

**Exam** : **200-125**

**Title** : CCNA Cisco Certified Network Associate CCNA (v3.0)

**Vendor** : Cisco

**Version** : V25.95

**NO.1** Which command should you enter to configure a device as an NTP sever?

- A. ntp peer
- B. ntp authenticate
- C. ntp sever
- D. ntp master

**Answer:** A

Explanation

[https://www.cisco.com/c/en/us/td/docs/switches/datacenter/nexus5000/sw/system\\_management/503\\_n1\\_1/b\\_cisc](https://www.cisco.com/c/en/us/td/docs/switches/datacenter/nexus5000/sw/system_management/503_n1_1/b_cisc)

**NO.2** Which three options are types of Layer 2 network attacks? (Choose three.)

- A. botnet attacks
- B. spoofing attacks
- C. brute force attacks
- D. DDOS attacks
- E. VLAN hooping
- F. ARP attacks

**Answer:** B E F

**NO.3** Which two statements about EIGRP on IPv6 networks are true? (Choose two)

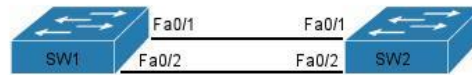
- A. it is globally configured
- B. it is configured on the interface
- C. it supports a shutdown feature
- D. it is configured using a network statement
- E. it is a vendor agnostic.

**Answer:** B C

Explanation

<https://www.cisco.com/c/en/us/support/docs/ip/enhanced-interior-gateway-routing-protocol-eigrp/113267-eigrp->

**NO.4** Refer to the exhibit.



```

SW1#show etherchannel summary
Flags: D - down        P - in port-channel
       I - stand-alone s - suspended
       H - Hot-standby (LACP only)
       R - Layer3       S - Layer2
       U - in use       f - failed to allocate aggregator
       u - unsuitable for bundling
       w - waiting to be aggregated
       d - default port

Number of channel-groups in use: 2
Number of aggregators:          2

Group  Port-channel  Protocol    Ports
-----
1      Pol(SU)        -           Fa0/2(P) Fa0/1(D)

```

```

SW1#show interface fa0/1
FastEthernet0/1 is down, line protocol is down (disabled)
Hardware is Lance, address is 0060.5c11.9501
(bia 0060.5c11.9501)
MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 10Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes);
Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec

```

```

SW2#show etherchannel summary
Flags: D - down        P - in port-channel
       I - stand-alone s - suspended
       H - Hot-standby (LACP only)
       R - Layer3       S - Layer2
       U - in use       f - failed to allocate aggregator
       u - unsuitable for bundling
       w - waiting to be aggregated
       d - default port

Number of channel-groups in use: 2
Number of aggregators:          2

Group  Port-channel  Protocol    Ports
-----
1      Pol(SU)        -           Fa0/2(P) Fa0/1(D)

```

```

SW2#show interface fa0/1
FastEthernet0/1 is down, line protocol is down (disabled)
Hardware is Lance, address is 00d0.97a7.7901
(bia 00d0.97a7.7901)
MTU 1500 bytes, BW 100000 Kbit, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Full-duplex, 100Mb/s
input flow-control is off, output flow-control is off
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes);
Total output drops: 0
Queueing strategy: fifo
Output queue :0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec

```

If the devices produced the given output, what is the cause of the EtherChannel problem?

- A. There is a speed mismatch between SW1's SW2's Fa0/1 interfaces.
- B. There is an encapsulation mismatch between SW1's Fa0/1 and SW2's Fa0/1 interfaces.
- C. SW1's Fa0/1 interface is administratively shut down.
- D. There is an MYU mismatch between SW!'s Fa0/1 interfaces.

**Answer: A**

**NO.5** In which byte of an IP packet can traffic be marked ?

- A. the Tos byte
- B. the Qos byte
- C. the Cos byte
- D. the Dscp byte

**Answer: A**

Reference:

<http://flylib.com/books/2/686/1/html/2/images/1587051990/graphics/13fig01.gif>

**NO.6** . Which two Layer 2 WAN transports are most appropriate to extend Ethernet over a WAN?  
(Choose two)

- A. 802.1Q VLAN tagging
- B. DMVPN
- C. 4GLTE with VPN
- D. Point-to-multipoint service
- E. Point-to-point service

**Answer: D E**

**NO.7** 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

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, including IP. PPP also has built-in security mechanisms, such as Password Authentication Protocol (PAP) and Challenge Handshake Authentication Protocol (CHAP).

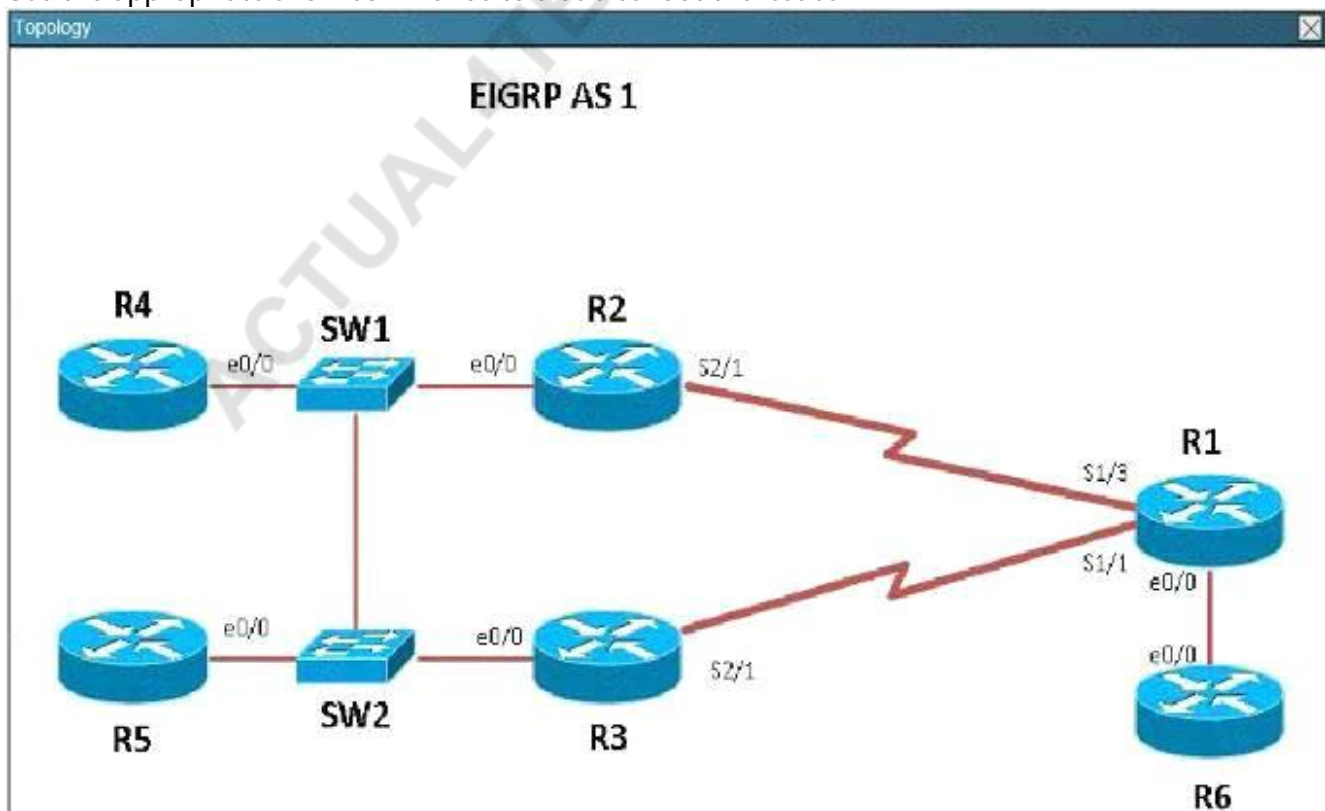
**NO.8** Scenario

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.

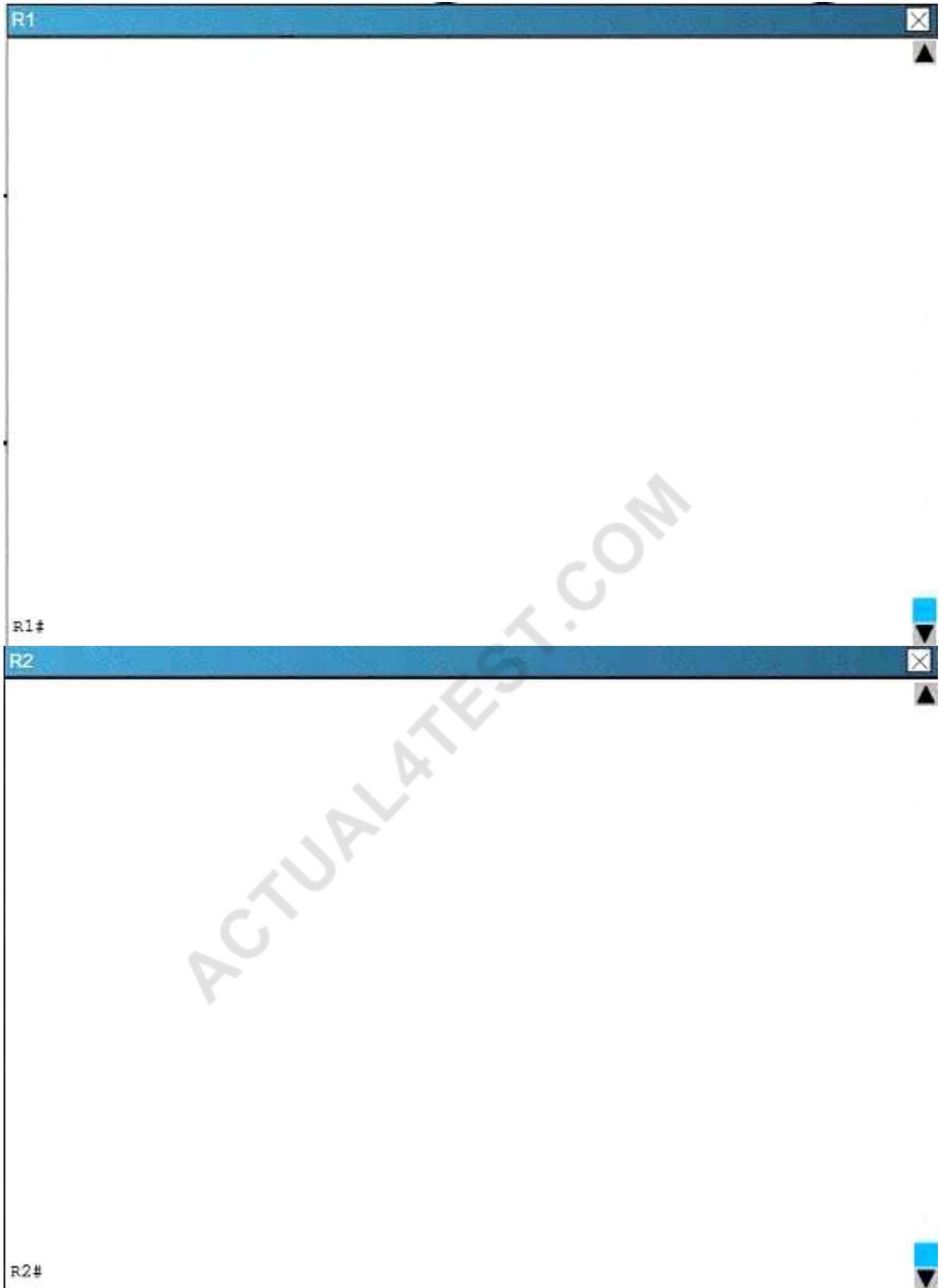
The EIGRP routing protocol is configured.

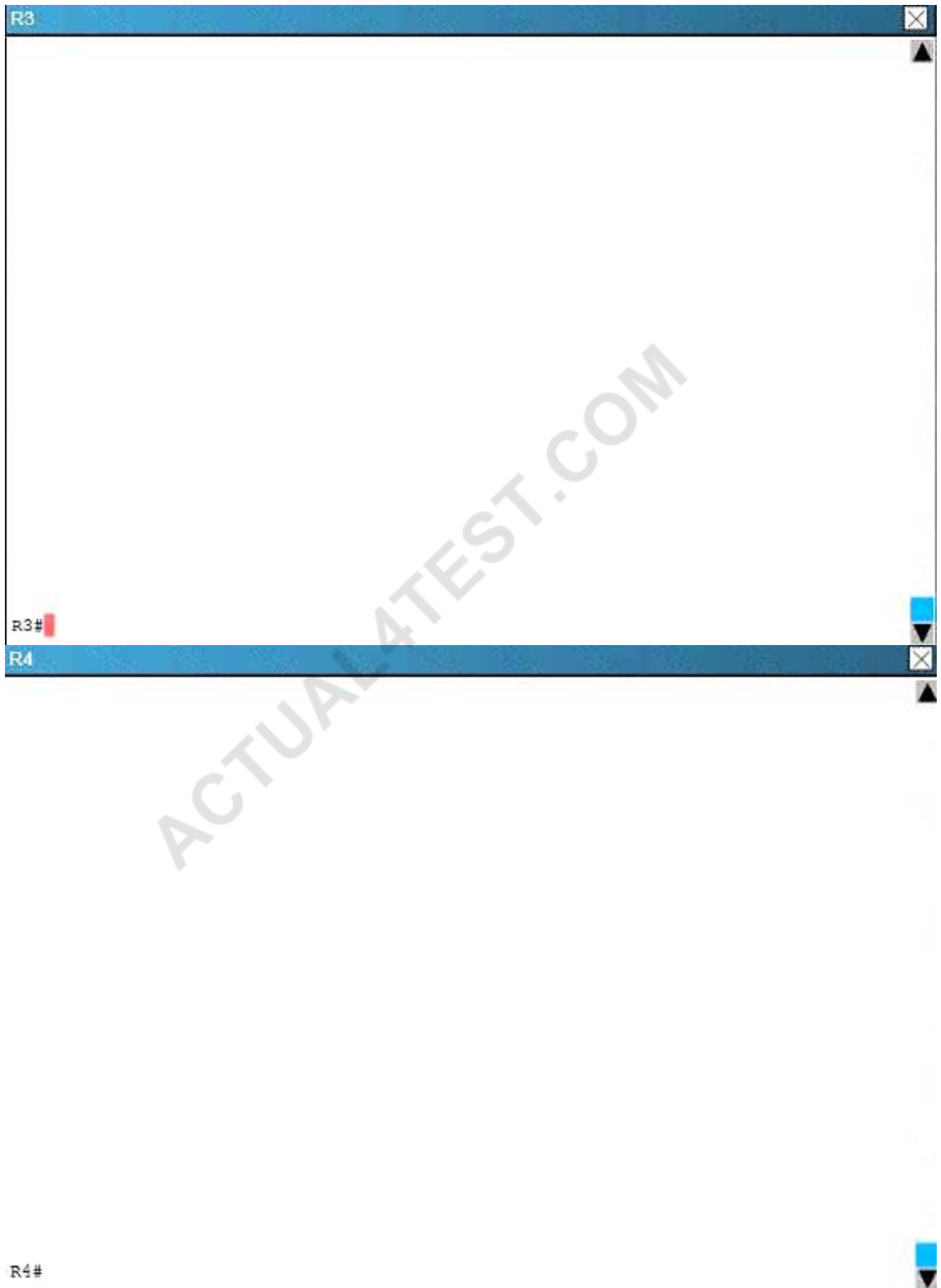
You are required to troubleshoot and resolve the EIGRP issues between the various routers.

Use the appropriate show commands to troubleshoot the issues.









R5



R5#

R6



R6#



SW1



SW1#

SW2



SW2#



The loopback interfaces on R4 with the IP addresses of 10.4.4.4/32, 10.4.4.5/32, and 10.4.4.6/32 are

not appearing in the routing table of R5. Why are the interfaces missing?

- A.** The interfaces are shutdown, so they are not being advertised.
- B.** R4 has been incorrectly configured to be in another AS, so it does not peer with R5.
- C.** Automatic summarization is enabled, so only the 10.0.0.0 network is displayed.
- D.** The loopback addresses haven't been advertised, and the network command is missing on R4.

**Answer:** B

Explanation

For an EIGRP neighbor to form, the following must match:

- Neighbors must be in the same subnet
- K values
- AS numbers
- Authentication method and key strings

Here, we see that R4 is configured for EIGRP AS 2, when it should be AS 1.

R4	R5
<pre> ! interface Ethernet0/2   no ip address   shutdown ! interface Ethernet0/3   no ip address   shutdown ! ! router eigrp 2   network 10.4.4.4 0.0.0.0   network 10.4.4.5 0.0.0.0   network 10.4.4.6 0.0.0.0   network 192.168.123.0 ! ! ip forward-protocol nd ! ! no ip http server no ip http secure-server ! ! ! </pre> <p>--- More (18) ---</p>	<pre> interface Ethernet0/2   no ip address   shutdown ! interface Ethernet0/3   no ip address   shutdown ! ! router eigrp 1   network 10.5.5.5 0.0.0.0   network 10.5.5.55 0.0.0.0   network 10.10.10.0 0.0.0.255   network 192.168.123.0 ! ip forward-protocol nd ! ! no ip http server no ip http secure-server ! ! ! ! ! control-plane </pre>

**NO.9** On which combinations are standard access lists based?

- A.** destination address and subnet mask
- B.** destination address and wildcard mask
- C.** source address and subnet mask
- D.** source address and wildcard mask

**Answer:** D

**NO.10** You are configuring IP SLA ICMP Echo operation to troubleshoot a network connectivity issue. When do you enter an IP address to test the IP SLA?

- A. when you define the ICMP Echo operation
- B. when you enable the ICMP Echo operation
- C. when you verify the IP SLA operation
- D. when you specify the test frequency

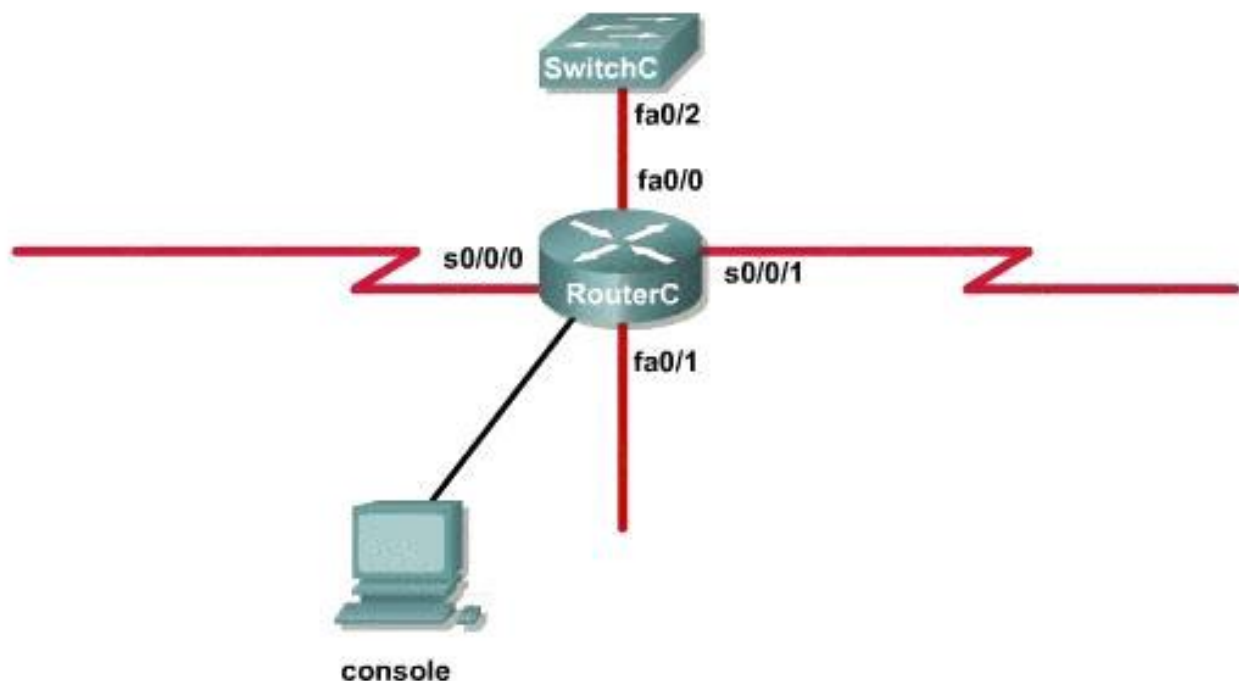
**Answer:** B

**NO.11** An administrator is trying to ping and telnet from SwitchC to RouterC with the results shown below.

```
SwitchC>
SwitchC> ping 10.4.4.3
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.4.4.3, timeout is 2 seconds:
U.U.U
Success rate is 0 percent (0/5)
SwitchC>
SwitchC> telnet 10.4.4.3
Trying 10.4.4.3 ...
% Destination unreachable; gateway or host down
SwitchC>
```

Click the console connected to RouterC and issue the appropriate commands to answer the questions.

#### Topology



RouterC



Press RETURN to get started!  
RouterC>

ACTUAL4TEST.COM



<output omitted>

```
interface Loopback1
 ip address 172.16.4.1.255.255.255.0
!
interface Loopback2
 ip address 10.145.145.1 255.255.255.0
 ipv6 address 2001:410:2:3::/64 eui-64
!
interface FastEthernet0/0
 ip address 10.4.4.3.255.255.255.0
 ip access-group 106 in
 duplex auto
 speed auto
!
interface FastEthernet0/1
 no ip address
 shutdown
 duplex auto
 speed auto
!
interface Serial0/0/0
 bandwidth 64
 no ip address
 ip access-group 102 out
 encapsulation frame-relay
 ip ospf authentication
 ip ospf authentication
 ip ospf authentication-key san-fran
!
interface Serial0/0/0.1 point-to-point
 ip address 10.140.3.2 255.255.255.0
 ip authentication mode eigrp 100 md5
 ip authentication key-chain eigrp 100 icndchain
 frame-relay interface-dlci 120
!
interface Serial0/0/1
 bandwidth 64
 ip address 10.45.45.1 255.255.255.0
 ip access-group 102 in
 ip authentication mode eigrp 100 md5
 ip authentication key-chain eigrp 100 icndchain
 ip ospf authentication
 ip ospf authentication-key san-fran
 ipv6 address 2001:410:2:10::/64 eui-64
!
```



```
router eigrp 100
 network 10.0.0.0
 network 172.16.0.0
 network 192.168.2.0
 not auto-summary
!
router ospf 100
 log-adjacency-changes
 network 10.4.4.3 0.0.0.0 area 0
 network 10.45.45.1 0.0.0.0 area 0
 network 10.140.3.2 0.0.0.0 area 0
 network 192.168.2.62 0.0.0.0 area 0
!
router rip
 version 2
 network 10.0.0.0
 network 172.16.0.0
!
ip default-gateway 10.1.1.2
!
!
ip http server
no ip http secure-server
!
```

```
access-list 102 permit tcp any any eq ftp
access-list 102 permit tcp any any eq ftp-data
access-list 102 deny tcp any any eq telnet
access-list 102 deny icmp any any echo-reply
access-list 102 permit ip any any

access-list 104 permit tcp any any eq ftp
access-list 104 permit tcp any any eq ftp-data
access-list 104 deny tcp any any eq telnet
access-list 104 permit icmp any any echo
access-list 104 deny icmp any any echo-reply
access-list 104 permit ip any any

access-list 106 permit tcp any any eq ftp
access-list 106 permit tcp any any ftp-data
access-list 106 deny tcp any any eq telnet
access-list 106 permit icmp any any echo-reply
access-list 110 permit udp any any eq domain
access-list 110 permit udp any eq domain any
access-list 110 permit tcp any any eq domain
access-list 110 permit tcp any eq domain any
access-list 110 permit tcp any any

access-list 114 permit ip 10.4.4.0.0.0.0.255 any

access-list 115 permit ip 0.0.0.0 255.255.255.0 any

access-list 122 deny tcp any any
access-list 122 deny imp any any echo-reply
access-list 122 permit ip any any
!
```

<output omitted>

What would be the effect of issuing the command `ip access-group 115 in` on the `s0/0/1` interface?

