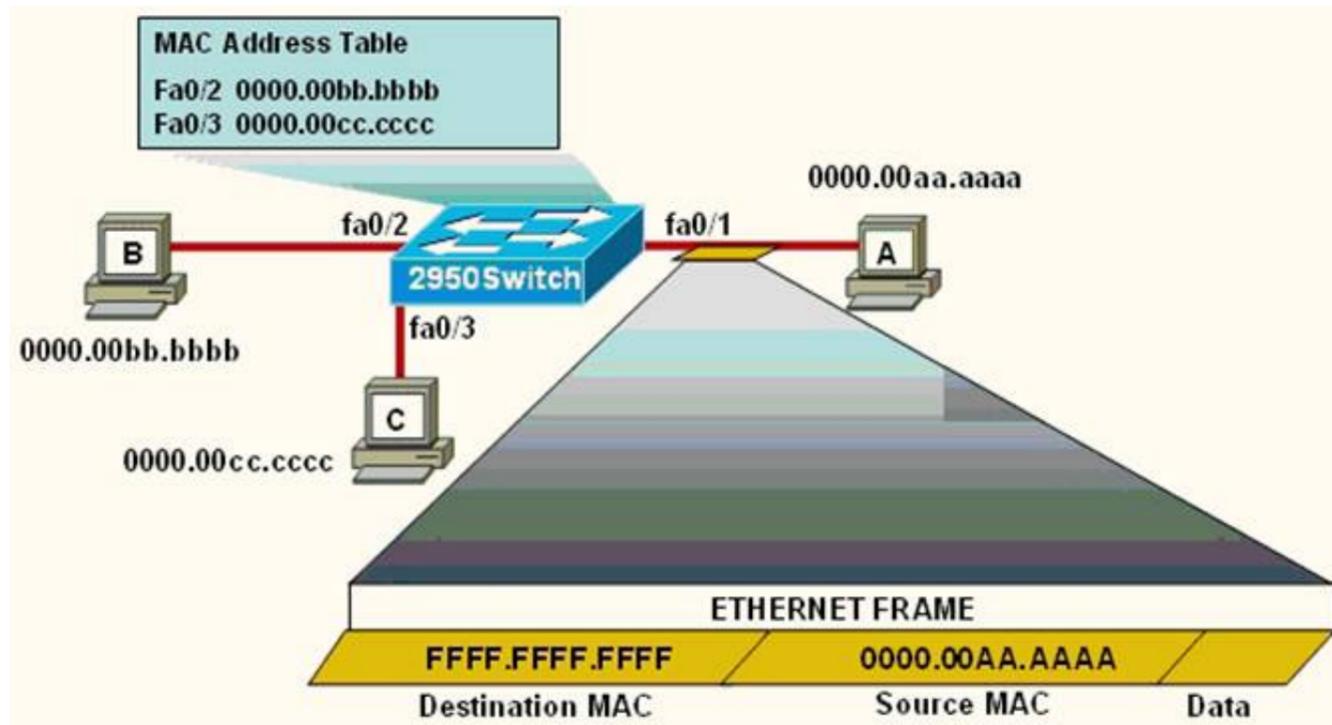
Explanation: From the CCNA ICND2 Exam book: "Routers decrement the TTL by 1 every time they forward a packet; if a router decrements the TTL to 0, it throws away the packet. This prevents packets from rotating forever." I want to make it clear that before the router forwards a packet, the TTL is still 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 200

Refer to the exhibit.



The following commands are executed on interface fa0/1 of 2950Switch.

```
2950Switch(config-if)# switchport port-security
2950Switch(config-if)# switchport port-security mac-address sticky
2950Switch(config-if)# switchport port-security maximum 1
```

The Ethernet frame that is shown arrives on interface fa0/1. What two functions will occur when this frame is received by 2950Switch? (Choose two.)

- A. The MAC address table will now have an additional entry of fa0/1 FFFF.FFFF.FFFF.
- B. Only host A will be allowed to transmit frames on fa0/1.
- C. This frame will be discarded when it is received by 2950Switch.
- D. All frames arriving on 2950Switch with a destination of 0000.00aa.aaaa will be forwarded out fa0/1.
- E. Hosts B and C may forward frames out fa0/1 but frames arriving from other switches will not be forwarded out fa0/1.
- F. Only frames from source 0000.00bb.bbbb, the first learned MAC address of 2950Switch, will be forwarded out fa0/1.