- A. No host could connect to RouterC through `s0/0/1`.
- B. Telnet and ping would work but routing updates would fail.

C. FTP, FTP-DATA, echo, and www would work but telnet would fail.

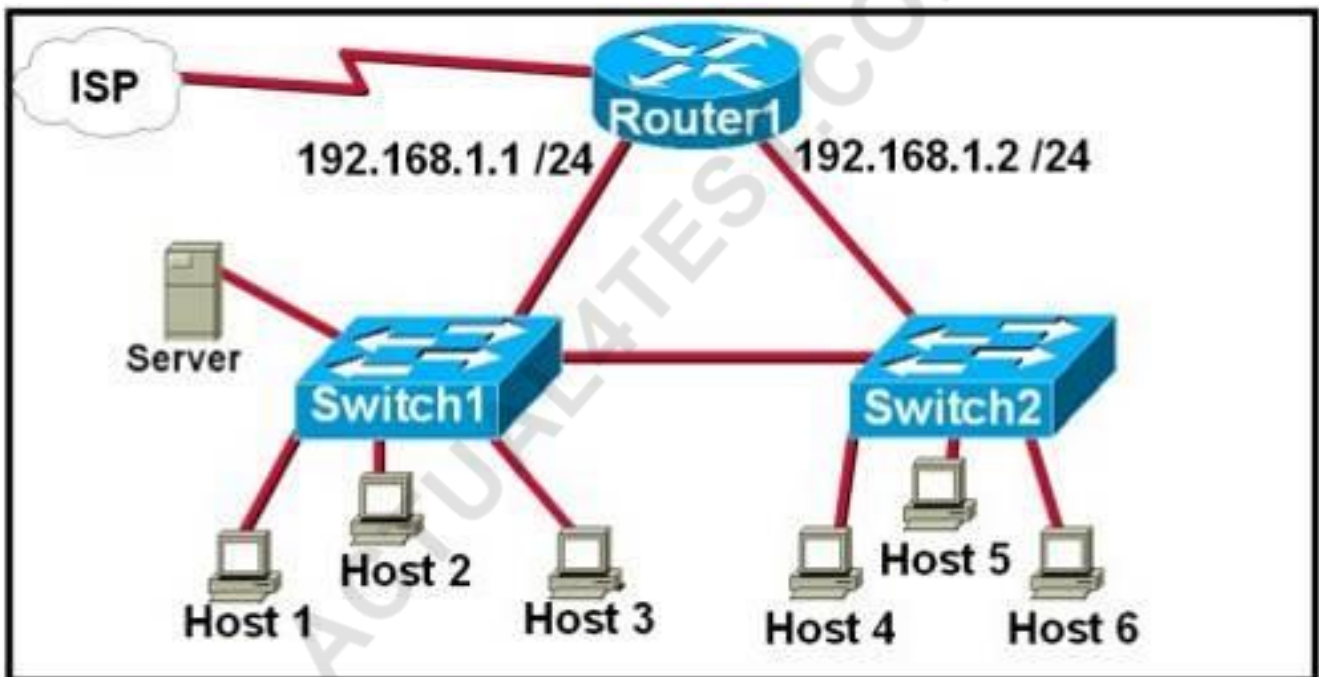
D. Only traffic from the 10.4.4.0 network would pass through the interface.

**Answer:** D

Explanation

From the output of access-list 114: access-list 114 permit ip 10.4.4.0 0.0.0.255 any we can easily understand that this access list allows all traffic (ip) from 10.4.4.0/24 network

**NO.12** Refer to the exhibit.



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

A. This design will function as intended.

B. Spanning-tree will need to be used.

C. The router will not accept the addressing scheme.

D. The connection between switches should be a trunk.

E. The router interfaces must be encapsulated with the 802.1Q protocol.

**Answer:** C

Explanation

Each interface on a router must be in a different network. If two interfaces are in the same network, the router will not accept it and show error when the administrator assigns it.

**NO.13** Refer to the exhibit.



Which command is simplest to configure routing between the regional office network 10.89.0.0/20 and the corporate network?

- A. router2(config)#ip route 0.0.0.0 0.0.0.0 10.89.16.1
- B. router2(config)#ip route 10.89.3.0 255.255.0.0 10.89.16.2
- C. router1(config)#ip route 10.89.0.0 255.255.240.0 10.89.16.1
- D. router1(config)#ip route 10.89.0.0 255.255.240.0 10.89.16.2

**Answer:** A

**NO.14** Which address block identifies all link-local address

- A. fc00::/7
- B. fc00::/8
- C. fe80::/10

**Answer:** C

**NO.15** What is the first step in the NAT configuration process?

- A. Define inside and outside interfaces.
- B. Define public and private IP addresses.
- C. Define IP address pools.
- D. Define global and local interfaces.

**Answer:** A

**NO.16** Which keyword in a NAT configuration enables the use of one outside IP address for multiple inside hosts?

- A. source
- B. static
- C. pool
- D. overload

**Answer:** D

**NO.17** Which two things does a router do when it forwards a packet? (Choose two.)

- A. determines the next hop on the path
- B. switches the packet to the appropriate outgoing interfaces
- C. computes the destination host address
- D. forwards ARP requests
- E. updates the destination IP address

**Answer:** A B

**NO.18** Which interface counter can you use to diagnose a duplex mismatch problem?

- A. no earner
- B. late collisions
- C. giants
- D. CRC errors
- E. deferred
- F. runts

**Answer:** B

**NO.19** Which two statements about IGP and EGP routing protocols are true? (Choose two)

- A. IGP routing protocols are used within internal networks.
- B. Service providers use EGP and BGP for intra AS routing.
- C. EGP routing protocols are used to connect multiple IGP networks.
- D. Service providers use OSPF and IS-IS for intra AS routing.
- E. OSPF, EIGRP and BGP are categorized as IGP routing protocols.

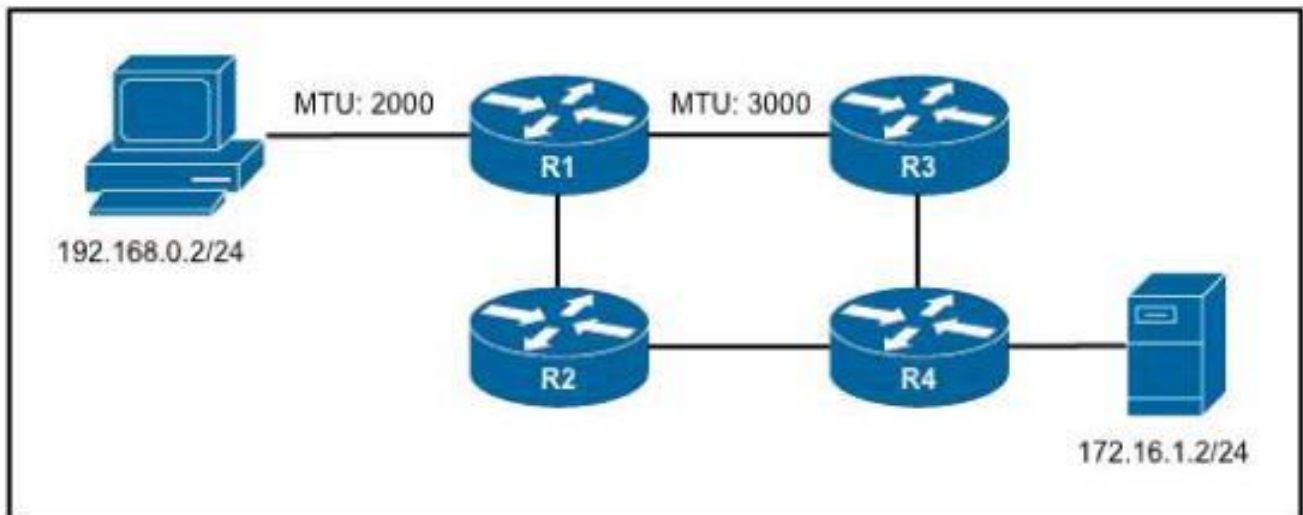
**Answer:** A B

**NO.20** Which two cable specifications can support 1-gbps Ethernet ? choose two

- A. RG-6
- B. RG-11
- C. Category 6
- D. Category 5e
- E. Category 3

**Answer:** C D

**NO.21** Refer to the exhibit.



The server on this network is configured with an MTU of 9216, and the two interfaces on router R1 are configured for MTUs of 2000 and 3000 as shown. What is the largest packet size that can pass between the workstation and the server?

- A. 1500 bytes
- B. 2000 bytes
- C. 3000 bytes
- D. 9216 bytes

**Answer:** A

**NO.22** While troubleshooting a DHCP client that is behaving erratically, you discover that the client has been assigned the same IP address as a printer that is a static IP address. Which option is the best way to resolve the problem?

- A. Configure static route to the client.
- B. Assign the client the same IP address as the router.
- C. Move the client to another IP subnet
- D. Move the printer to another IP subnet.
- E. Reserve the printer IP address.

**Answer:** E

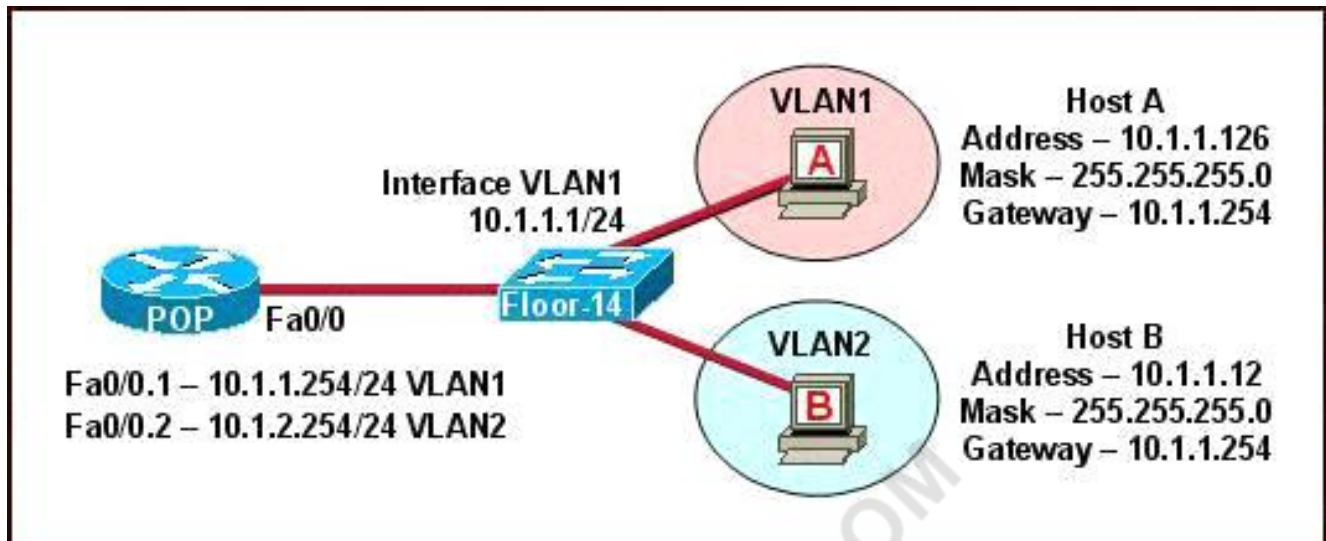
**NO.23** Which action can change the order of entries in a named access list?

- A. opening the access list in Notepad.
- B. resequencing
- C. removing an entry
- D. adding an entry

**Answer:** B

**NO.24** Which IPv6 routing protocol uses multicast group FF02::9 to send updates?

- A. static
- B. RIPng
- C. OSPFv3

**D. IS-IS for IPv6****Answer:** B**NO.25** Refer to the exhibit.

The network shown in diagram is experiencing connectivity problems. Which two configuration changes will correct the problems? (Choose two.)

- A.** Configure the gateway on Host A as 10.1.1.1.
- B.** Configure the gateway on Host B as 10.1.2.254.
- C.** Configure the IP address of Host A as 10.1.2.2.
- D.** Configure the IP address of Host B as 10.1.2.2.
- E.** Configure the masks on both hosts to be 255.255.255.224.
- F.** Configure the masks on both hosts to be 255.255.255.240.

**Answer:** B D**Explanation**

The switch 1 is configured with two VLANs: VLAN1 and VLAN2.

The IP information of member Host A in VLAN1 is as follows:

Address : 10.1.1.126

Mask : 255.255.255.0

Gateway : 10.1.1.254

The IP information of member Host B in VLAN2 is as follows:

Address : 10.1.1.12

Mask : 255.255.255.0

Gateway : 10.1.1.254

The configuration of sub-interface on router 2 is as follows:

Fa0/0.1 -- 10.1.1.254/24 VLAN1

Fa0/0.2 -- 10.1.2.254/24 VLAN2

It is obvious that the configurations of the gateways of members in VLAN2 and the associated network segments are wrong. The layer3 addressing information of Host B should be modified as follows:

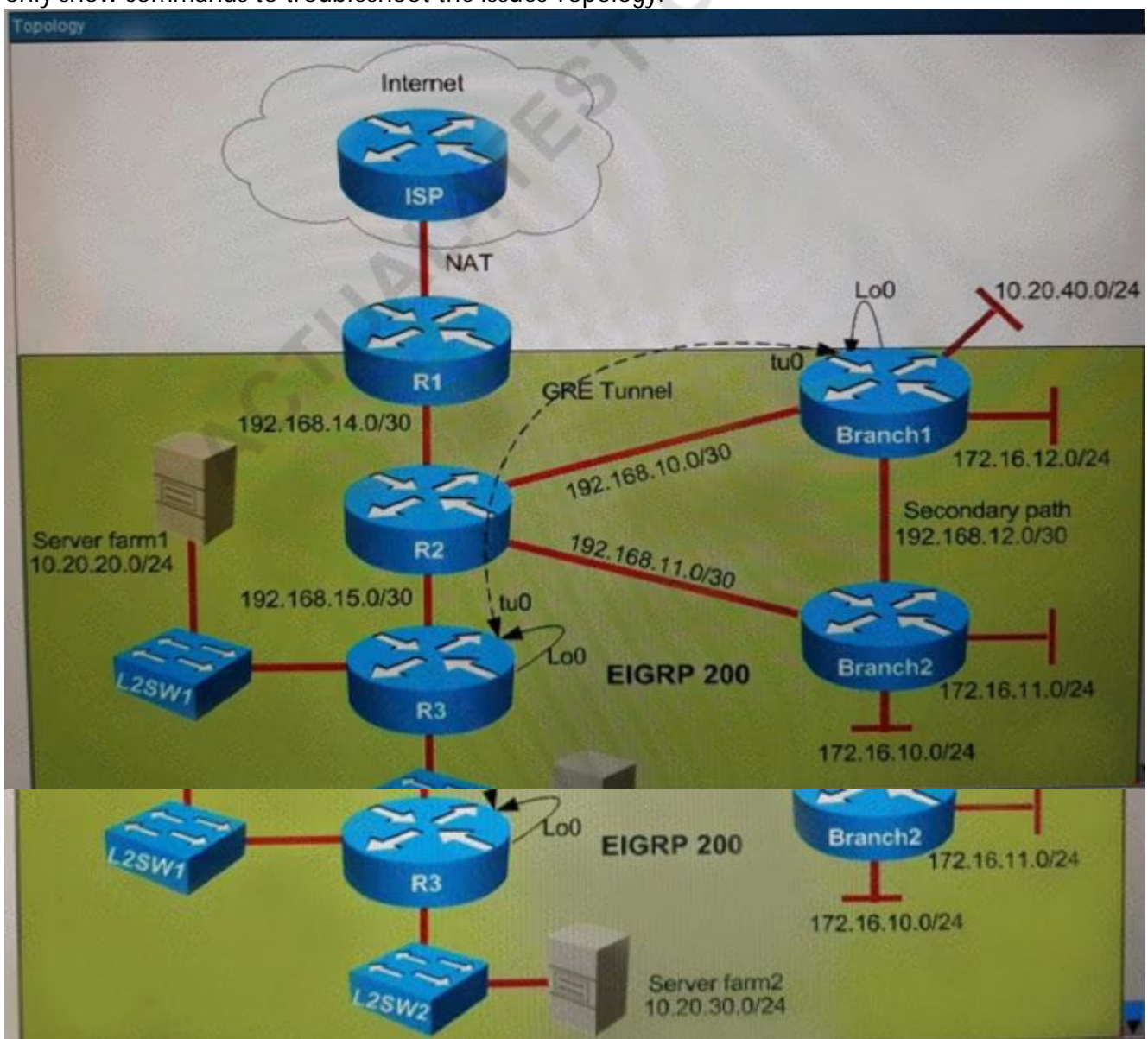
Address : 10.1.2.X

Mask : 255.255.255.0



**NO.26** You are implementing EIGRP between the main office and branch offices. In Phase 1 you must implement and verify EIGRP configurations as mentioned in the topology in Phase 2. your colleague is expected to do NAT and ISP configurations Identity the issues that you are encountering during Phase 1 EIGRP implementation.

- \* Router R1 connects the main office to the Internet and routers R2 and R3 are internal routers
- \* Routers Branch 1 and Branch2 connect to router R2 in the main office.
- \* Users from the Branch1 LAN network 10.20.40.0/24 are expected to perform testing of the application that is hosted on the servers in Server farm1, before servers are available for production
- The GRE tunnel is configured between R3 and Branch1, and traffic between server farm1 and Branch1 LAN network 10.20.40.0/24 is routed through the GRE tunnel using static routes
- \* The link between Branch1 and Branch2 is used as a secondary path in the event of failure of the primary path to mam office You have console access on R1. R2. R3. Branch1, and Branch2 devices Use only show commands to troubleshoot the issues Topology:





```

Branch1
ip address 10.20.40.1 255.255.255.0
!
!
router eigrp 200
 network 10.16.200.2 0.0.0.0
 network 172.16.12.0 0.0.0.255
 network 192.168.10.0
 network 192.168.12.0
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
ip route 10.20.20.0 255.255.255.0 Tunnel
!

```

```

R3
interface Ethernet0/0
 description ***Link to Server farm2***
 ip address 10.20.30.1 255.255.255.0
!
interface Ethernet0/1
 description ***Link to Server farm1***
 ip address 10.20.20.1 255.255.255.0
!
interface Ethernet0/2
 description ***Link to R2***
 ip address 192.168.13.2 255.255.255.252
!
interface Ethernet0/3
 no ip address
 shutdown

```

The GRE tunnel between R3 and Branch1 is down. Which cause of the issue is true?

- A. The tunnel source loopback0 interface is not advertised into EIGRP in Branch1.
- B. The tunnel source loopback0 interface is not advertised into EIGRP in R3.
- C. The EIGRP neighbor relationship was not formed due to EIGRP packets blocked by the inbound ACL on R3.
- D. The EIGRP neighbor relationship was not formed due the IP address being misconfigured between the R2 and R3 interfaces.

**Answer:** B

**NO.27** Which two criteria must be met to support the ICMP echo IP SLA? (Choose two.)

- A. The source and destination devices must be Cisco devices.
- B. The source device must be a Cisco device, but the destination device can be from any vendor.
- C. The source device must be running Layer 2 services.

- D. A default gateway must be configured for the source and destination devices.
- E. The destination device must support the echo protocol.

**Answer:** A E

**NO.28** What is true about Cisco Discovery Protocol ?

- A. it discovers the routers, switches and gateways.
- B. it is network layer protocol
- C. it is physical and data link layer protocol
- D. it is Cisco proprietary protocol

**Answer:** D

**NO.29** Which two statements about PDU encapsulation are true? (Choose two)

- A. During encapsulation, each layer adds a header and trailer to the PDU from the layer below
- B. In the TCP/IP reference model, PDU encapsulation starts on the Internet layer with the data from the application layer
- C. PDU encapsulation takes place only at the transport layer.
- D. In the TCP/IP reference model, PDU encapsulation occurs on the network layer
- E. During encapsulation, each layer adds a header and sometimes adds a trailer to the PDU from the layer above

**Answer:** B C

**NO.30** How to trouble DNS issue ( choose two) ?

- A. Ping a public website IP address.
- B. Ping the DNS Server.
- C. Determine whether a DHCP address has been assigned.
- D. Determine whether the hardware address is correct.
- E. Determine whether the name servers have been configured.