Answer: BD

NEW QUESTION 202

A network administrator is troubleshooting an EIGRP problem on a router and needs to confirm the IP addresses of the devices with which the router has established adjacency.

The retransmit interval and the queue counts for the adjacent routers also need to be checked. What command will display the required information?

- A. Router# show ip eigrp adjacency
- B. Router# show ip eigrp topology
- C. Router#show ip eigrp interfaces
- D. Router#show ip eigrp neighbors

Answer: D

Explanation: Implementing EIGRP

<http://www.ciscopress.com/articles/article.asp?p=1171169&seqNum=3>

Below is an example of the show ip eigrp neighbors command. The retransmit interval (Smooth Round Trip Timer – SRTT) and the queue counts (Q count, which shows the number of queued EIGRP packets) for the adjacent routers are listed:

```
R1#show ip eigrp neighbors
```

```
IP-EIGRP neighbors for process 1
```

```
H Address Interface Hold Uptime SRTT RTO Q Seq (sec) (ms) Cnt Num 0 10.10.10.2 Fa0/0 12 00:00:39 1282 5000 0 3
```

NEW QUESTION 203

CORRECT TEXT

Lab - Access List Simulation

A network associate is adding security to the configuration of the Corp1 router. The user on host C should be able to use a web browser to access financial information from the Finance Web Server. No other hosts from the LAN nor the Core should be able to use a web browser to access this server. Since there are multiple resources for the corporation at this location including other resources on the Finance Web Server, all other traffic should be allowed.

The task is to create and apply a numbered access-list with no more than three statements that will allow ONLY host C web access to the Finance Web Server. No other hosts will have web access to the Finance Web Server. All other traffic is permitted.

Access to the router CLI can be gained by clicking on the appropriate host. All passwords have been temporarily set to "cisco".

The Core connection uses an IP address of 198.18.196.65

The computers in the Hosts LAN have been assigned addresses of 192.168.33.1 – 192.168.33.254