**Answer:** B E

Reference:

[https://l.facebook.com/l.php?u=http%3A%2F%2Fwww.cisco.com%2Fen%2FUS%2Fdocs%2Finternetworking%2Ftroubleshooting%2Fguide%2Ftr1907.html%23wp1021264&h=ATMT6hWMWKar6G3cbMd8vYoG64obKG4CluxXlmcWtCLencP9vUG0hrC3C0azv18aRsmIsdrKko8ew\\_O6UkUwYCVqgYvxTz3TFquXNKyrnrAa1arE1V4HBFjg4\\_E2gJSawoz2\\_g](https://l.facebook.com/l.php?u=http%3A%2F%2Fwww.cisco.com%2Fen%2FUS%2Fdocs%2Finternetworking%2Ftroubleshooting%2Fguide%2Ftr1907.html%23wp1021264&h=ATMT6hWMWKar6G3cbMd8vYoG64obKG4CluxXlmcWtCLencP9vUG0hrC3C0azv18aRsmIsdrKko8ew_O6UkUwYCVqgYvxTz3TFquXNKyrnrAa1arE1V4HBFjg4_E2gJSawoz2_g) Ping the destination by name perform a DNS lookup on the destination

**NO.31** Which type of routing protocol operates by using first information from each device peers?

- A. link-state protocols
- B. distance-vector protocols
- C. path-vector protocols
- D. exterior gateway protocols

**Answer:** A

**NO.32** Which prompt does a Cisco switch display when it is running in privileged exec mode?

- A. switch>
- B. switch#
- C. switch(config)#
- D. switch(config-if)#

**Answer:** B

**NO.33** Which three statements about DWDM are true? (Choose three)

- A. It allows a single strand of fiber to support bidirectional communications
- B. It is used for long-distance and submarine cable systems
- C. It can multiplex up to 256 channels on a single fiber
- D. It supports both the SDH and SONET standards
- E. Each channel can carry up to a 1-Gbps signal
- F. It supports simplex communications over multiple strands of fiber

**Answer:** C D E

Explanation

ref:

[https://www.cisco.com/en/US/products/hw/optical/ps2011/products\\_data\\_sheet09186a008012a900.html](https://www.cisco.com/en/US/products/hw/optical/ps2011/products_data_sheet09186a008012a900.html)

**NO.34** Which Rapid PVST+ port role provides a different path to the root bridge?

- A. alternate
- B. designated
- C. forwarding
- D. backup

**Answer:** A

**NO.35** Which two pieces of information can you learn by viewing the routing table? (Choose two )

- A. the length of time that a route has been known
- B. the EIGRP or BGP autonomous system
- C. whether the administrative distance was manually or dynamically configured
- D. which neighbor adjacencies are established
- E. whether an ACL was applied inbound or outbound to an interface

**Answer:** C D

**NO.36** Which plane handles switches traffic through a Cisco router ?

- A. data
- B. performance
- C. control
- D. management

**Answer:** A

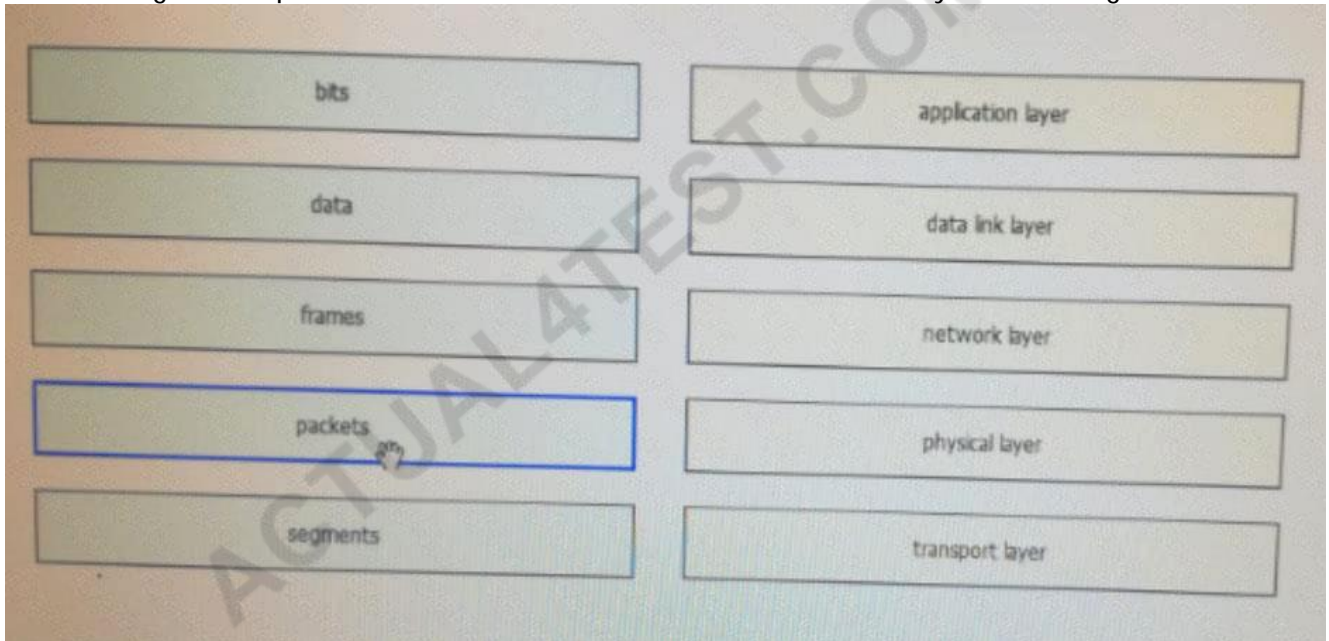
**NO.37** Which three statements are typical characteristics of VLAN arrangements? (Choose three.)

- A. VLANs cannot span multiple switches.

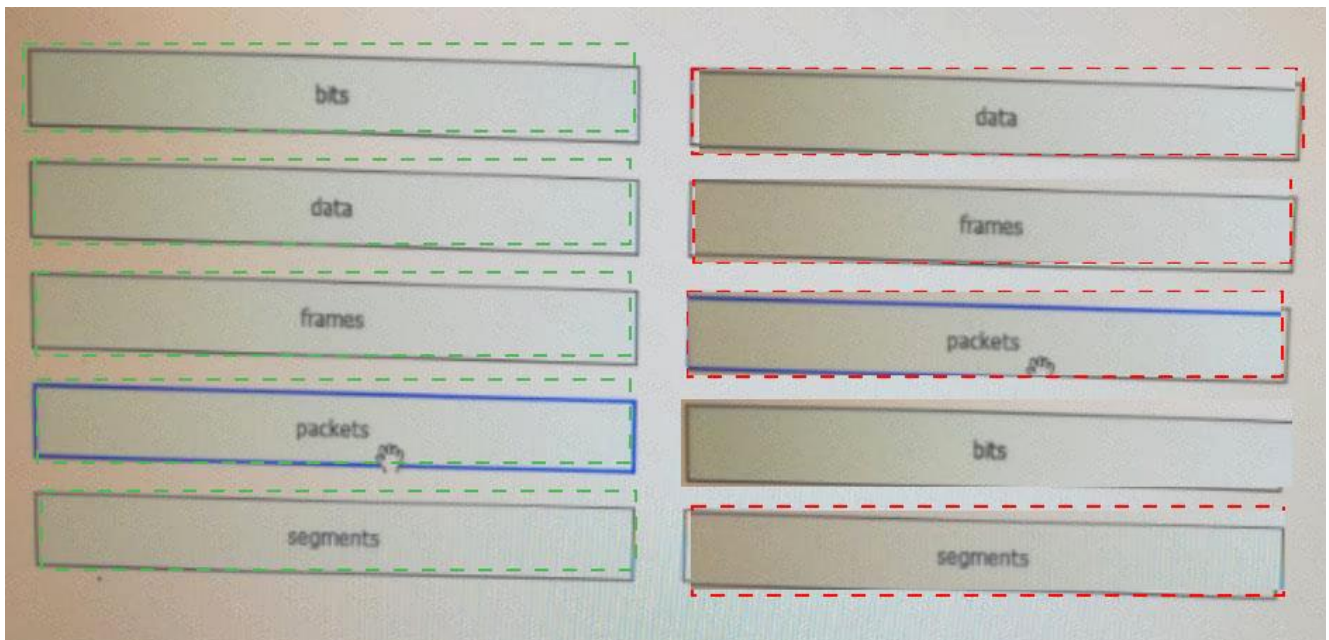
- B. VLANs typically decrease the number of collision domains.
- C. Connectivity between VLANs requires a Layer 3 device.
- D. Each VLAN uses a separate address space.
- E. A new switch has no VLANs configured.
- F. A switch maintains a separate bridging table for each VLAN.

**Answer:** C D F

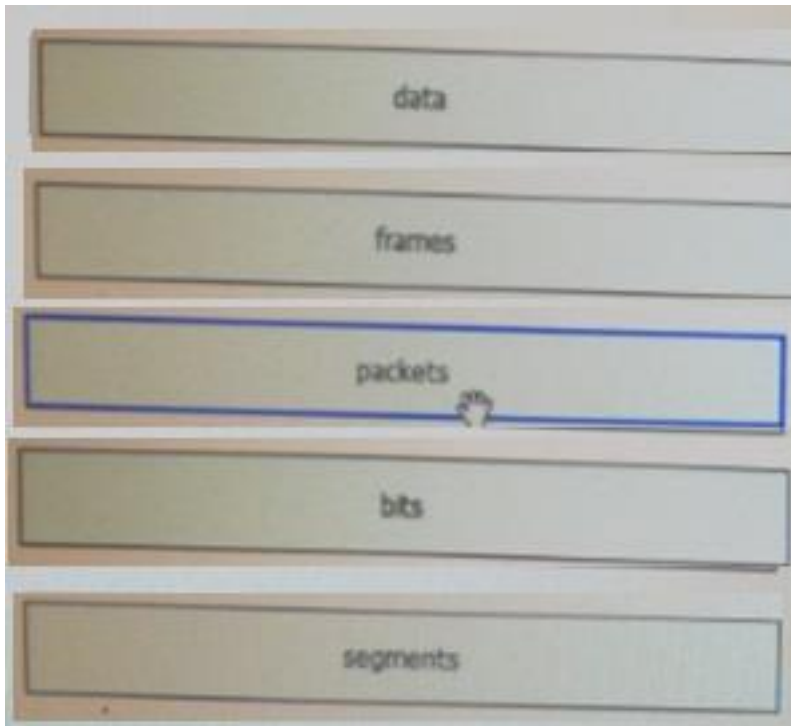
**NO.38** Drag and drop the PDUs from the left onto the correct TCP/IP layers on the right.



**Answer:**



Explanation



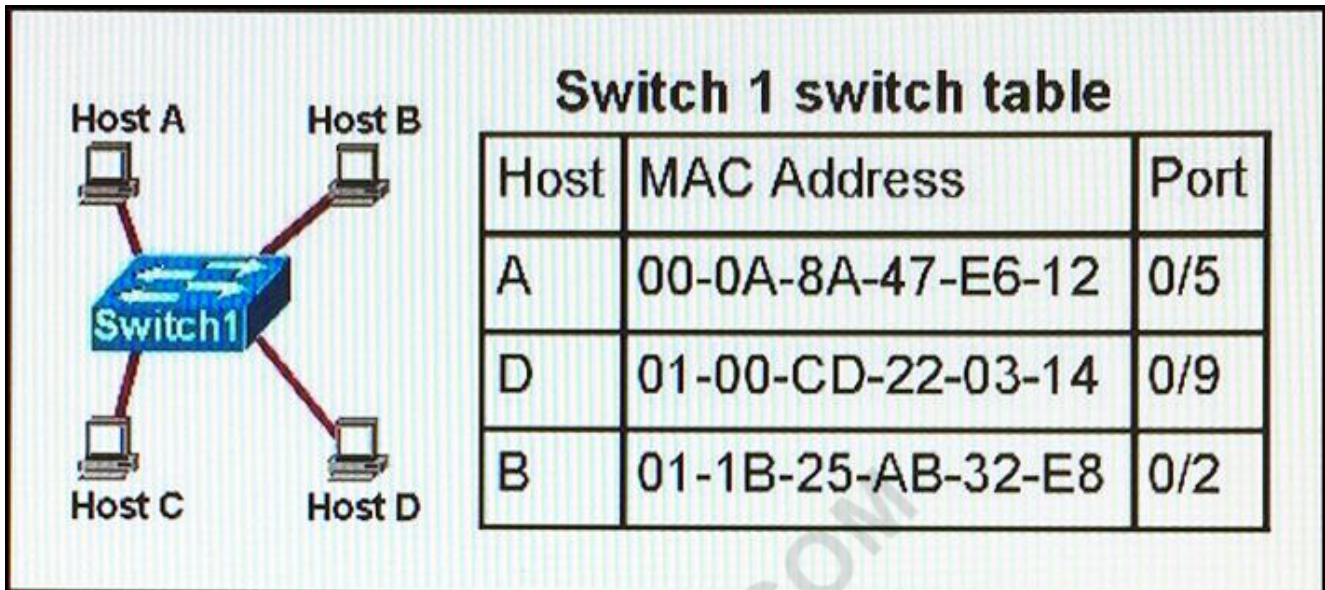
<http://knutsonco.tripod.com/id9.html>

Here, is a table constructed to show you how OSI compares with TCP/IP, and how they both correspond with Encapsulation units (PDUs).

OSI #	OSI Layer Name	TCP/IP #	TCP/IP Layer Name	TCP/IP protocols at each TCP/IP Layer	TCP Utilities	Encapsulation Units (PDUs)
7	Application	4	Application	FTP, HTTP, SMTP, DNS, TFTP	Telnet	Data
6	Presentation	4	Application	FTP, HTTP, SMTP, DNS, TFTP	Telnet	Data
5	Session	4	Application	FTP, HTTP, SMTP, DNS, TFTP	Telnet	Data
4	Transport	3	Transport	TCP	NONE	Segment
3	Network	2	Internet	IP	Ping Trace	Packet
2	Datalink	1	Network Access	NONE	NONE	Frames
1	Physical	1	Network Access	NONE	NONE	Bits

**NO.39**





Refer to the topology and switching table shown in the graphic. Host B sends a frame to Host C. Which option describes what the switch will do with the frame?

- A. send an ICMP Host Unreachable message to Host B
- B. return the frame to Host B
- C. drop the frame
- D. send the frame out all ports except port 0/2
- E. record the destination MAC address in the switching table and send the frame directly to Host C
- F. send an ARP request for Host C

**Answer:** D

**NO.40** Which statement about NTP is true?

- A. The default authentication key number is 1.
- B. The default source address of an NTP message is the interface connected to the next-hop for the server peer address.
- C. The default stratum number is 5.
- D. Each device is enabled as a server by default and propagates NTP messages to all peers on its default LAN.

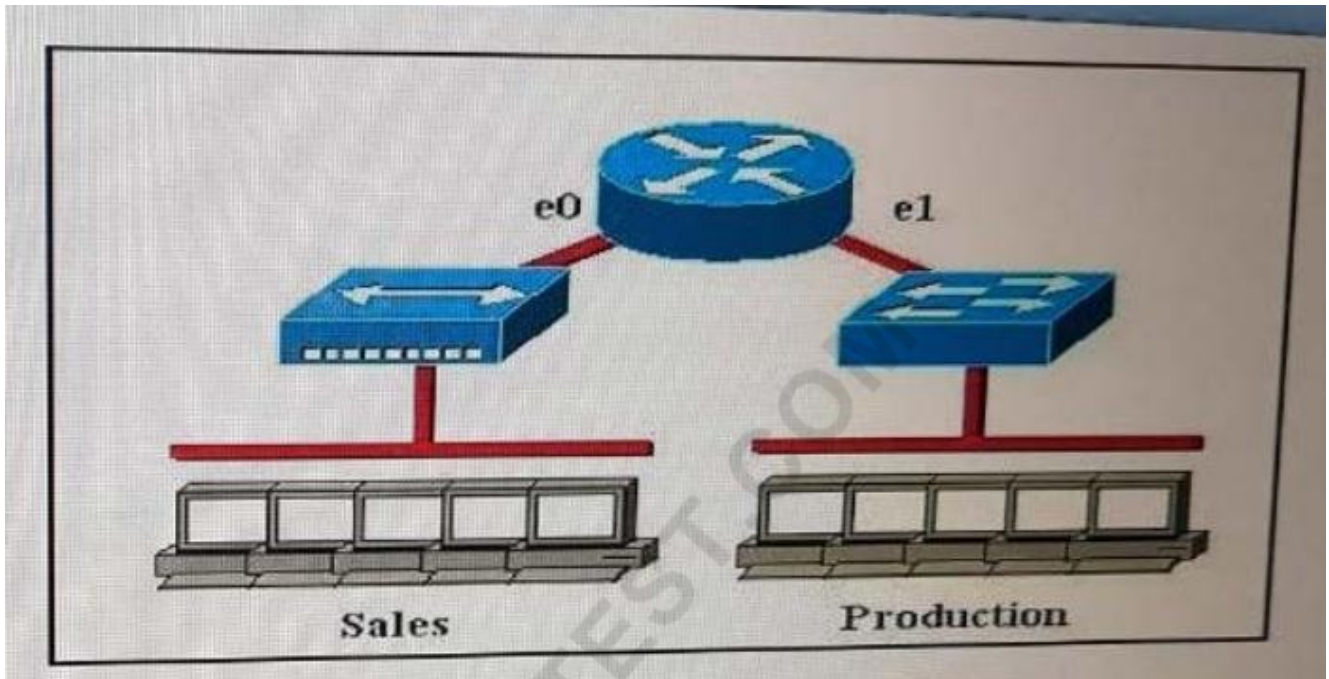
**Answer:** B

**NO.41** What are two reasons to use multicast to deliver video traffic, instead of unicast or broadcast? (Choose two )

- A. It enables multiple clients to send video streams simultaneously
- B. It enables multiple servers to send video streams simultaneously.
- C. It enables multiple clients to receive the video stream simultaneously.
- D. It supports distributed applications.
- E. It provides reliable TCP transport.

**Answer:** B C

**NO.42** Refer to the exhibit.



Which two statements describe the network shown in the graphic? (Choose two)

- A. There are two broadcast domains in the network.
- B. There are four broadcast domains in the network.
- C. There are seven collision domains in the network.
- D. There are six broadcast domains in the network.
- E. There are five collision domains in the network.
- F. There are four collision domains in the network.

**Answer:** A C

**NO.43** Which option describes a benefit of a point-to-point leased line?

- A. full-mesh capability
- B. flexibility of design
- C. low cost
- D. simplicity of configuration

**Answer:** D

**NO.44** which feature must you enable to distribute vlans automatically across multiple switch ?

- A. configure NTP
- B. Configure the native VLAN
- C. Define Each vlan
- D. configure VTP

**Answer:** D

**NO.45** Which command can you enter to assign an interface to the default VLAN?

- A. Switch(config-if)# switchport access vlan 1
- B. Switch(config-if)# switchport trunk native vlan 1
- C. Switch(config-if)# vlan 1

D. Switch(config)# int vlan 1

**Answer:** A

**NO.46** From which PPPoE server configuration does a PPPoE client get an IP address?

A. AAA authentication

B. DHCP

C. dialer interface

D. virtual-template interface

**Answer:** D

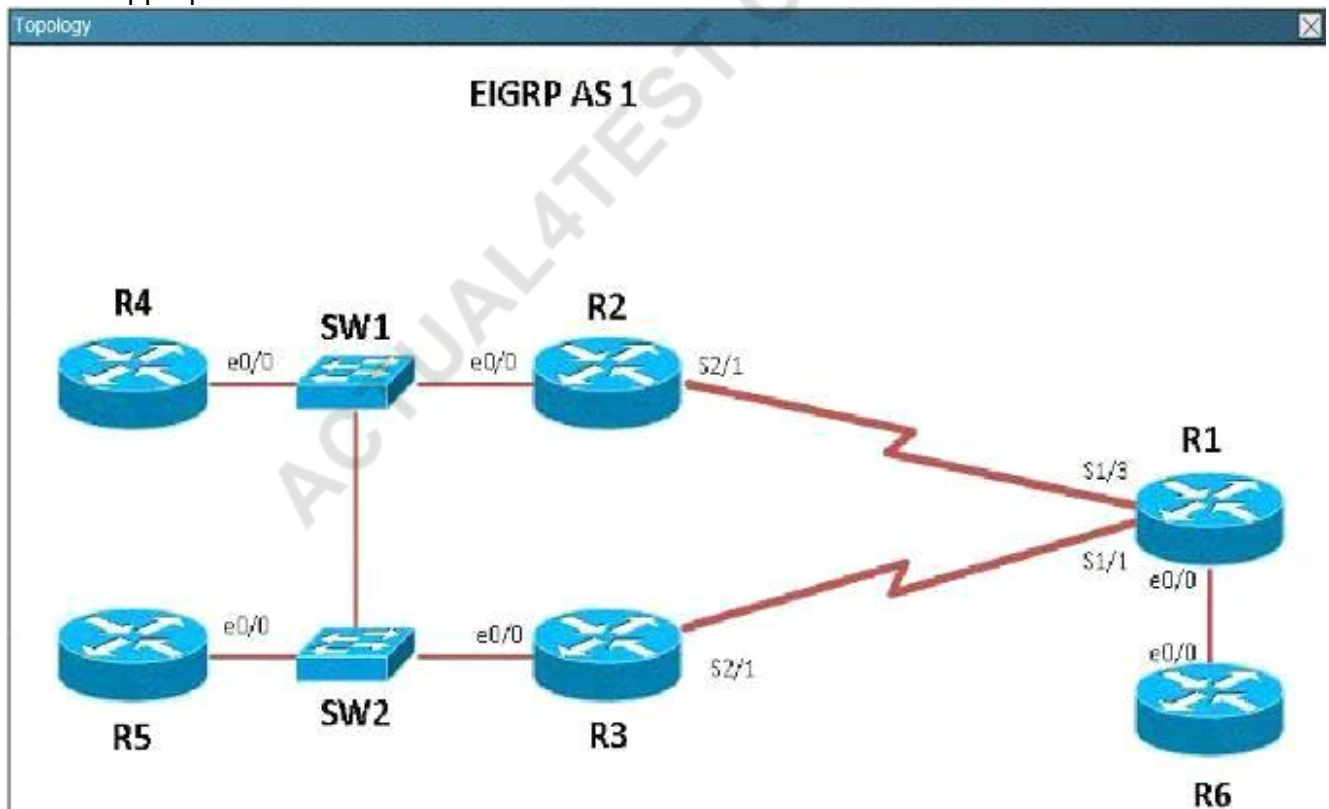
**NO.47** Scenario

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.

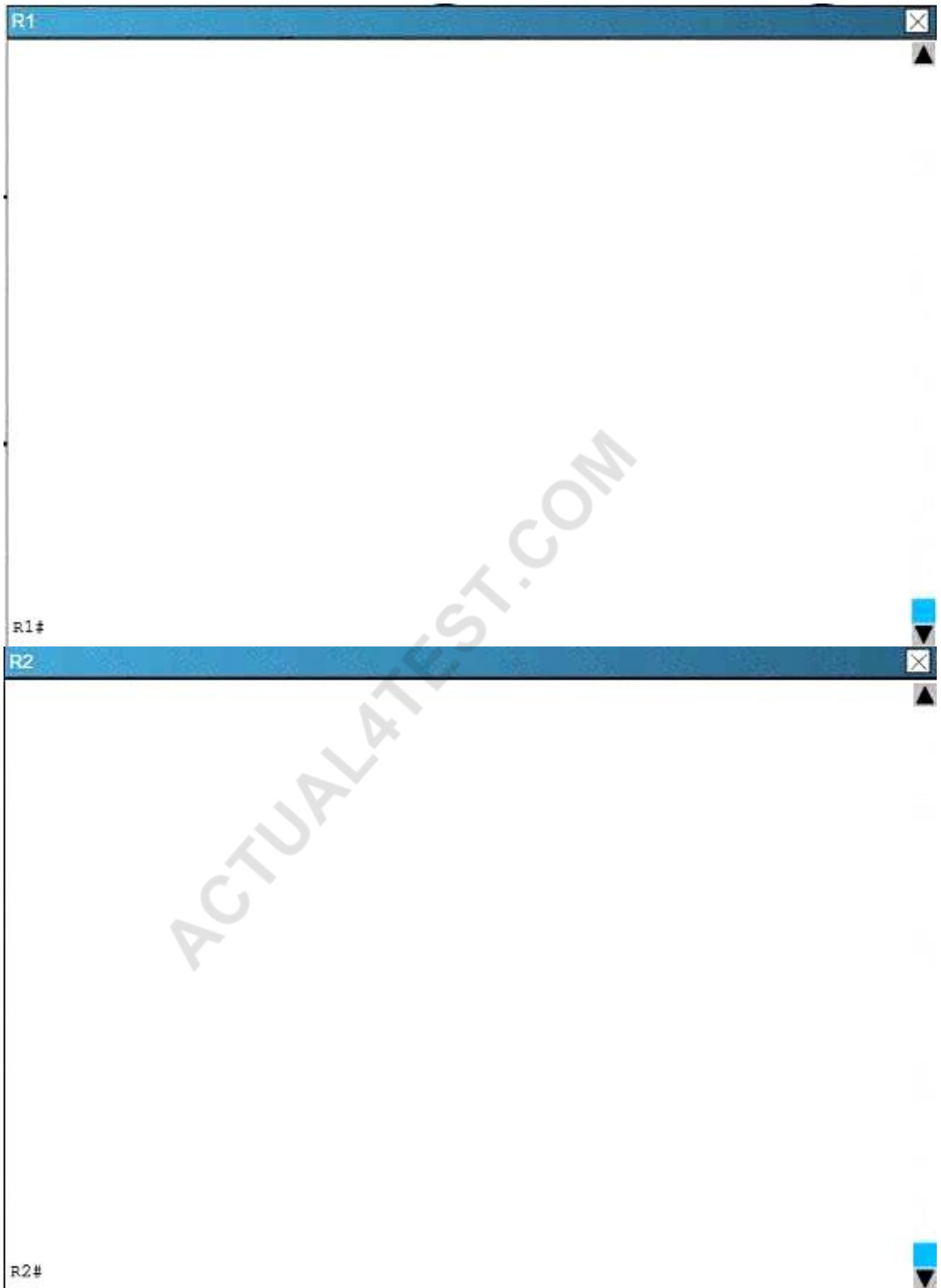
The EIGRP routing protocol is configured.

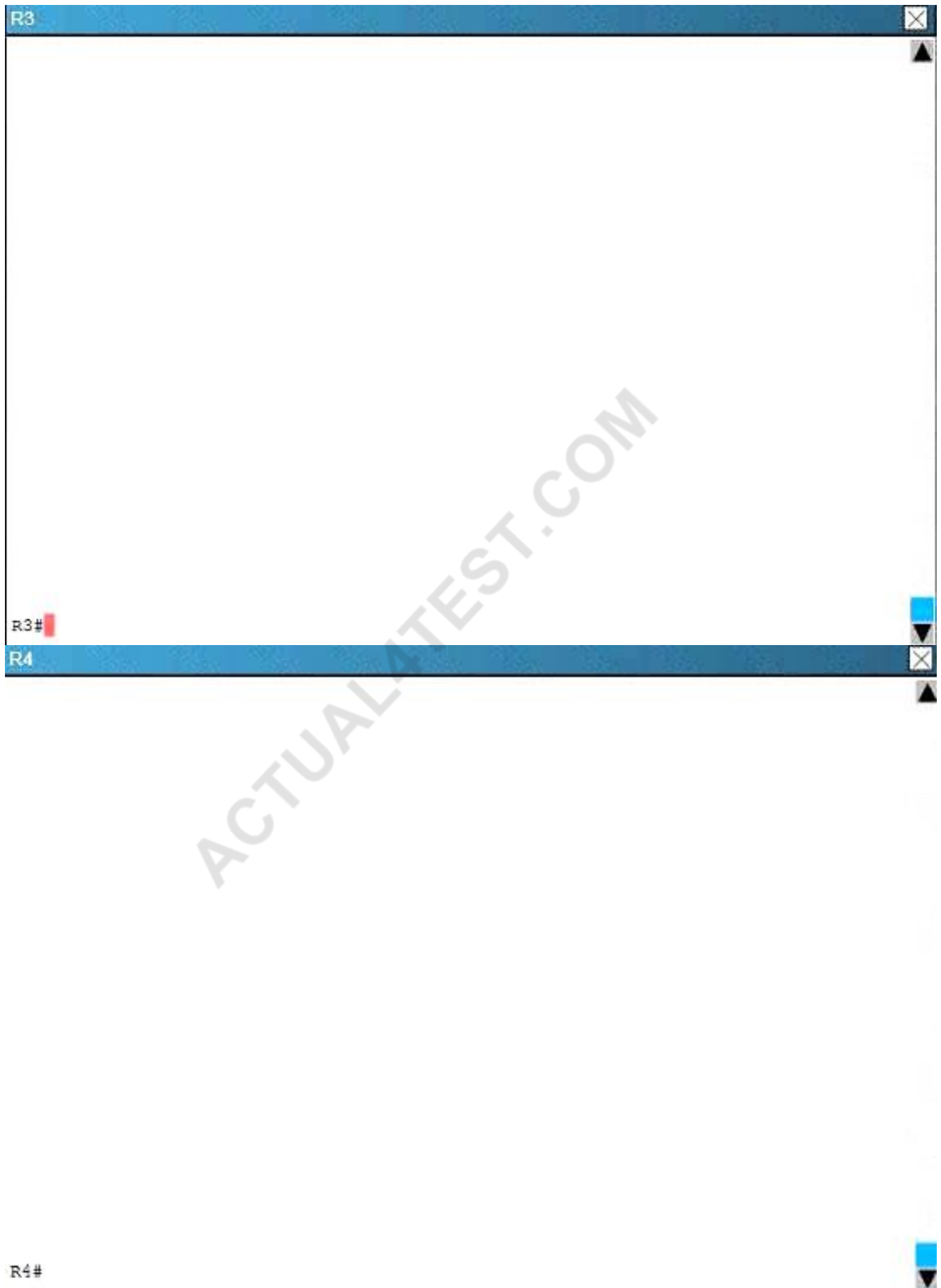
You are required to troubleshoot and resolve the EIGRP issues between the various routers.

Use the appropriate show commands to troubleshoot the issues.









R5



R5#



R6



R6#



SW1



SW1#



SW2



SW2#



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

.....

Success rate is 0 percent (0/5)

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

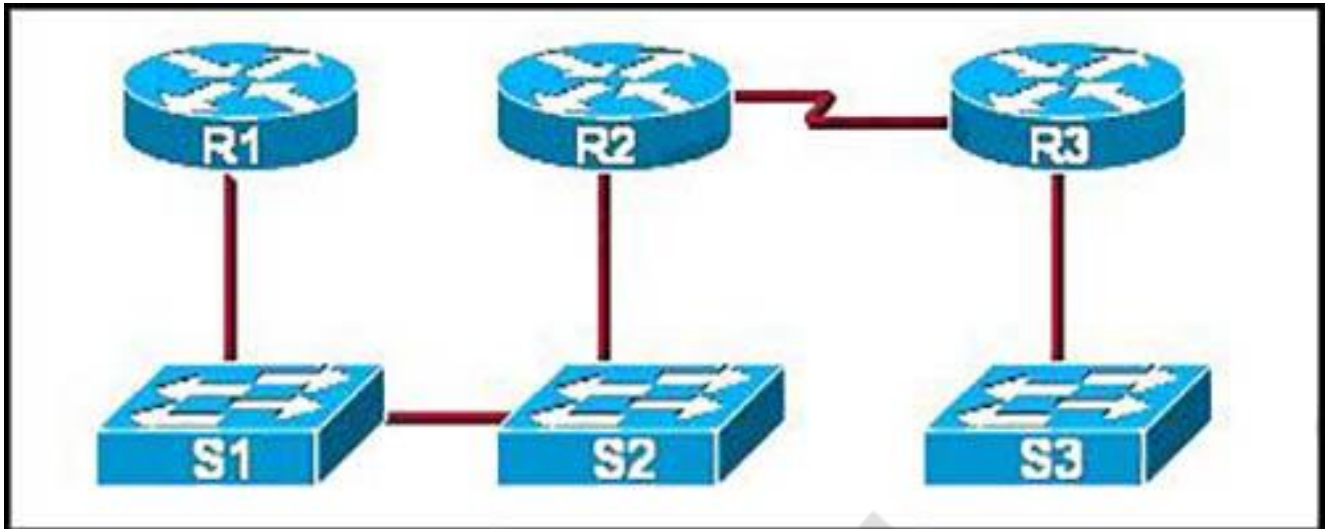
R5 does not have a route to the 10.1.1.1 network, which is the loopback0 IP address of R1. When looking at the EIGRP configuration on R1, we see that the 10.1.1.1 network statement is missing on R1.

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**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#****NO.48** Refer to the exhibit.



If CDP is enabled on all devices and interfaces, which devices will appear in the output of a `show cdp neighbors` command issued from R2?

- A. R1, S1, S2, R3 and S3
- B. R2 and R3
- C. R3 and S2
- D. R1 and R3
- E. R1, S1, S2, and R3

**Answer:** C

**NO.49** Which three features are represented by the letter A in AAA authentication? (Choose three.)

- A. authorization
- B. accountability
- C. authority
- D. authentication
- E. accounting
- F. accessibility

**Answer:** A D E

**NO.50** In which circumstance is static routing most useful?

- A. on a stub network
- B. on a network with frequent routing changes
- C. on a network that experiences frequent link failures
- D. on a large network that must share routes quickly between routers

**Answer:** A

**NO.51** Refer to the exhibit.

```

R1#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       I - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is 192.168.14.4 to network 0.0.0.0

C    192.168.12.0/24 is directly connected, FastEthernet0/0
C    192.168.13.0/24 is directly connected, FastEthernet0/1
C    192.168.14.0/24 is directly connected, FastEthernet1/0
O    192.168.10.0/24 is variably subnetted, 3 subnets, 3 masks
O        192.168.10.0/24 [110/2] via 192.168.14.4, 00:02:01, FastEthernet1/0
O        192.168.10.32/27 [110/11] via 192.168.13.3, 00:00:52, FastEthernet0/1
O        192.168.0.0/16 [110/2] via 192.168.15.5, 00:05:01, FastEthernet1/1
D    192.168.10.1/32 [90/52778] via 192.168.12.2, 00:03:44, FastEthernet0/0
O*E2 0.0.0.0/0 [110/1] via 192.168.14.4, 00:00:10, FastEthernet1/0

```

IF R1 sends traffic to 192.168.101.45 the traffic is sent through which interface?

- A. FastEthernet0/1
- B. FastEthernet0/0
- C. FastEthernet1/0
- D. FastEthernet1/1

**Answer:** C

**NO.52** Drag and drop each WAN design option on the left onto the correct description on the right.

dual-homed	one or more routers with connections to two or more ISPs
dual-multihomed	one or more routers with redundant connections to two or more ISPs
single-homed	one router with a connection to an ISP
single-multihomed	one router with two connections to the same ISP

**Answer:**

dual-homed	single-multihomed
dual-multihomed	dual-multihomed
single-homed	single-homed
single-multihomed	dual-homed

**Explanation**

Dual-homed = one router with two connections to the same ISP

Dual-multihomed = one or more router with redundant connections to two or more ISPs.



Single-homed = One router with a connection to an ISP

Single-multihomed = one or more routers with connections to two or more ISPs.

**NO.53** Which two statements about the successor and feasible successor are true? (Choose two.)

- A. The successor is stored in the routing table
- B. The feasible successor is stored in both the topology table and the routing table
- C. The successor is the primary route
- D. The successor is the secondary route
- E. The feasible successor has a lower metric than the successor.

**Answer:** A E

**NO.54** which NTP type designates a router without an external referee clock as an authoritative time source ?

- A. Client
- B. Server
- C. peer
- D. master

**Answer:** D

**NO.55** Which two address are defined as private ip addresses ? (Choose two.)

- A. 192.169.32.10
- B. 10.172.76.200
- C. 172.15.2.250
- D. 12.17.1.20
- E. 172.31.255.100

**Answer:** B E

**NO.56** Which two statements about multicast addresses are true? (Choose two)

- A. 01-00-53-ab-11-c1 is a multicast MAC address
- B. 01-00-5e-7b-11-c1 is a multicast MAC address
- C. They allow one-to-one communication
- D. They allow one-to-many communication
- E. 02-00-5e-7f-11-c1 is a multicast MAC address

**Answer:** A B

**NO.57** Which two best practices protect your network from VLAN hopping attacks? (Choose two.)

- A. Configure an ACL to prevent traffic from changing VLANs
- B. Configure port security
- C. sign all access ports to VLANs other than the native VLAN
- D. Configure dynamic ARP inspection
- E. Range the native VLAN to an unused VLAN ID

**Answer:** B C

**NO.58** Which major component of the network virtualization architecture isolates users according to policy?

- A. network services virtualization
- B. access control.
- C. path isolation
- D. policy enforcement

**Answer:** A

**NO.59**

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

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

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

**Answer:** D

**NO.60** refer to the exhibit:

```
R1#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

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C    192.168.13.0/24 is directly connected, FastEthernet0/1
C    192.168.14.0/24 is directly connected, FastEthernet1/0
     192.168.10.0/24 is variably subnetted, 3 subnets, 3 masks
O     192.168.10.0/24 [110/2] via 192.168.14.4, 00:02:01, FastEthernet1/0
O     192.168.10.32/27 [110/11] via 192.168.13.3, 00:00:52, FastEthernet0/1
O     192.168.0.0/16 [110/2] via 192.168.15.5, 00:05:01, FastEthernet1/1
D     192.168.10.1/32 [90/52778] via 192.168.12.2, 00:03:44, FastEthernet0/0
O*E2 0.0.0.0/0 [110/1] via 192.168.14.4, 00:00:10, FastEthernet1/0
```

what is the metric for the router from R1 to 192.168.10.1 ?

- A. 2
- B. 90
- C. 110

D. 52778

**Answer:** D

**NO.61** Which PPP subprotocol negotiates authentication options?

- A. LCP
- B. ISDN
- C. DLCI
- D. SLIP
- E. NCP

**Answer:** A

**NO.62** Which command should you enter to configure a single port to prevent alternate ports from becoming designated ports?

- A. Spanning-tree guard loop
- B. Spanning-tree loopguard default
- C. Spanning-tree guard root

**Answer:** B

**NO.63** Which option is the benefit of implementing an intelligent DNS for a cloud computing solution?

- A. It reduces the need for a backup data center.
- B. It can redirect user requests to locations that are using fewer network resources.
- C. It enables the ISP to maintain DNS records automatically.
- D. It eliminates the need for a GSS.

**Answer:** B

**NO.64** Scenario:

You work for a company that provides managed network services, and of your real estate clients running a small office is experiencing network issues, Troubleshoot the network issues.

Router R1 connects the main office to internet, and routers R2 and R3 are internal routers NAT is enabled on Router R1.

The routing protocol that is enable between routers R1, R2, and R3 is RIPv2.

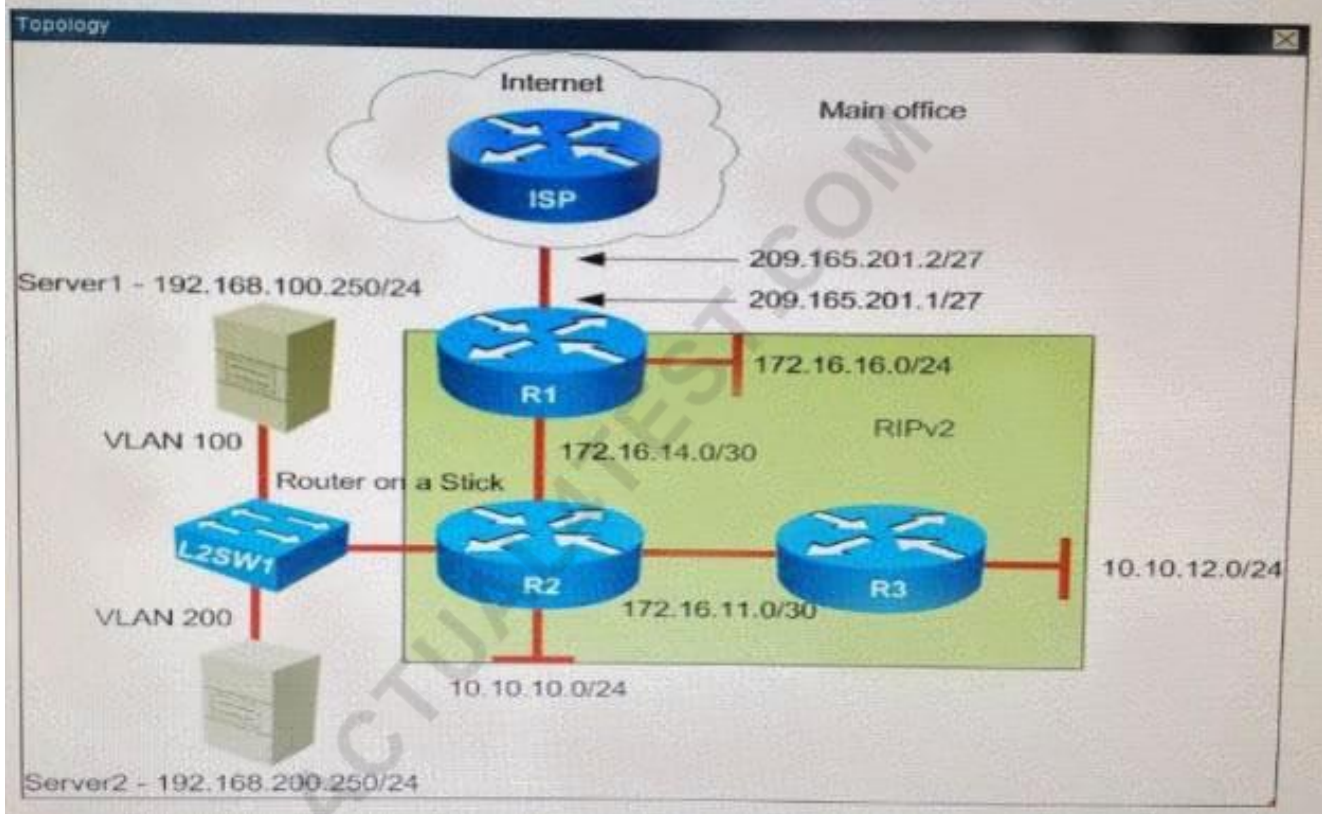
R1 sends default route into RIPv2 for internal routers to forward internet traffic to R1.

Server1 and Server2 are placed in VLAN 100 and 200 respectively, and dare still running router on stick configuration with router R2.

You have console access on R1, R2, R3, and L2SW1 devices. Use only show commands to troubleshoot the issues.

**Instructions**

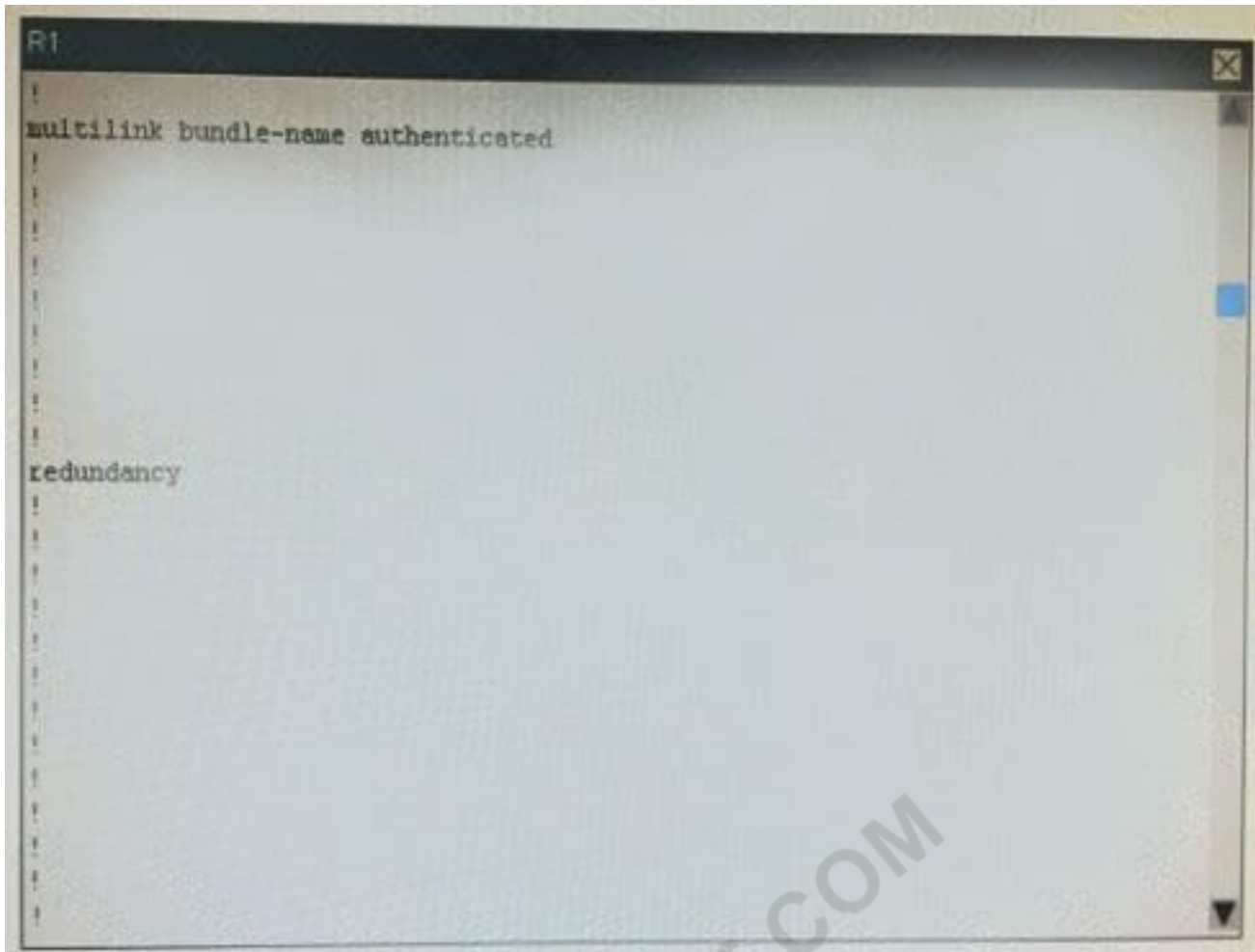
- Enter IOS commands on the device to verify network operation and answer the multiple-choice questions.
- **THIS TASK DOES NOT REQUIRE DEVICE CONFIGURATION.**
- Click the device icon to gain access to the console of the device. No console or enable passwords are required.
- To access the multiple-choice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



```
R1
R1#show r
R1#show run
R1#show running-config
Building configuration...

Current configuration : 1438 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
```







```
R1
!
interface Ethernet0/0
  description ***Link to ISP***
  ip address 209.165.201.1 255.255.255.224
  ip nat outside
  ip virtual-reassembly in
!
interface Ethernet0/1
  description ***Link to LAN***
  ip address 172.16.16.1 255.255.255.0
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/2
  description ***Link to R2***
  ip address 172.16.14.1 255.255.255.252
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/3
  no ip address
  shutdown
!
router rip
  version 2
```

```
R1
!
router rip
  version 2
  network 172.16.0.0
  default-information originate
  no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 10.10.10.0 255.255.255.0 172.16.14.2 200
!
ip access-list standard LOCAL
  permit 10.0.0.0 0.255.255.255
  permit 172.16.0.0 0.0.255.255
  permit 192.168.0.0 0.0.255.255
!
!
!
control-plane
!
```

```
R1
!
line con 0
  logging synchronous
line aux 0
line vty 0 4
  login
  transport input all
!
!
end
R1#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4100 (bia aabb.cc00.4100)
  Description: ***Link to ISP***
  Internet address is 209.165.201.1/27
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:53, output 00:00:07, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
```

```
R1
Input queue: 0/75/0/0 (size/max/drops/flushes): Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  40 packets input, 11786 bytes, 0 no buffer
Received 39 broadcasts (0 IP multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
191 packets output, 20271 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
4 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4110 (bia aabb.cc00.4110)
  Description: ***Link to LAN***
  Internet address is 172.16.16.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
```

```
R1
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes): Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
245 packets output, 30725 bytes, 0 underruns
0 output errors, 0 collisions, 4 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4120 (bia aabb.cc00.4120)
  Description: ***Link to R2***
  Internet address is 172.16.14.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
```



```

R1
Internet address is 172.16.14.1/30
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:16, output 00:00:07, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  98 packets input, 20097 bytes, 0 no buffer
Received 97 broadcasts (54 IP multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
247 packets output, 25359 bytes, 0 underruns
  0 output errors, 0 collisions, 1 interface resets
  4 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier
  0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down