Host A 192.168.33.1

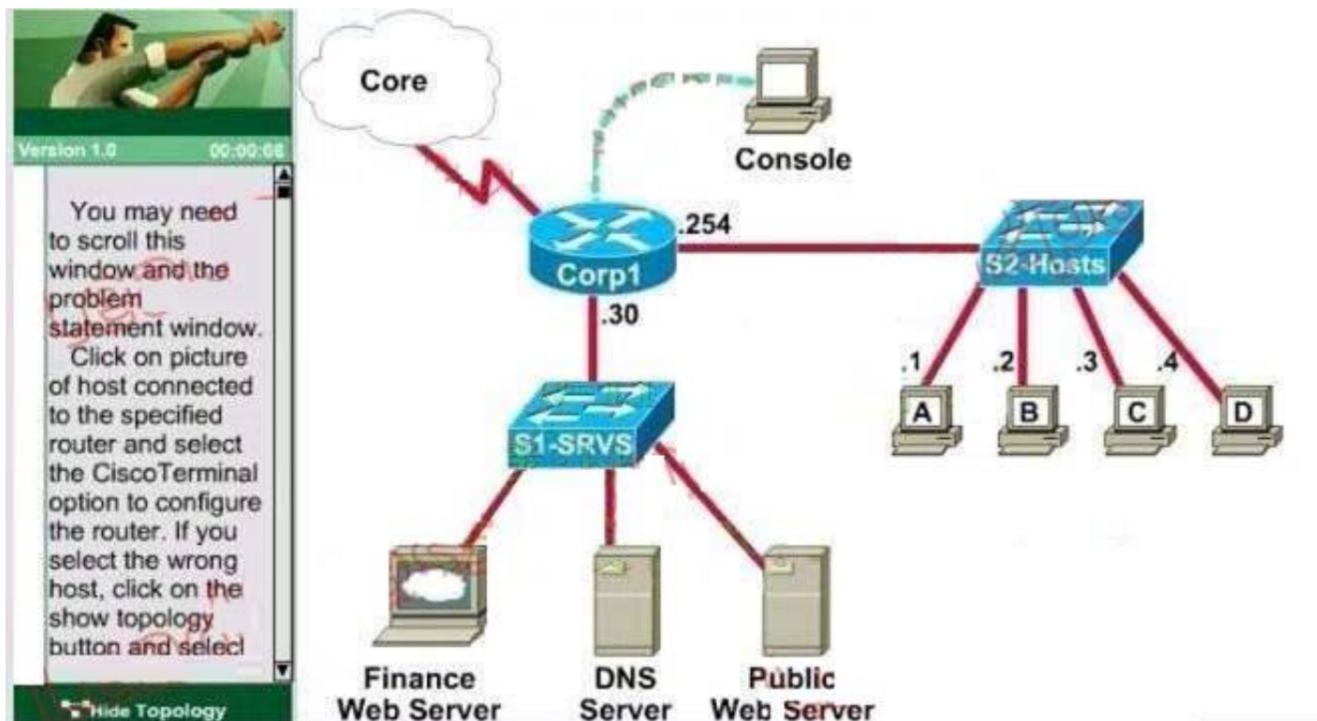
Host B 192.168.33.2

Host C 192.168.33.3

Host D 192.168.33.4

The servers in the Server LAN have been assigned addresses of 172.22.242.17 – 172.22.242.30

The Finance Web Server is assigned an IP address of 172.22.242.23. The Public Web Server is assigned an IP address of 172.22.242.17



Answer:

Explanation: Our access-list needs to allow host C – 192.168.33.3 to the Finance Web Server 172.22.242.23 via web (port80)

```
Corp1(config)#access-list 100 permit tcp host 192.168.33.3 host 172.22.242.23 eq 80
```

Deny other hosts access to the Finance Web Server via web

```
Corp1(config)#access-list 100 deny tcp any host 172.22.242.23 eq 80
```

All other traffic is permitted

```
Corp1(config)#access-list 100 permit ip any any
```

Apply this access-list to Fa0/1 interface (outbound direction)

```
Corp1(config)#interface fa0/1
```

```
Corp1(config-if)#ip access-group 100 out
```

Explanation :
 Select the console on Corp1 router Configuring ACL

```
Corp1>enable Corp1#configure terminal
```

Comment: To permit only Host C (192. 168. 33. 3){source addr} to access finance server address (172.

```
22.242. 23){destination addr} on port number 80 (web) Corp1(config)# access-list 100 permit tcp host 192.168.33.3 host 172.22.242.23 eq 80
```

Comment: To deny any source to access finance server address (172. 22. 242. 23)

```
{destination addr} on port number 80 (web)
```

```
Corp1(config)# access-list 100 deny tcp any host 172.22.242.23 eq 80
```

Comment: To permit ip protocol from any source to access any destination because of the implicit deny any any statement at the end of ACL.

```
Corp1(config)# access-list 100 permit ip any any
```

Applying the ACL on the Interface
 Comment: Check show ip interface brief command to identify the interface type and number by checking the IP address configured.

```
Corp1(config)#interface fa 0/1
```

If the ip address configured already is incorrect as well as the subnet mask. this should be corrected in order ACL to work type this commands at interface mode :

```
no ip address 192. x. x. x 255. x. x. x (removes incorrect configured ip address and subnet mask) Configure
```

Correct IP Address and subnet mask :

```
ip address 172. 22. 242. 30 255. 255. 255. 240 ( range of address specified going to server is given as 172.
```

```
22. 242. 17 172. 22. 242. 30 )
```

Comment: Place the ACL to check for packets going outside the interface towards the finance web server.

```
Corp1(config-if)#ip access-group 100 out Corp1(config-if)#end
```

Important: To save your running config to startup before exit. Corp1#copy running-config startup-config

Verifying the Configuration :

Step1: Show ip interface brief command identifies the interface on which to apply access list . Step2: Click on each host A, B, C & D . Host opens a web browser page , Select address box of the web browser and type the ip address of finance web server(172. 22. 242. 23) to test whether it permits /deny access to the finance web Server.

NEW QUESTION 208

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