```

```

R1
  0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
Hardware is AndP2, address is aabb.cc00.4130 (bia aabb.cc00.4130)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier

```

```
R1
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out
NVIO is up, line protocol is up
Hardware is NVI
Interface is unnumbered. Using address of Ethernet0/0 (209.165.201.1)
MTU 1514 bytes, BW 56 Kbit/sec, DLY 5000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation UNKNOWN, loopback not set
Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes): Total output drops: 0
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
 0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
 0 runs, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 packets output, 0 bytes, 0 underruns
 0 output errors, 0 collisions, 0 interface resets
 0 unknown protocol drops
 0 output buffer failures, 0 output buffers swapped out
R1#
R1#show ip interface brief
```

```

R1
R1#
R1#show ip interface brief
Interface                               IP-Address      OK? Method Status      Prot
GigabitEthernet0/0                     209.165.201.1   YES NVRAM    up          up
GigabitEthernet0/1                     172.16.16.1     YES NVRAM    up          up
GigabitEthernet0/2                     172.16.14.1     YES NVRAM    up          up
GigabitEthernet0/3                     unassigned      YES NVRAM    administratively down down
Loopback0                              209.165.201.1   YES unset   up          up
R1#
R1#
R1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       + - replicated route, % - next hop override

Gateway of last resort is not set

10.0.0.0/24 is subnetted, 1 subnets
R    10.10.10.0 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2

```



```
R1
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
+ - replicated route, % - next hop override

Gateway of last resort is not set

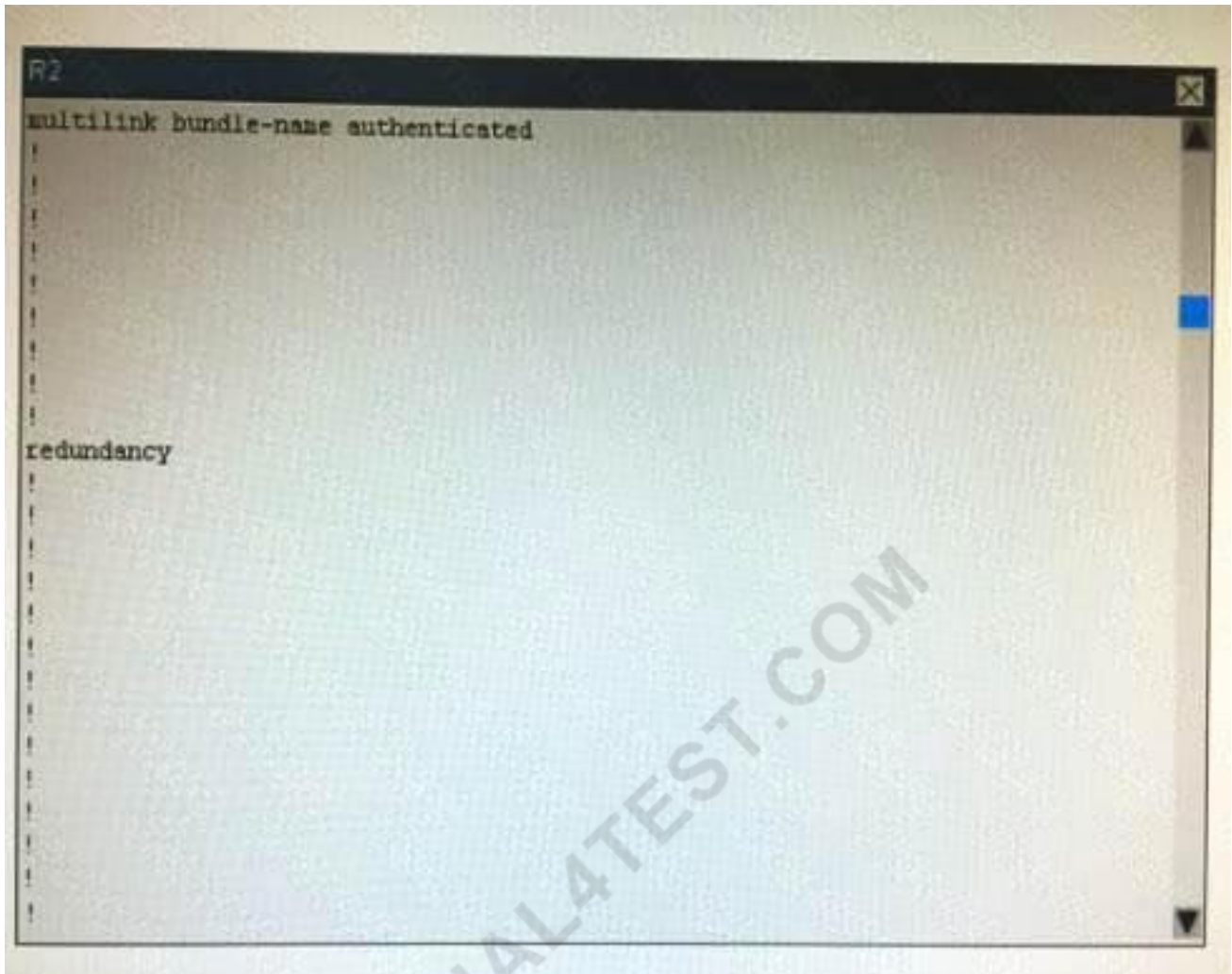
10.0.0.0/24 is subnetted, 1 subnets
R    10.10.10.0 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
R    172.16.11.0/30 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
C    172.16.14.0/30 is directly connected, Ethernet0/2
L    172.16.14.1/32 is directly connected, Ethernet0/2
C    172.16.16.0/24 is directly connected, Ethernet0/1
L    172.16.16.1/32 is directly connected, Ethernet0/1
R    192.168.1.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R    192.168.100.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R    192.168.200.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
209.165.201.0/24 is variably subnetted, 2 subnets, 2 masks
C    209.165.201.0/27 is directly connected, Ethernet0/0
L    209.165.201.1/32 is directly connected, Ethernet0/0
R1#
R1#
```

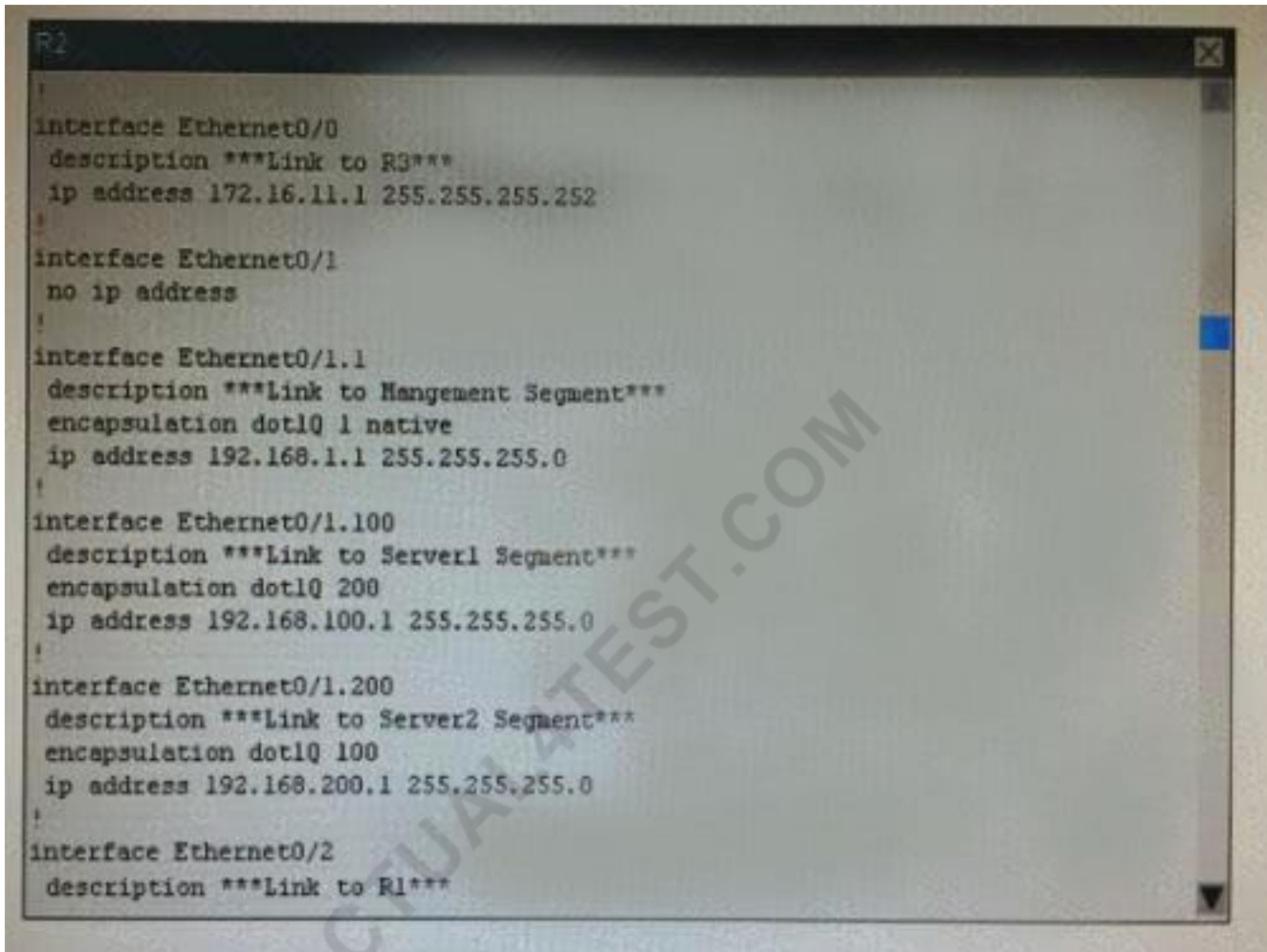


```
R2
R2#show run
R2#show running-config
Building configuration...

Current configuration : 1505 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
```

```
R2
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
```





```
R2
!
interface Ethernet0/0
  description ***Link to R3***
  ip address 172.16.11.1 255.255.255.252
!
interface Ethernet0/1
  no ip address
!
interface Ethernet0/1.1
  description ***Link to Management Segment***
  encapsulation dot1q 1 native
  ip address 192.168.1.1 255.255.255.0
!
interface Ethernet0/1.100
  description ***Link to Server1 Segment***
  encapsulation dot1q 200
  ip address 192.168.100.1 255.255.255.0
!
interface Ethernet0/1.200
  description ***Link to Server2 Segment***
  encapsulation dot1q 100
  ip address 192.168.200.1 255.255.255.0
!
interface Ethernet0/2
  description ***Link to R1***
```

```
R2
!
interface Ethernet0/2
  description ***Link to R1***
  ip address 172.16.14.2 255.255.255.252
!
interface Ethernet0/3
  description ***Link to LAN***
  ip address 10.10.10.1 255.255.255.0
!
router rip
  version 2
  network 10.0.0.0
  network 172.16.0.0
  network 192.168.1.0
  network 192.168.100.0
  network 192.168.200.0
  no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
```

```
R2
!
control-plane
!
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0 4
  login
  transport input all
!
end
R2#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4200 (bia aabb.cc00.4200)
  Description: ***Link to R3***
  Internet address is 172.16.11.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
```



```
R2
R2#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4200 (bia aabb.cc00.4200)
  Description: ***Link to R3***
  Internet address is 172.16.11.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:32, output 00:00:06, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    50 packets input, 15683 bytes, 0 no buffer
    Received 50 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
  343 packets output, 42566 bytes, 0 underruns
  0 output errors, 0 collisions, 1 interface resets
  2 unknown protocol drops
```



```
R2
2 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:00, output 00:00:08, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 1000 bits/sec, 2 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  4632 packets input, 308536 bytes, 0 no buffer
    Received 4421 broadcasts (0 IP multicasts)
      0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
  512 packets output, 73148 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
```

```
R2
512 packets output, 73148 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
73 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/1.1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Mangement Segment***
  Internet address is 192.168.1.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 1.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
  Last clearing of "show interface" counters never
Ethernet0/1.100 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Server1 Segment***
  Internet address is 192.168.100.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 200.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
```

```
R2
Keepalive set (10 sec)
Last clearing of "show interface" counters never
Ethernet0/1.100 is up, line protocol is up
Hardware is AndP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
Description: ***Link to Server1 Segment***
Internet address is 192.168.100.1/24
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation 802.1Q Virtual LAN, Vlan ID 200.
ARP type: ARPA, ARP Timeout 04:00:00
Keepalive set (10 sec)
Last clearing of "show interface" counters never
Ethernet0/1.200 is up, line protocol is up
Hardware is AndP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
Description: ***Link to Server2 Segment***
Internet address is 192.168.200.1/24
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation 802.1Q Virtual LAN, Vlan ID 100.
ARP type: ARPA, ARP Timeout 04:00:00
Keepalive set (10 sec)
Last clearing of "show interface" counters never
Ethernet0/2 is up, line protocol is up
Hardware is AndP2, address is aabb.cc00.4220 (bia aabb.cc00.4220)
Description: ***Link to R1***
```

```
R2
Description: ***Link to R1***
Internet address is 172.16.14.2/30
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:02, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  128 packets input, 21994 bytes, 0 no buffer
    Received 127 broadcasts (77 IP multicasts)
      0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
  345 packets output, 39952 bytes, 0 underruns
    0 output errors, 0 collisions, 1 interface resets
    0 unknown protocol drops
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
    0 output buffer failures, 0 output buffers swapped out
```



```
R2
0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up
Hardware is AmP2, address is aabb.cc00.4230 (bia aabb.cc00.4230)
Description: ***Link to LAN***
Internet address is 10.10.10.1/24
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
344 packets output, 42752 bytes, 0 underruns
0 output errors, 0 collisions, 6 interface resets
0 unknown protocol drops
```

```

R2
 0 output errors, 0 collisions, 6 interface resets
 0 unknown protocol drops
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out
R2#
R2#
R2#show ip interface brief
Interface                IP-Address      OK? Method Status      Prot
ocol
Ethernet0/0              172.16.11.1     YES NVRAM    up          up
Ethernet0/1              unassigned      YES NVRAM    up          up
Ethernet0/1.1            192.168.1.1     YES NVRAM    up          up
Ethernet0/1.100          192.168.100.1   YES NVRAM    up          up
Ethernet0/1.200          192.168.200.1   YES NVRAM    up          up
Ethernet0/2              172.16.14.2     YES NVRAM    up          up
Ethernet0/3              10.10.10.1      YES NVRAM    up          up
R2#
R2#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route

```

```
R2
R2#
R2#show ip route
Codes: L - local, C - connected, S - static, R - RIP, H - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       + - replicated route, % - next hop override

Gateway of last resort is 172.16.14.1 to network 0.0.0.0

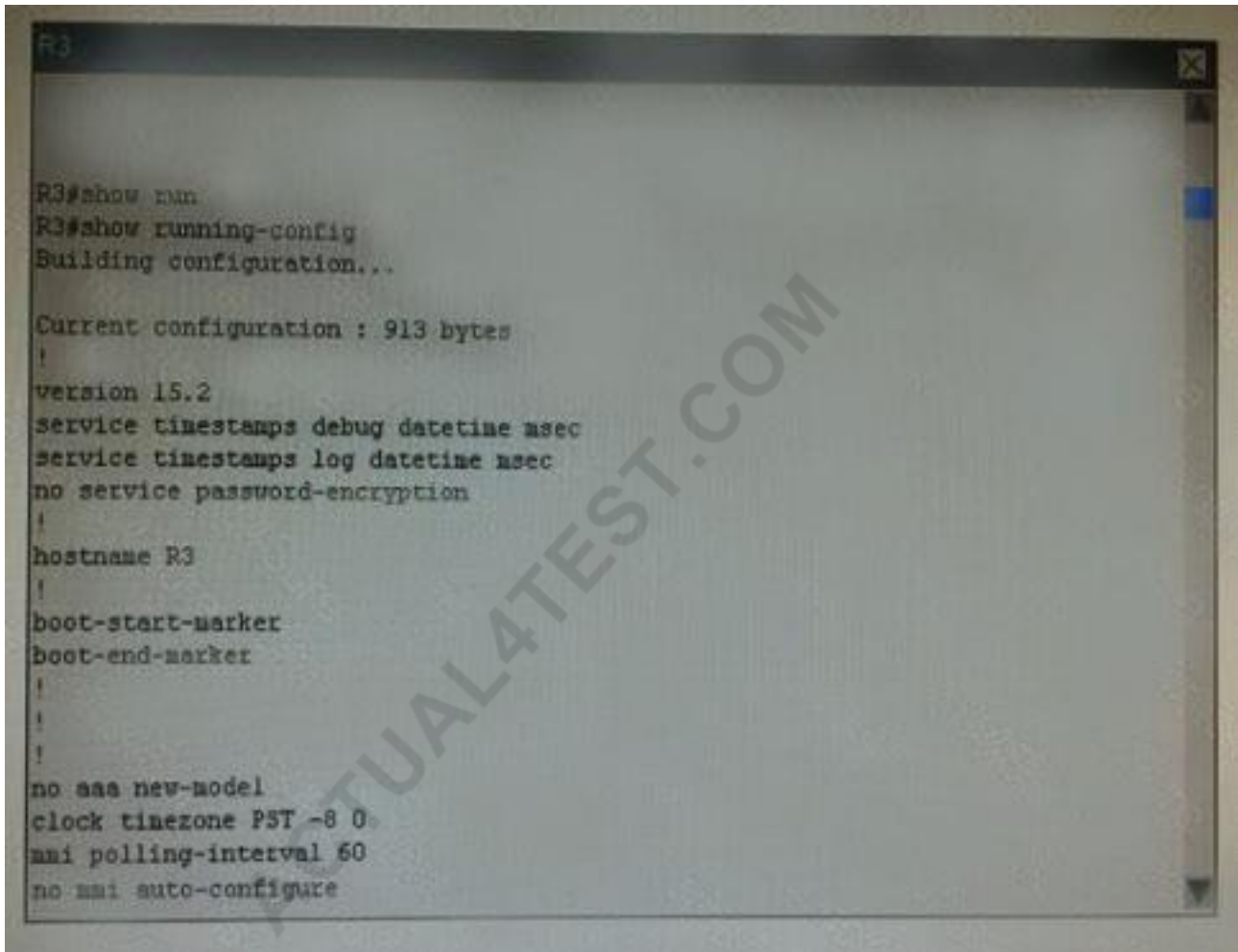
R*    0.0.0.0/0 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
      10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C      10.10.10.0/24 is directly connected, Ethernet0/3
L      10.10.10.1/32 is directly connected, Ethernet0/3
      172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
C      172.16.11.0/30 is directly connected, Ethernet0/0
L      172.16.11.1/32 is directly connected, Ethernet0/0
C      172.16.14.0/30 is directly connected, Ethernet0/2
L      172.16.14.2/32 is directly connected, Ethernet0/2
R      172.16.16.0/24 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
      192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.1.0/24 is directly connected, Ethernet0/1.1
```



```
R2
o - ODR, P - periodic downloaded static route, H - MHRP, I - LISP
+ - replicated route, % - next hop override

Gateway of last resort is 172.16.14.1 to network 0.0.0.0

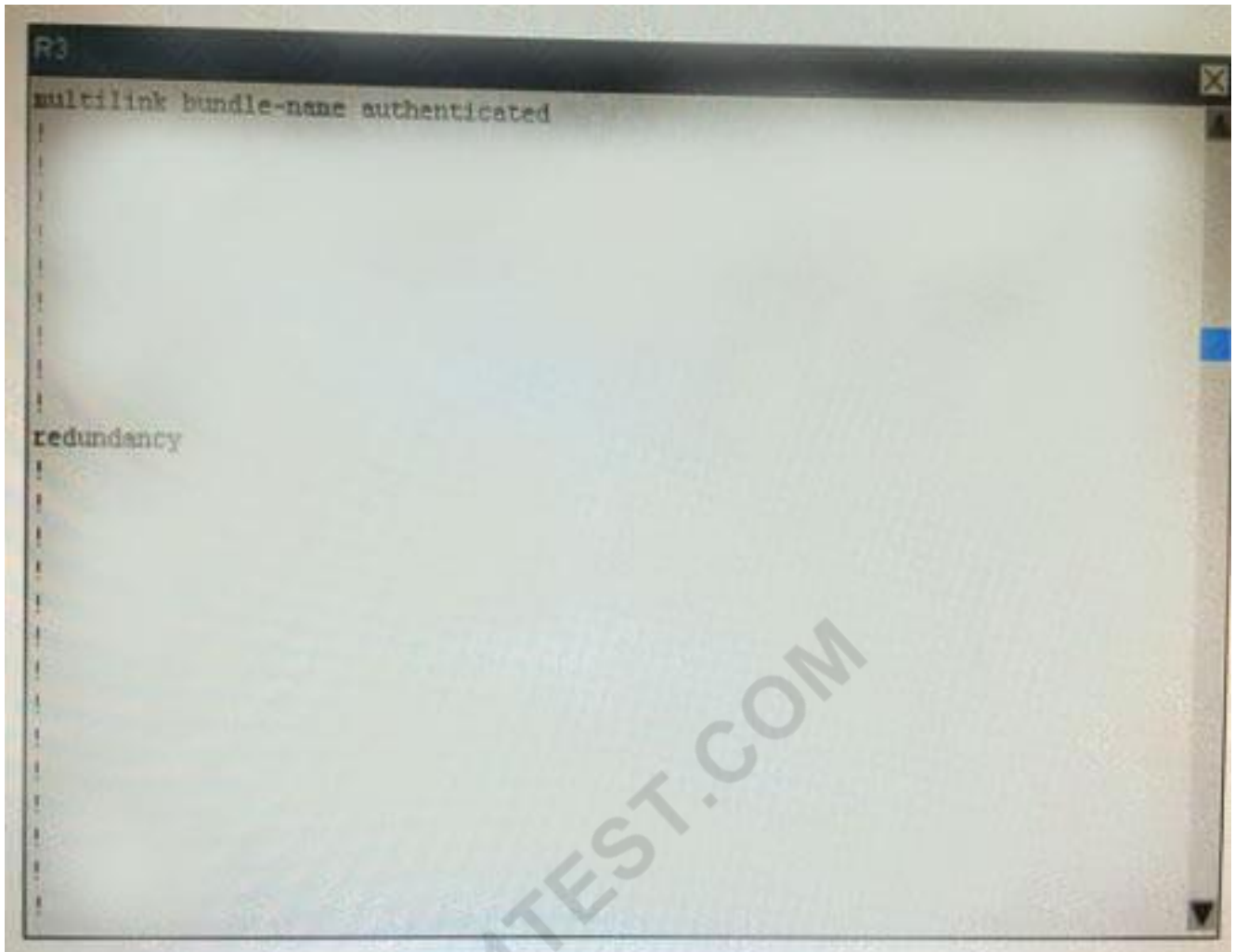
R*  0.0.0.0/0 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
    10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C    10.10.10.0/24 is directly connected, Ethernet0/3
L    10.10.10.1/32 is directly connected, Ethernet0/3
    172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
C    172.16.11.0/30 is directly connected, Ethernet0/0
L    172.16.11.1/32 is directly connected, Ethernet0/0
C    172.16.14.0/30 is directly connected, Ethernet0/2
L    172.16.14.2/32 is directly connected, Ethernet0/2
R    172.16.16.0/24 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
    192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.1.0/24 is directly connected, Ethernet0/1.1
L    192.168.1.1/32 is directly connected, Ethernet0/1.1
    192.168.100.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.100.0/24 is directly connected, Ethernet0/1.100
L    192.168.100.1/32 is directly connected, Ethernet0/1.100
    192.168.200.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.200.0/24 is directly connected, Ethernet0/1.200
L    192.168.200.1/32 is directly connected, Ethernet0/1.200
R2#
```



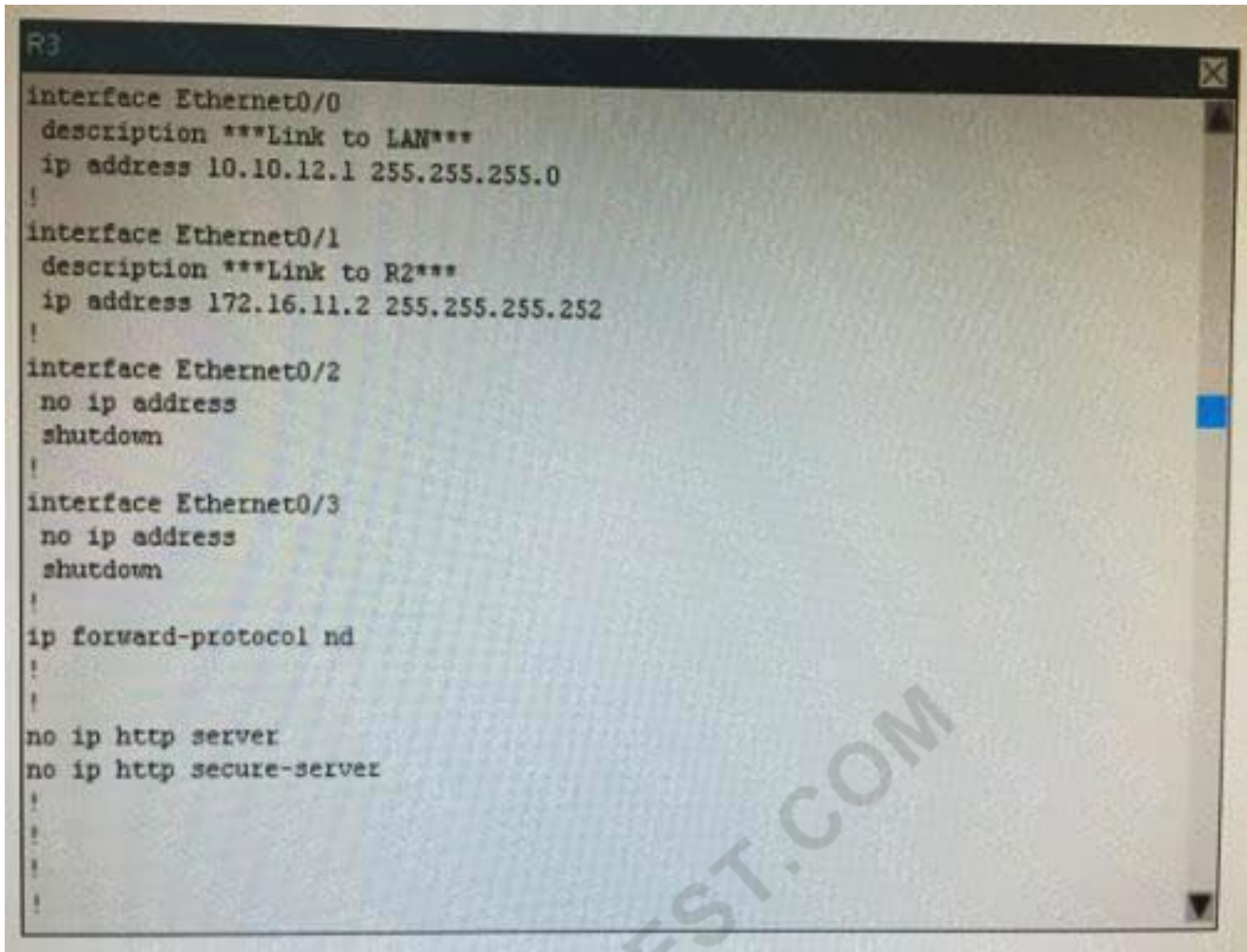
```
R3
R3#show run
R3#show running-config
Building configuration...

Current configuration : 913 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
```





```
R3
interface Ethernet0/0
  description ***Link to LAN***
  ip address 10.10.12.1 255.255.255.0
!
interface Ethernet0/1
  description ***Link to R2***
  ip address 172.16.11.2 255.255.255.252
!
interface Ethernet0/2
  no ip address
  shutdown
!
interface Ethernet0/3
  no ip address
  shutdown
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
```





```

R3
control-plane

line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all

end
R3#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4300 (bia aabb.cc00.4300)
  Description: ***Link to LAN***
  Internet address is 10.10.12.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255

```

```

R3
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
  Received 0 broadcasts (0 IP multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
  666 packets output, 71699 bytes, 0 underruns
  0 output errors, 0 collisions, 11 interface resets
  0 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier
  0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4310 (bia aabb.cc00.4310)
  Description: ***Link to R2***

```

```
R3
Hardware is AndP2, address is aabb.cc00.4310 (bia aabb.cc00.4310)
Description: ***Link to R2***
Internet address is 172.16.11.2/30
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:21, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes): Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  316 packets input, 74089 bytes, 0 no buffer
    Received 316 broadcasts (200 IP multicasts)
      0 runs, 0 giants, 0 throttles
      0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
      0 input packets with dribble condition detected
  669 packets output, 71888 bytes, 0 underruns
      0 output errors, 0 collisions, 1 interface resets
      0 unknown protocol drops
      0 babbles, 0 late collision, 0 deferred
      0 lost carrier, 0 no carrier
```



```
R3
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is administratively down, line protocol is down
Hardware is AmdP2, address is aabb.cc00.4320 (bia aabb.cc00.4320)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes): Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts (0 IP multicasts)
  0 runs, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 unknown protocol drops
```

```
R3
0 unknown protocol drops
0 babble, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
Hardware is AndP2, address is aabb.cc00.4330 (bia aabb.cc00.4330)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
    0 packets output, 0 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
```

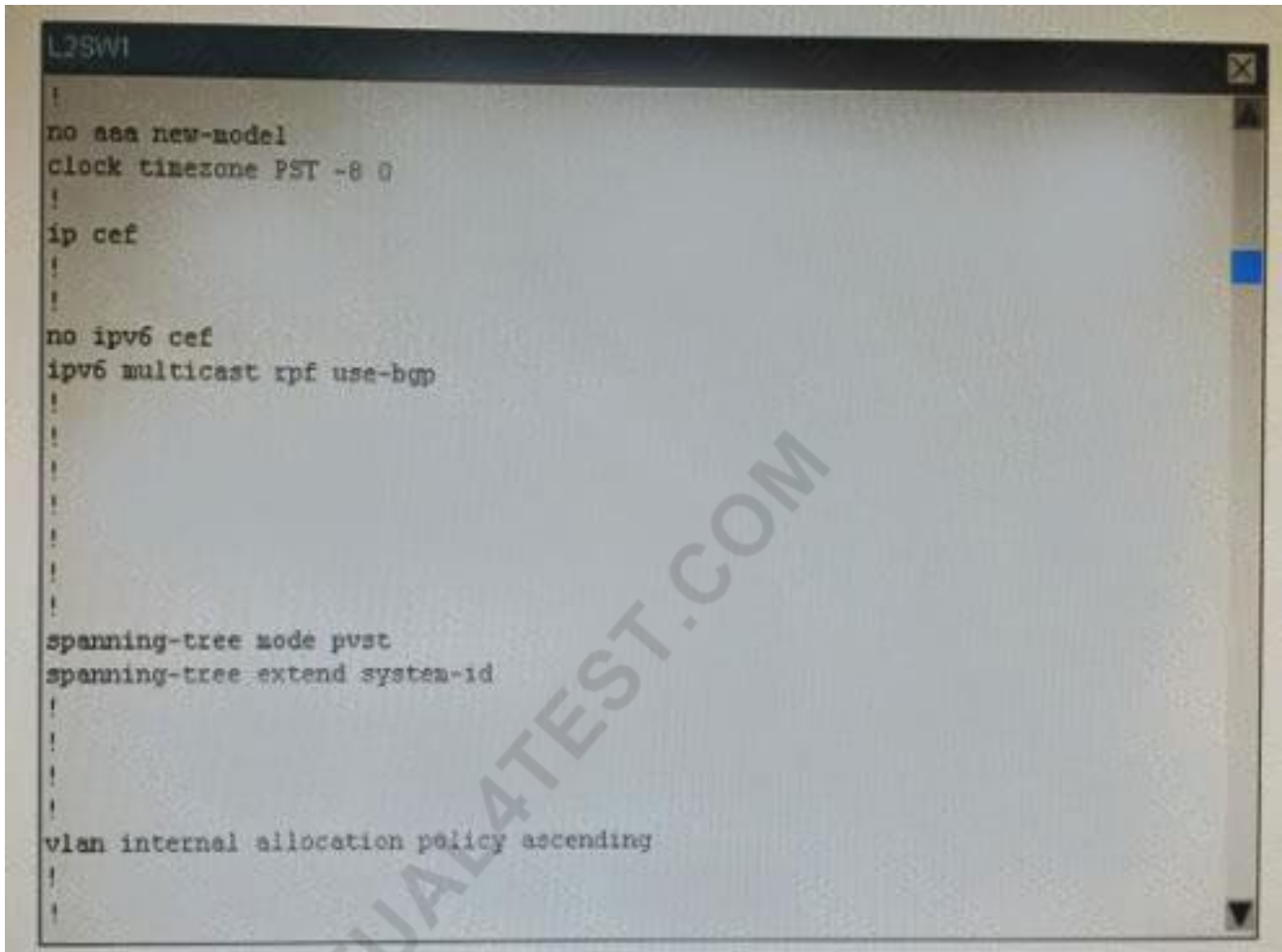
```
R3#
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
R3#
R3#
R3#show ip interface brief
Interface                IP-Address      OK? Method Status      Prot
ocol
Ethernet0/0              10.10.12.1      YES NVRAM    up          up
Ethernet0/1              172.16.11.2     YES NVRAM    up          up
Ethernet0/2              unassigned      YES NVRAM    administratively down down
Ethernet0/3              unassigned      YES NVRAM    administratively down down
R3#
R3#
R3#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
```

```
R3
Ethernet0/2          unassigned      YES NVRAM  administratively down down
Ethernet0/3          unassigned      YES NVRAM  administratively down down
R3#
R3#
R3#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       + - replicated route, % - next hop override

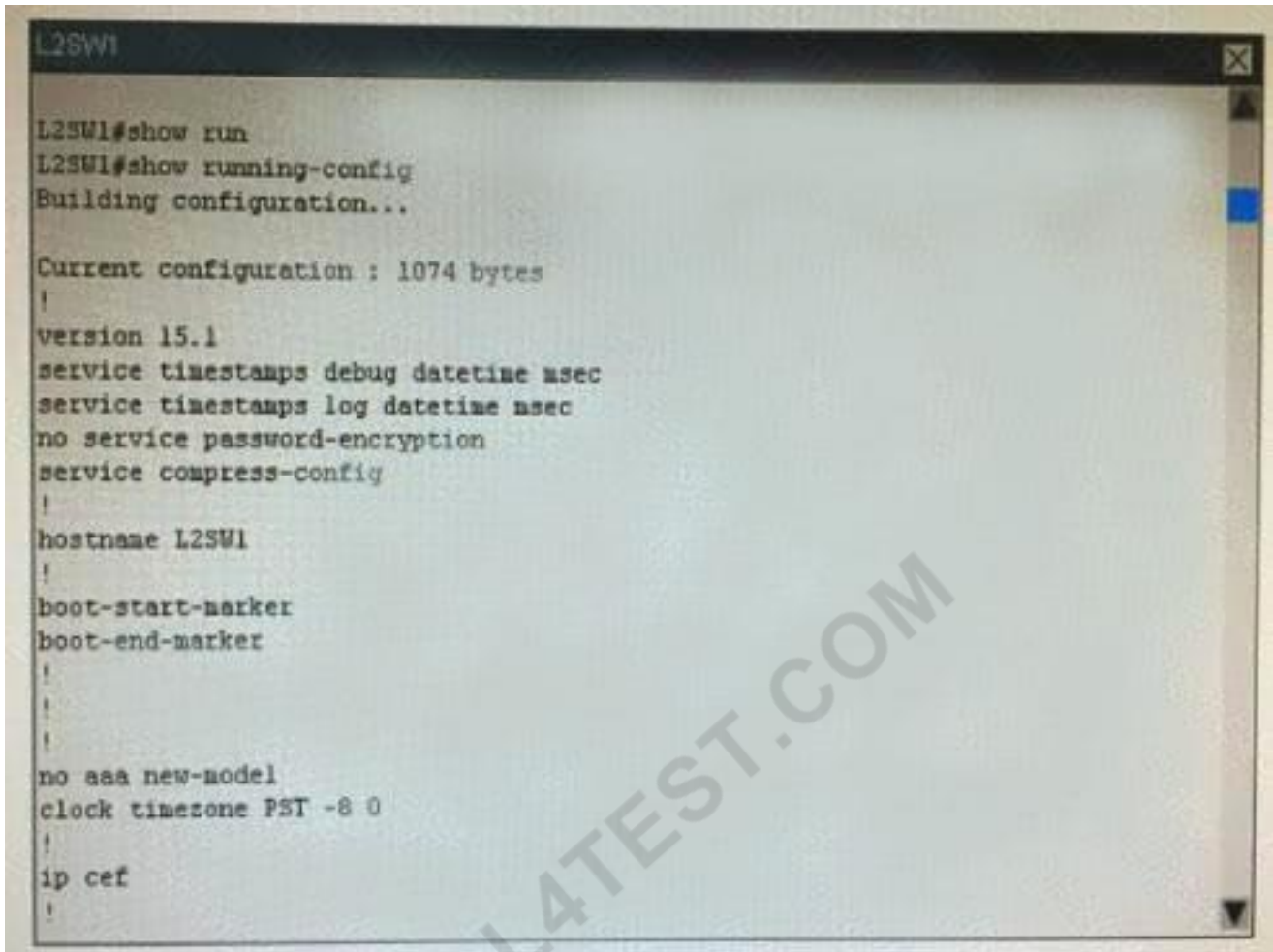
Gateway of last resort is not set

10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.10.12.0/24 is directly connected, Ethernet0/0
L       10.10.12.1/32 is directly connected, Ethernet0/0
172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.16.11.0/30 is directly connected, Ethernet0/1
L       172.16.11.2/32 is directly connected, Ethernet0/1
R3#
R3#
R3#
```





```
L2SW1
!
no aaa new-model
clock timezone PST -8 0
!
ip cef
!
!
no ipv6 cef
ipv6 multicast rpf use-bgp
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
!
!
!
vlan internal allocation policy ascending
!
!
```



```
L2SW1
L2SW1#show run
L2SW1#show running-config
Building configuration...

Current configuration : 1074 bytes
!
version 15.1
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
service compress-config
!
hostname L2SW1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
!
ip cef
!
```



```
L2SW1
interface Vlan1
  ip address 192.168.1.254 255.255.255.0
  !
ip default-gateway 192.168.1.1
!
no ip http server
!
!
!
!
!
control-plane
!
!
line con 0
  logging synchronous
line aux 0
line vty 0 4
  login
!
end
L2SW1#
L2SW1#
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
```

```
L2SW1
!
interface Ethernet0/0
  description ***Link to R2***
  switchport trunk encapsulation dot1q
  switchport mode trunk
  duplex auto
!
interface Ethernet0/1
  description ***Link to Server1 segment***
  switchport access vlan 100
  switchport mode access
  duplex auto
!
interface Ethernet0/2
  description ***Link to Server2 Segment***
  switchport access vlan 200
  switchport mode access
  duplex auto
!
interface Ethernet0/3
  duplex auto
!
interface Vlan1
  ip address 192.168.1.254 255.255.255.0
!
```

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```

L2SW1
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4500 (bia aabb.cc00.4500)
  Description: ***Link to R2***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:07, output 00:00:00, output hang never
  Last clearing of "show interface" counters never
  Input queue: 12/2000/0/0 (size/max/drops/flushes): Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/0 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 1000 bits/sec, 2 packets/sec
    1447 packets input, 208877 bytes, 0 no buffer
    Received 139 broadcasts (0 multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
    13457 packets output, 919293 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets

```

```

L2SW1
    13457 packets output, 919293 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 unknown protocol drops
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
    0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4510 (bia aabb.cc00.4510)
  Description: ***Link to Server1 segment***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:07, output 00:00:01, output hang never
  Last clearing of "show interface" counters never
  Input queue: 5/2000/0/0 (size/max/drops/flushes): Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/0 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    755 packets input, 80219 bytes, 0 no buffer
    Received 123 broadcasts (0 multicasts)

```

```
L2SW1
755 packets input, 80219 bytes, 0 no buffer
Received 123 broadcasts (0 multicasts)
0 runs, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
3867 packets output, 268544 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 babble, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up (connected)
Hardware is Am79C96, address is aabb.cc00.4520 (bia aabb.cc00.4520)
Description: ***Link to Server2 Segment***
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Auto-duplex, Auto-speed, media type is unknown
input flow-control is off, output flow-control is unsupported
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:07, output 00:00:01, output hang never
Last clearing of "show interface" counters never
Input queue: 5/2000/0/0 (size/max/drops/flushes): Total output drops: 0
Queueing strategy: fifo
```



```
L2SW1
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
 758 packets input, 81010 bytes, 0 no buffer
Received 125 broadcasts (0 multicasts)
 0 runts, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
 0 input packets with dribble condition detected
3867 packets output, 268544 bytes, 0 underruns
 0 output errors, 0 collisions, 0 interface resets
 0 unknown protocol drops
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up (connected)
Hardware is AndP2, address is aabb.cc00.4530 (bia aabb.cc00.4530)
MTU 1500 bytes, BU 10000 Kbit/sec, DLY 1000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Auto-duplex, Auto-speed, media type is unknown
input flow-control is off, output flow-control is unsupported
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
```

```
L2SW1
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
  Received 0 broadcasts (0 multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
 3566 packets output, 252186 bytes, 0 underruns
  0 output errors, 0 collisions, 55 interface resets
  0 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier
  0 output buffer failures, 0 output buffers swapped out
Vlan1 is up, line protocol is up
  Hardware is Ethernet SVI, address is aabb.cc80.4500 (bia aabb.cc80.4500)
  Internet address is 192.168.1.254/24
  MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive not supported
```



```
L2SW1
Keepalive not supported
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:12, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  235 packets input, 42480 bytes, 0 no buffer
    Received 235 broadcasts (0 IP multicasts)
      0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    11 packets output, 830 bytes, 0 underruns
      0 output errors, 0 interface resets
    0 unknown protocol drops
    0 output buffer failures, 0 output buffers swapped out
L2SW1#
L2SW1#
L2SW1#show ip interface brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
Ethernet0/0	unassigned	YES	unset	up	up
Ethernet0/1	unassigned	YES	unset	up	up
Ethernet0/2	unassigned	YES	unset	up	up
Ethernet0/3	unassigned	YES	unset	up	up

```

L2SW1
0 output buffer failures, 0 output buffers swapped out
L2SW1#
L2SW1#
L2SW1#show ip interface brief
Interface                IP-Address      OK? Method Status      Protocol
Ethernet0/0              unassigned     YES unset  up          up
Ethernet0/1              unassigned     YES unset  up          up
Ethernet0/2              unassigned     YES unset  up          up
Ethernet0/3              unassigned     YES unset  up          up
Vlan1                    192.168.1.254  YES NVRAM  up          up
L2SW1#
L2SW1#
L2SW1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       + - replicated route, % - next hop override

Gateway of last resort is not set

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks

```

```

L2SW1
Ethernet0/0              unassigned     YES unset  up          up
Ethernet0/1              unassigned     YES unset  up          up
Ethernet0/2              unassigned     YES unset  up          up
Ethernet0/3              unassigned     YES unset  up          up
Vlan1                    192.168.1.254  YES NVRAM  up          up
L2SW1#
L2SW1#
L2SW1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       + - replicated route, % - next hop override

Gateway of last resort is not set

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.1.0/24 is directly connected, Vlan1
L      192.168.1.254/32 is directly connected, Vlan1
L2SW1#
L2SW1#
L2SW1#

```

**Answer:**

Pending

Suggest your Answer for this question.

**NO.65** Which three circumstances can cause a GRE tunnel to be in an up/down state? (Choose three.)

- A. The tunnel interface IP address is misconfigured.
- B. The tunnel source interface is down.
- C. A valid route to the destination address is missing from the routing table.
- D. The tunnel address is routed through the tunnel itself.
- E. The ISP is blocking the traffic.
- F. An ACL is blocking the outbound traffic.

**Answer:** B C D

**NO.66** Which command is used to show the interface status of a router?

- A. show interface status
- B. show ip interface brief
- C. show ip route
- D. show interface

**Answer:** B

**NO.67** Which two options describe benefits of aggregated chassis technology (Choose 2)?

- A. it reduces management overhead.
- B. switches can be located anywhere regardless of their physical distance from one another.
- C. it requires only one IP address per VLAN.
- D. it requires only Three IP addresses per VLAN.
- E. it supports HSRP VRRP and GLBP.
- F. it support redundant configuration files.

**Answer:** A C

**NO.68** Which two options are fields in an Ethernet frame ? (Choose two.)

- A. destination IP address
- B. source IP address
- C. Type
- D. frame check sequence
- E. header

**Answer:** C D

**NO.69** Which plane handles switching traffic through a cisco router?

- A. Control
- B. Data
- C. Performance
- D. Management

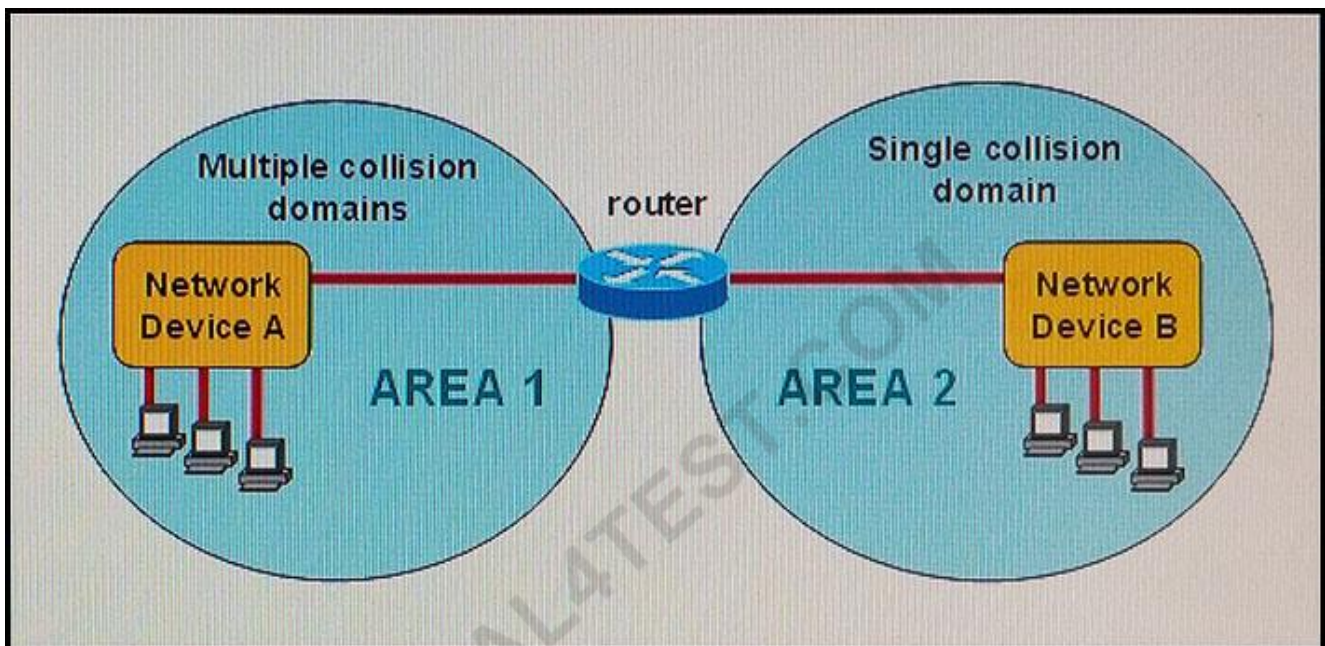
**Answer:** B

**NO.70** Which command is configure on a switch to enable neighbor discovery in a multivendor environment?

- A. lldp run
- B. lldp transmit
- C. lldp receive
- D. cdp run

**Answer:** A

**NO.71** Refer to the exhibit.



A network has been planned as shown. Which three statements accurately describe the areas and devices in the network plan? (Choose three.)

- A. Area 2 contains a Layer 2 device.
- B. Network Device B is a hub.
- C. Network Device A is a hub.
- D. Network Device A is a switch.
- E. Area 1 contains a Layer 2 device.
- F. Network Device B is a switch.

**Answer:** B D E

**NO.72** Drag and drop the benefits of a cisco wireless Lan controller from the left onto the correct examples on the right



dynamic RF feature	Access points automatically adjust their signal strength.
easy deployment process	The controller image is deployed automatically to access points.
easy upgrade process	The controller provides centralized management of users and VLANs.
optimized user performance	The controller uses load balancing to maximize throughput.

**Answer:**

dynamic RF feature	dynamic RF feature
easy deployment process	easy upgrade process
easy upgrade process	easy deployment process
optimized user performance	optimized user performance

**Explanation**

dynamic RF feature
easy upgrade process
easy deployment process
optimized user performance

**NO.73** Which two statements about switch stacking are true? (Choose two)

- A.** The stack is powered by a single power cable
- B.** The switches are connected in a daisy-chain fashion

- C. The first and last switch in the stack must be connected to one another
- D. The switches are connected by crossover cables
- E. The switches must be fully meshed

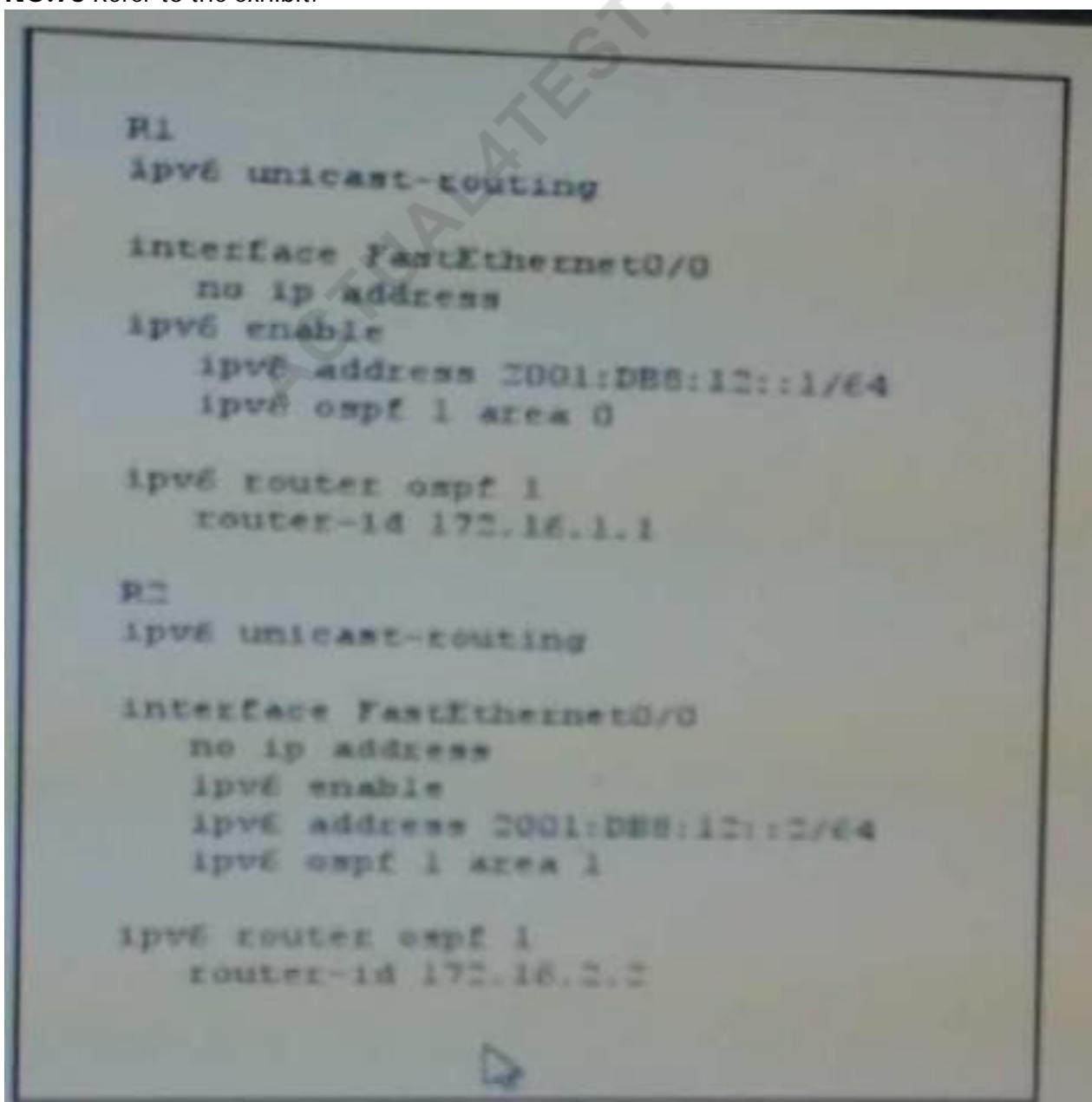
**Answer:** A B

**NO.74** On which OSI layer does a VLAN operate?

- A. Layer 1
- B. Layer 2
- C. Layer 3
- D. Layer 4

**Answer:** B

**NO.75** Refer to the exhibit:



after you apply the give configurations to R1 and R2 you notice that OSPFv3 fails to start Which



reason for the problem is most likely true ?

- A.** The area numbers on R1 and R2 are mismatched
- B.** The IPv6 network addresses on R1 and R2 are mismatched
- C.** The autonomous system numbers on R1 and R2 are mismatched
- D.** The router ids on R1 and R2 are mismatched

**Answer:** A

**NO.76** Which set of conditions comprises a successful ping attempt between two connected routers configured with IP addresses on the same subnet?

- A.** The destination host receives an echo reply from the source host within one second and the source host receives an echo request from the destination host.
- B.** The destination host receives an echo request from the source host within one second.
- C.** The destination host receives an echo reply from the source host within one second and the source host receives an echo reply from the destination host within two seconds.
- D.** The destination host receives an echo request from the source host and the source host receives an echo request from the destination host within one second.
- E.** The destination host receives an echo request from the source host and the source host receives an echo reply from the destination host within two seconds.

**Answer:** E

**NO.77** What is the simplest IP SLA operation that can measure end-to-end response time between devices?

- A.** ICMP path jitter
- B.** ICMP path echo
- C.** ICMP echo
- D.** ICMP Jitter

**Answer:** C

**NO.78** Drag the security features on the left to the specific security risks they help protect against on the right. (Not all options are used.)

Drag the security features on the left to the specific security risks they help protect against on the right. (Not all options are used.)	
access-group	remote access to device console
console password	access to the console 0 line
enable secret	access to connected networks or resources
CHAP authentication	viewing of passwords
VTY password	access to privileged mode
service password-encryption	

**Answer:**

Drag the security features on the left to the specific security risks they help protect against on the right. (Not all options are used.)

access-group	VTY password
console password	console password
enable secret	access-group
CHAP authentication	service password-encryption
VTY password	enable secret
service password-encryption	

Explanation

VTY password
console password
access-group
service password-encryption
enable secret

**NO.79** Which two statements about the extended traceroute command are true? (Choose two)

- A. It can validate the reply data
- B. It can use a specified ToS
- C. It can be repeated automatically at a specified interval
- D. It can send packets from a specified interface or IP address
- E. It can use a specified TTL value

**Answer:** B E

**NO.80** Which feature or method can you use to isolate physical layer problems on a serial link?

- A. autonegotiation
- B. UDLD
- C. protocol analyzer
- D. loopback tests

**Answer:** A

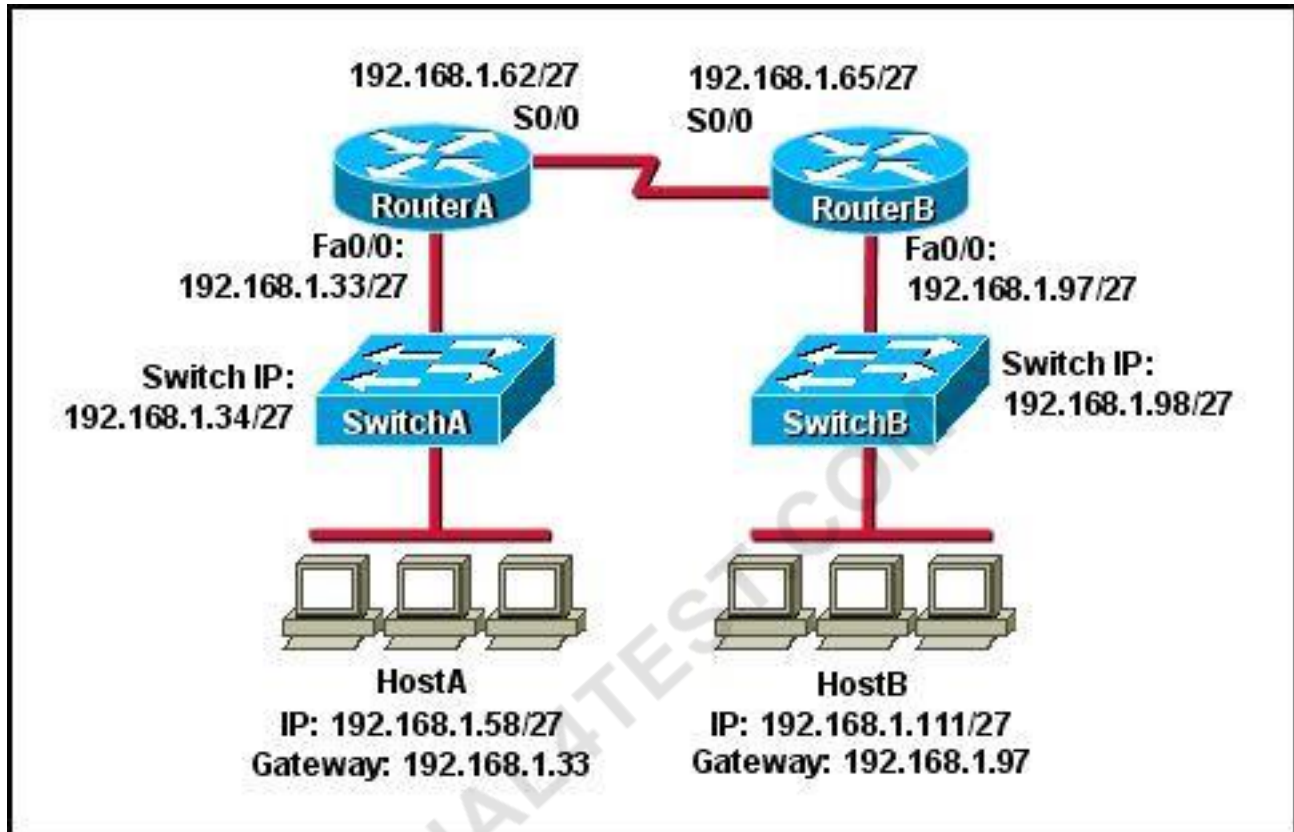
**NO.81** Which two characteristics are representatives of a link-state routing protocol? (Choose two.)

- A. provides common view of entire topology
- B. exchanges routing tables for its own routes with neighbors
- C. calculates feasible path

- D. utilizes event-triggered updates
- E. utilizes frequent periodic updates

**Answer:** A D

**NO.82** Refer to the exhibit.



HostA cannot ping HostB. Assuming routing is properly configured, what is the cause of this problem?

- A. HostA is not on the same subnet as its default gateway.
- B. The address of SwitchA is a subnet address.
- C. The Fa0/0 interface on RouterA is on a subnet that can't be used.
- D. The serial interfaces of the routers are not on the same subnet.
- E. The Fa0/0 interface on RouterB is using a broadcast address.

**Answer:** D

Explanation

Now let's find out the range of the networks on serial link:

For the network 192.168.1.62/27:

Increment: 32

Network address: 192.168.1.32

Broadcast address: 192.168.1.63

For the network 192.168.1.65/27:

Increment: 32

Network address: 192.168.1.64

Broadcast address: 192.168.1.95

-> These two IP addresses don't belong to the same network and they can't see each other.

**NO.83** Which two statements are true for multicast MAC address directions?

- A. 01:00:5E:xx:xx:xx
- B. one to one
- C. 01 00 xx xxxxxxxx
- D. 02 xx xxxxxxxx
- E. one to many

**Answer:** A E

Explanation

Explanation

The Internet authorities have reserved the multicast address range of 01:00:5E:00:00:00 to 01:00:5E:7F:FF:FF for Ethernet and Fiber Distributed Data Interface (FDDI) media access control (MAC) addresses.

**NO.84** How does NAT overloading provide one-to-many address translation?

- A. it uses a pool of addresses.
- B. it converts IPv4 addresses to unused IPv6 addresses.
- C. it assigns a unique TCP/UDP port to each session.
- D. it uses virtual MAC address and virtual IP addresses.

**Answer:** C

**NO.85** You are transitioning your organization's DHCP and DNS cloud services to new provider. Which two public cloud options can provide a secure and relatively easy migration? (Choose two)

- A. Internet VPN
- B. MPLS VPN
- C. inter-cloud exchange
- D. Internet
- E. Ethernet WAN

**Answer:** A B

**NO.86** Which two tasks must you perform to configure PPPoE on an interface? (Choose two)

- A. Create a client dialer pool.
- B. Enable PPPoE logging.
- C. Enable PPPoE on the interface.
- D. Enable PPPoE globally.
- E. Configure a loopback interface.

**Answer:** C E

**NO.87** Which command can you enter on a switch to determine the current SNMP security model ?

- A. Show snmp pending
- B. show snmp group
- C. snmp server contact
- D. show snmp engineID

**Answer:** B

Explanation

show snmp group

To display the names of groups on the router and the security model, the status of the different views, and the storage type of each group, use the show snmp group

[https://www.cisco.com/c/en/us/td/docs/ios/12\\_2/configfun/command/reference/ffun\\_r/frf014.htm](https://www.cisco.com/c/en/us/td/docs/ios/12_2/configfun/command/reference/ffun_r/frf014.htm)

|

**NO.88** Drag and drop the values in a routing table from the left onto the correct meanings on the right .

administrative distance	code that indicates the method by which the router learned the route
destination network	value used by the router to determine the preferred route
metric	indicator of the trustworthiness of the route
next hop	network to which the router forwards packets on the associated route
route source	remote network address

**Answer:**

administrative distance	metric
destination network	route source
metric	administrative distance
next hop	destination network
route source	next hop

Explanation





**NO.89** Which statement about recovering a password on a cisco router is true?

- A. it requires physical access to the router
- B. the default reset password is cisco
- C. A factory reset is required if you forget the password
- D. it requires a secure SSL/VPN connection

**Answer:** A

**NO.90** Which factor must you take into consideration before deciding to use Metro Ethernet to connect to a WAN?

- A. It is most appropriate for networks that are limited to a small geographic area
- B. It requires VPLS to be supported by MPLS
- C. It supports only point-to-point connections.
- D. WAN aggregation is not supported.

**Answer:** B

**NO.91** Which two statements about TACACS+ are true? (Choose two.)

- A. It supports full command logging
- B. It uses UDP port 49
- C. It uses TCP port 49
- D. It combines authentication and authorization to simplify configuration
- E. It encrypts the password only

**Answer:** C E

**NO.92** Which functions can be centralized by an SDN controller?

- A. services-plane functions
- B. control-plane functions
- C. data-plane functions
- D. management-plane functions

**Answer:** C

**NO.93** Which two statements about eBGP neighbor relationships are true? (Choose two)

- A. The two devices must reside in different autonomous systems
- B. Neighbors must be specifically declared in the configuration of each device
- C. They can be created dynamically after the network statement is configured.
- D. The two devices must reside in the same autonomous system
- E. The two devices must have matching timer settings

**Answer:** A B

**NO.94** which value indicate the distance from the ntp authoritative time source?

- A. Priority
- B. Location
- C. layer
- D. Stratum

**Answer:** D

**NO.95** Which keyboard shortcut can you use to exit the System Configuration Dialog on a Cisco networking device and return to privileged EXEC mode without making changes?

- A. Shift-Esc
- B. Ctrl-Alt-Delete
- C. Ctrl-C
- D. Ctrl-V

**Answer:** C

**NO.96** Which access layer threat mitigation technique provides security by acting as a filter between trusted and untrusted traffic.

- A. Dhcp snooping
- B. A nondefault native vlan
- C. Dynamic packet inspection
- D. 802.1x

**Answer:** C

**NO.97** Which command can you enter to determine whether serial interface 0/2/0 has been configured using HDLC encapsulation?

- A. router#show ip Interface s02/0

- B. router#show platform
- C. router#show interfaces Serial 0/2/0
- D. router#show ip interface brief

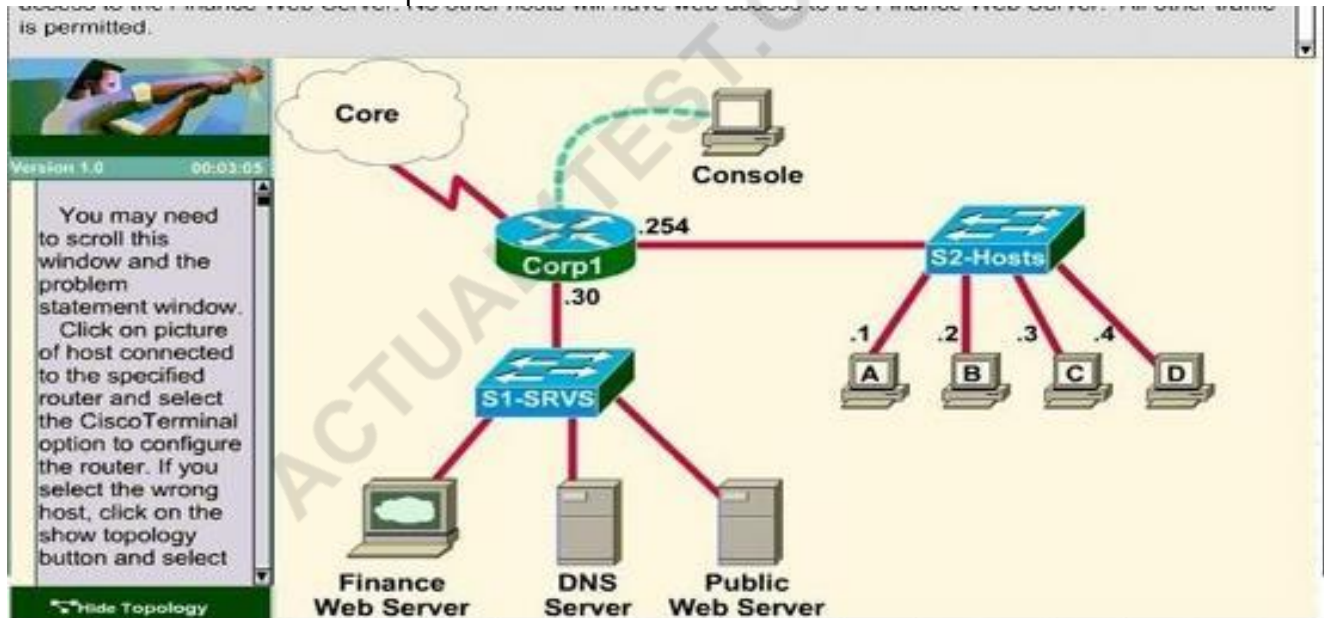
**Answer:** C

**NO.98** To enable router on a stick on a router subinterface, which two steps must you perform ?  
choose two

- A. configure full duplex and speed
- B. configure a default to route traffic between subinterfaces
- C. configure the subinterface with an ip address
- D. configure encapsulation dot1q
- E. configure an ip route to the vlan destination network

**Answer:** C D

**NO.99** 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 an 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 198.18.247.65

The computers in the Hosts LAN have been assigned addresses of 192.168.240.1 - 192.168.240.254

\* host A 192.168.240.1

\* host B 192.168.240.2

\* host C 192.168.240.3

**Answer:**

```
Corp1#conf t
Corp1(config)# access-list 128 permit tcp host 192.168.240.1 host 172.22.141.26 eq www
Corp1(config)# access-list 128 deny tcp any host 172.22.141.26 eq www
Corp1(config)# access-list 128 permit ip any any
Corp1(config)#int fa0/1
Corp1(config-if)#ip access-group 128 out
Corp1(config-if)#end
Corp1#copy run startup-config
```

**NO.100** You are configuring an ip sla icmp echo operation to troubleshoot a network connectivity issue. When do you enter an ip address to test the ip SLA?

- A. When you verify the ip sla operation
- B. When you specify the test frequency
- C. When you enable the icmp echo operation
- D. When you define the icmp echo operation

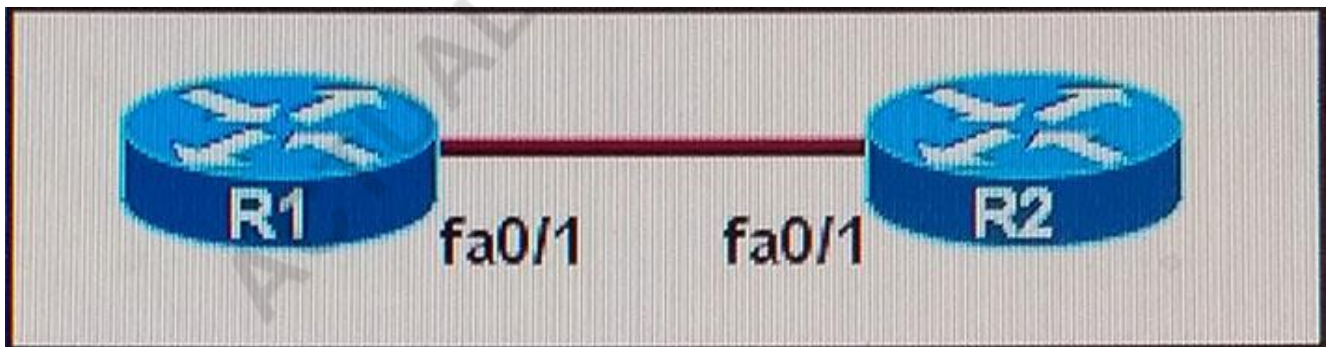
**Answer:** A

**NO.101** Which two EXEC mode commands can simplify DHCP lease management? (Choose two)

- A. release dhcp
- B. no ip dhcp conflict logging
- C. Renew dhcp
- D. ip address dhcp
- E. ip dhcp ping timeout 500

**Answer:** A C

**NO.102** Refer to the exhibit.



The two routers have had their startup configurations cleared and have been restarted. At a minimum, which option below must the administrator do to enable CDP to exchange information between R1 and R2?

- A. Configure the router with the cdp enable command.
- B. Configure IP addressing and no shutdown commands on both the R1 and R2 fa0/1 interfaces.
- C. Configure IP addressing and no shutdown commands on either of the R1 or R2 fa0/1 interfaces.
- D. Enter no shutdown commands on the R1 and R2 fa0/1 interfaces.

**Answer:** D

**NO.103** Which two types of NAT addresses are used in a Cisco NAT device? (Choose two.)

- A. external global
- B. inside local
- C. inside private
- D. external local
- E. inside global
- F. outside private

**Answer:** B E

**NO.104** which two types of information are held in the mac address table ?

- A. destination ip addresses
- B. protocols
- C. port numbers
- D. mac address
- E. source ip address

**Answer:** C D

**NO.105** After you configure a new router to connect to a host through the GigabitEthernet0/0 port of the router, you log in to the router and observe that the new link is down. Which action corrects the problem?

- A. Use a crossover cable between the host and R1.
- B. Use a straight through cable between the host and R1.
- C. Configure the host to use R1 as the default gateway.
- D. Use a rollover cable between the host and R1.

**Answer:** A

**NO.106** What parameter can be different on ports within an EtherChannel?

- A. speed
- B. DTP negotiation settings
- C. trunk encapsulation
- D. duplex

**Answer:** B

Explanation

For an etherchannel to come up, the speed, duplex and the trunk encapsulation must be the same on each end.

**NO.107**



## Instructions

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

## Scenario

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

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

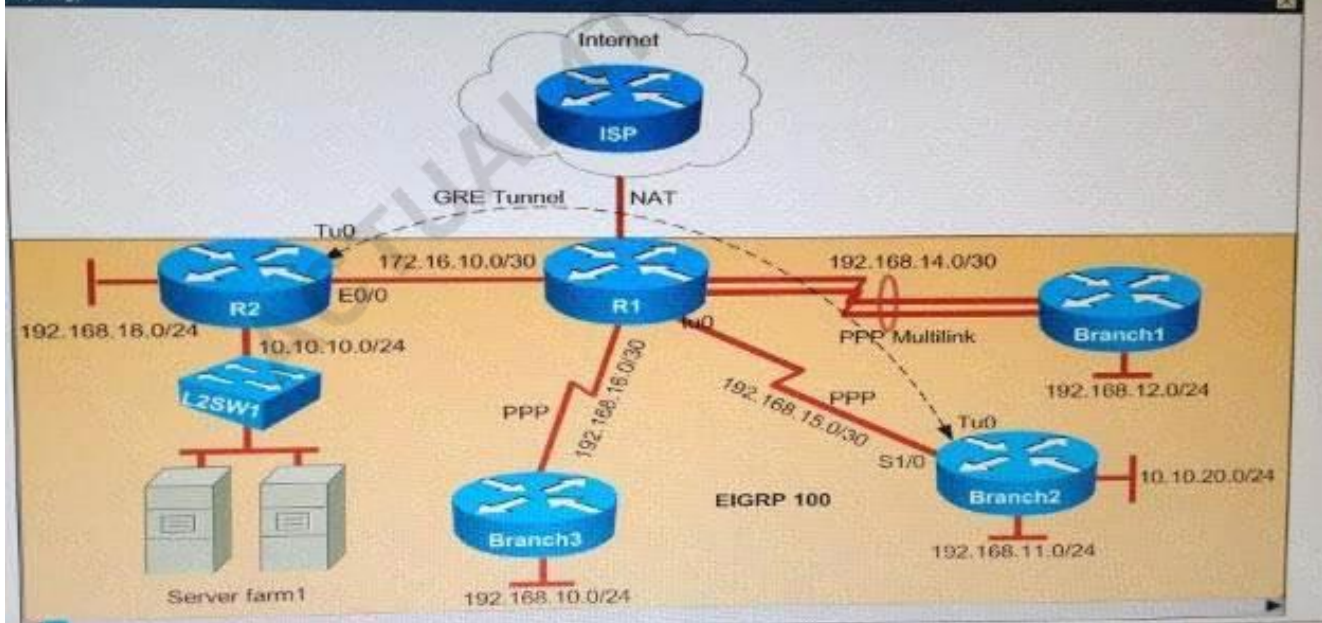
Routers Branch1, Branch2, and Branch3 connect to Router R1 in the main office over serial links.

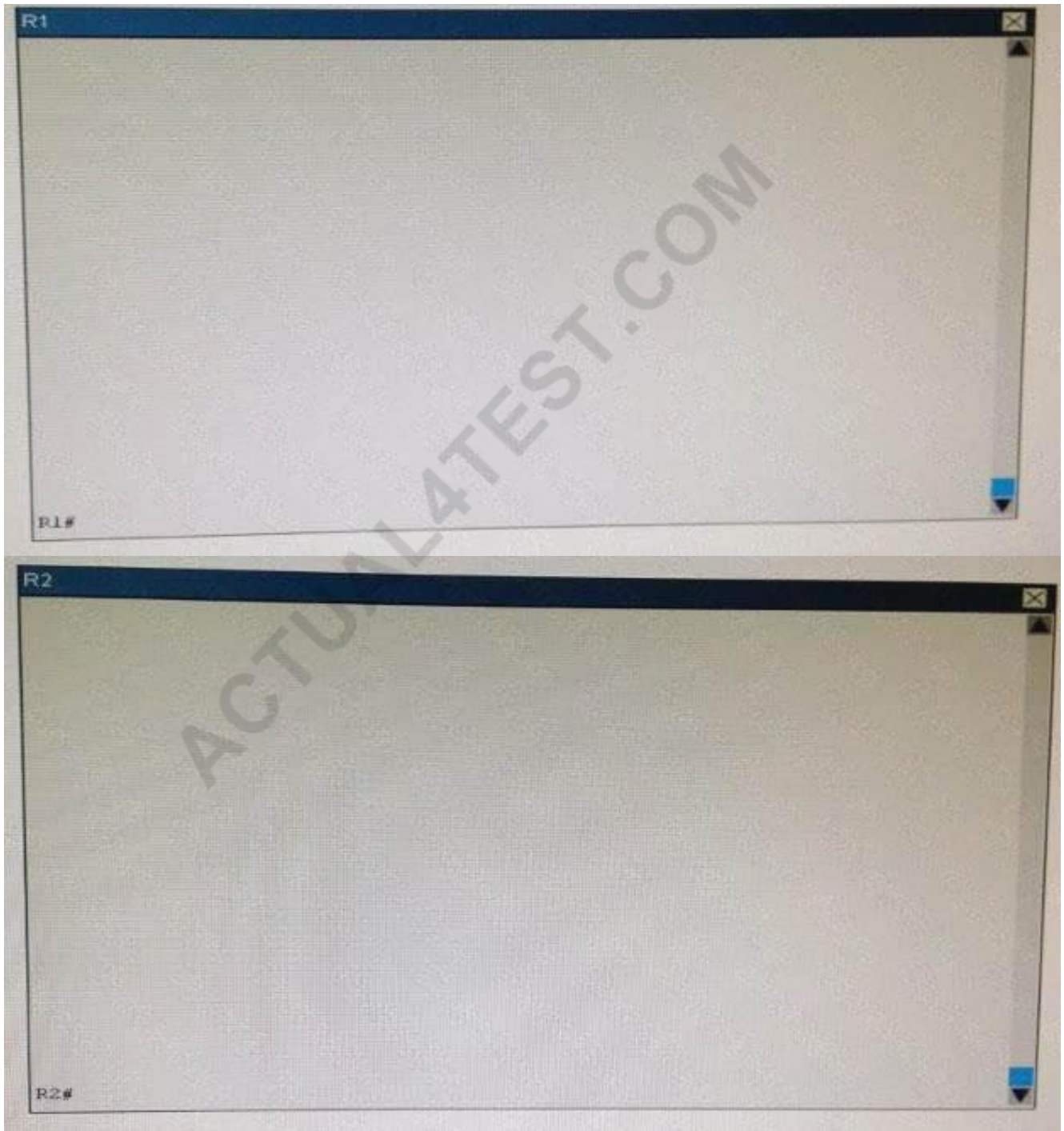
PPP multilink implementation is recommended between R1 and Branch1 routers.

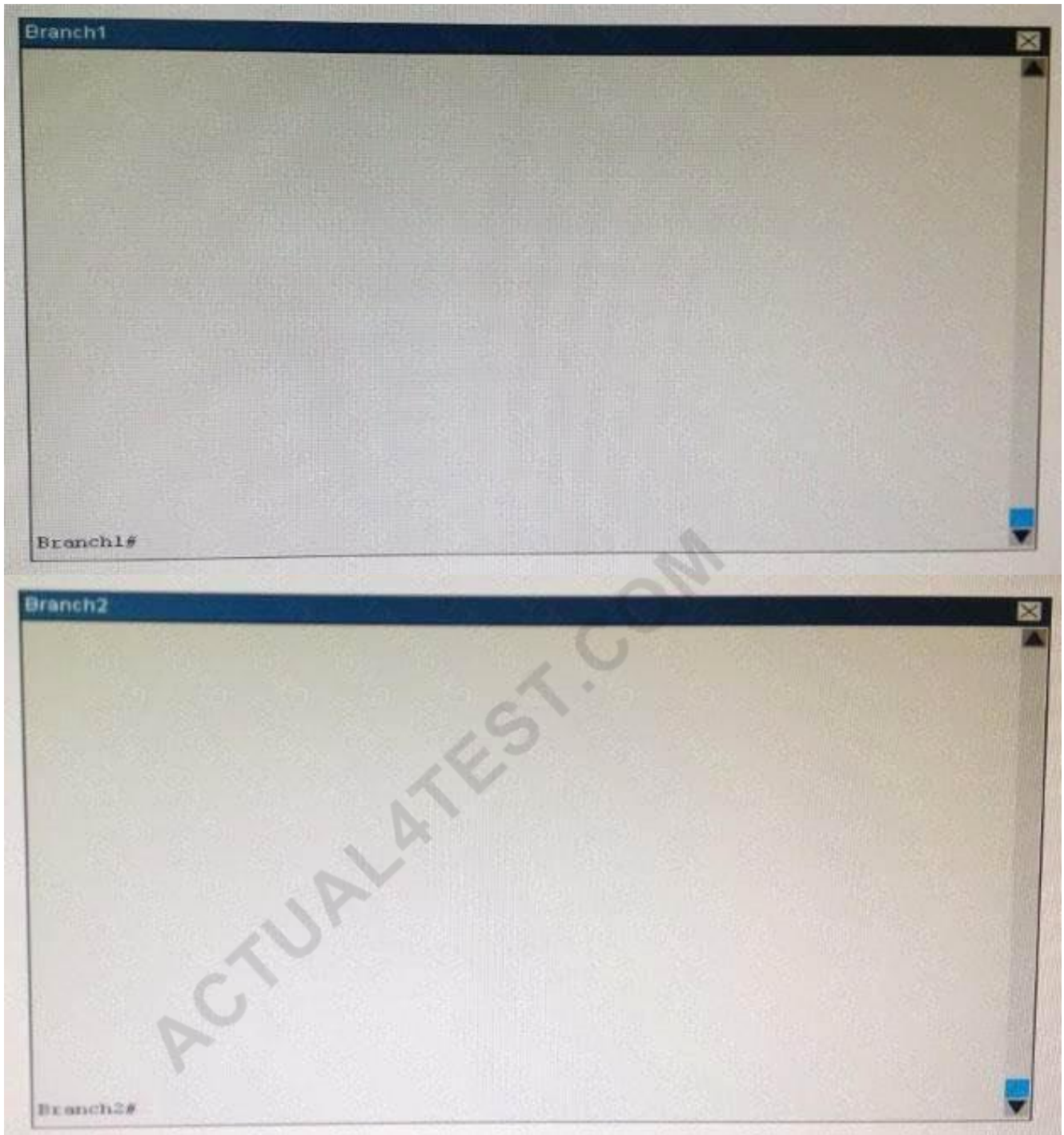
The GRE tunnel is configured between R2 and Branch2 routers, and traffic between Server farm1 10.10.10.0/24 network and Branch2 LAN 10.10.20.0/24 network is routed over GRE tunnel using static route.

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

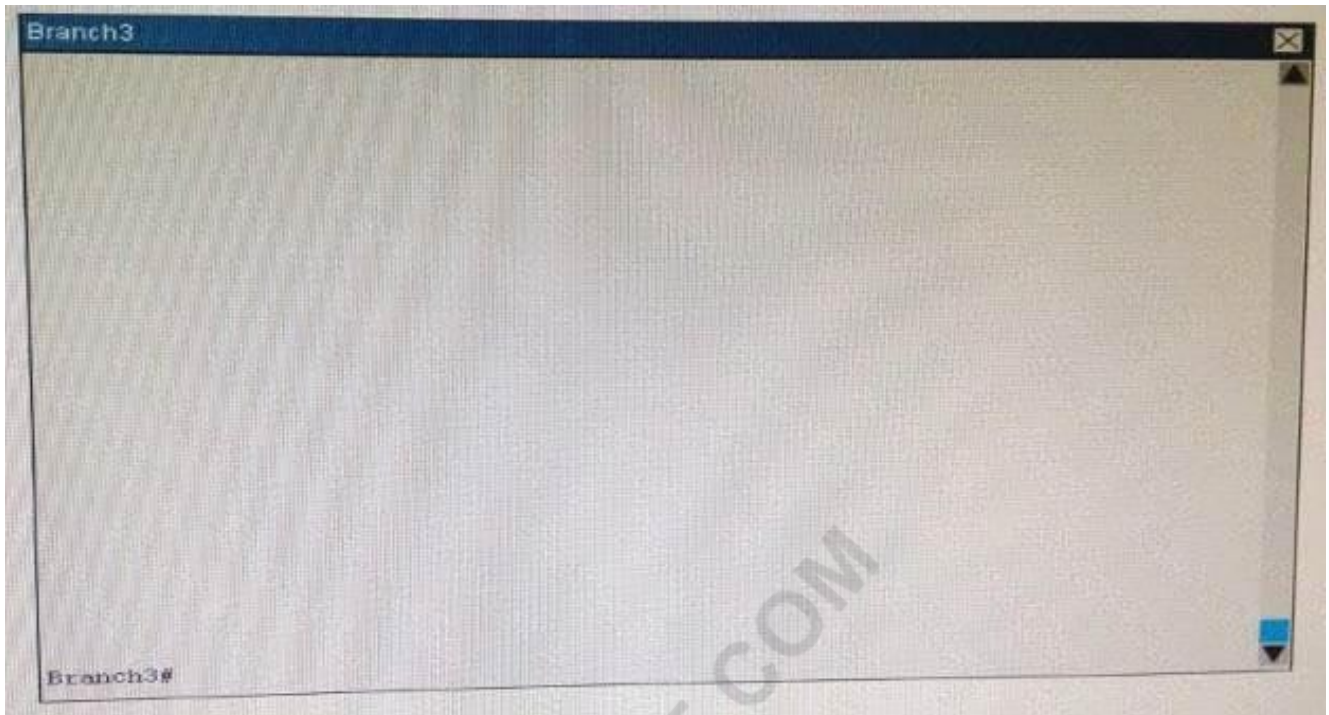
## Topology











Why has the Branch3 router lost connectivity with R1?

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

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

**Answer: A**

Explanation

First we should check Branch3 (and R1) with the "show ip interface brief" command to find any Layer1/Layer2 issue.

```
Branch3# show ip interface brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
Ethernet0/0	192.168.10.1	YES	manual	up	up
Ethernet0/1	unassigned	YES	unset	administratively down	down
Ethernet0/2	unassigned	YES	unset	administratively down	down
Ethernet0/3	unassigned	YES	unset	administratively down	down
Serial1/0	192.168.16.2	YES	manual	up	down
Serial1/1	unassigned	YES	unset	administratively down	down
Serial1/2	unassigned	YES	unset	administratively down	down
Serial1/3	unassigned	YES	unset	administratively down	down

We see the interfaces connecting between them are in "up/down" states which indicates an Layer 2 issue so we should check the configuration of these interfaces carefully with the "show running-config" command and pay attention to these interfaces.

```
R1#show running-config
<output omitted>
interface Serial1/2
  ip address 192.168.16.1 255.255.255.252
  ip nat inside
  ip virtual-reassembly in
  encapsulation ppp
  ppp authentication chap
  serial restart-delay 0
```

and on Branch3:

```
Branch3# show running-config
<output omitted>
interface Serial1/0
  ip address 192.168.16.2 255.255.255.252
  encapsulation ppp
  ppp chap hostname Branch_3
  ppp chap password 0 Branch3_Secret!
  serial restart-delay 0
```

We learn from above config is R1 is using CHAP to authenticate Branch3 router (via the "ppp authentication chap" command on R1). Branch3 router is sending CHAP hostname "Branch\_3" and CHAP password

"Branch3\_Secret!" to R1 to be authenticated. Therefore we should check if R1 has already been configured with such username and password or not with the "show running-config" command on R1:

```
R1#show running-config
<output omitted>
username Branch2 password 0 Branch2_Secret!
username Branch3 password 0 Branch3_Secret!
```

R1\_show\_run\_username.jpg

On R1 we see the configured username is "Branch3", not "Branch\_3" so the usernames here are mismatched and this is the problem -> Answer A is correct.

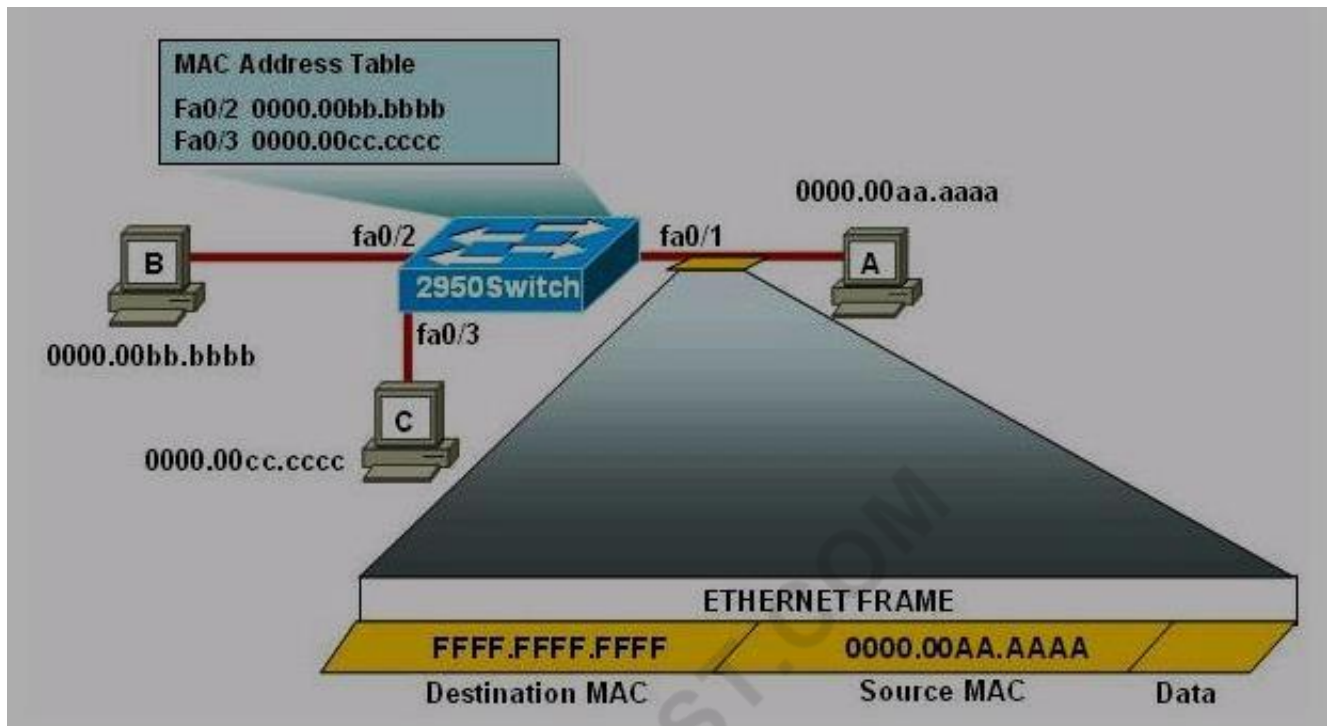
**NO.108** For which routes does the distance bgp 10 50 70 command set the administrative distance?

- A. for BGP external routes only
- B. for all BGP routes
- C. between BGP routes and IGP routes
- D. for BGP internal routes only

**Answer:** B

**NO.109** Refer to the exhibit.





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

```
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 function will occur when this frame is received by 2950Switch? (Choose two.)

- A.** Hosts B and C may forward frames out fa0/1 but frames arriving from other switches will not be forwarded out fa0/1.
- B.** Only host A will be allowed to transmit frames fa0/1.
- C.** The MAC address table will now have an additional entry of fa0/1 FFFF. FFFF,FFFF.
- D.** This frame will be discarded when it is received by 2950Switch.
- E.** All frame arriving on 2950Switch with a destination of 0000. 00aa. Aaaa will be forwarded out fa0/1.
- F.** Only frame from source 0000. 00bb bbbb, the first learned MAC address of 2950Switch, will be forwarded out fa0/1.

**Answer:** B E

**NO.110** Refer to the exhibit .

```

R1#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is 192.168.14.4 to network 0.0.0.0

C    192.168.12.0/24 is directly connected, FastEthernet0/0
C    192.168.13.0/24 is directly connected, FastEthernet0/1
C    192.168.14.0/24 is directly connected, FastEthernet1/0
O    192.168.10.0/24 is variably subnetted, 3 subnets, 3 masks
O      192.168.10.0/24 [110/2] via 192.168.14.4, 00:02:01, FastEthernet1/0
O      192.168.10.32/27 [110/11] via 192.168.13.3, 00:00:52, FastEthernet0/1
O      192.168.0.0/16 [110/2] via 192.168.15.5, 00:05:01, FastEthernet1/1
D    192.168.10.1/32 [90/52778] via 192.168.12.2, 00:03:44, FastEthernet0/0
O*E2 0.0.0.0/0 [110/1] via 192.168.14.4, 00:00:10, FastEthernet1/0

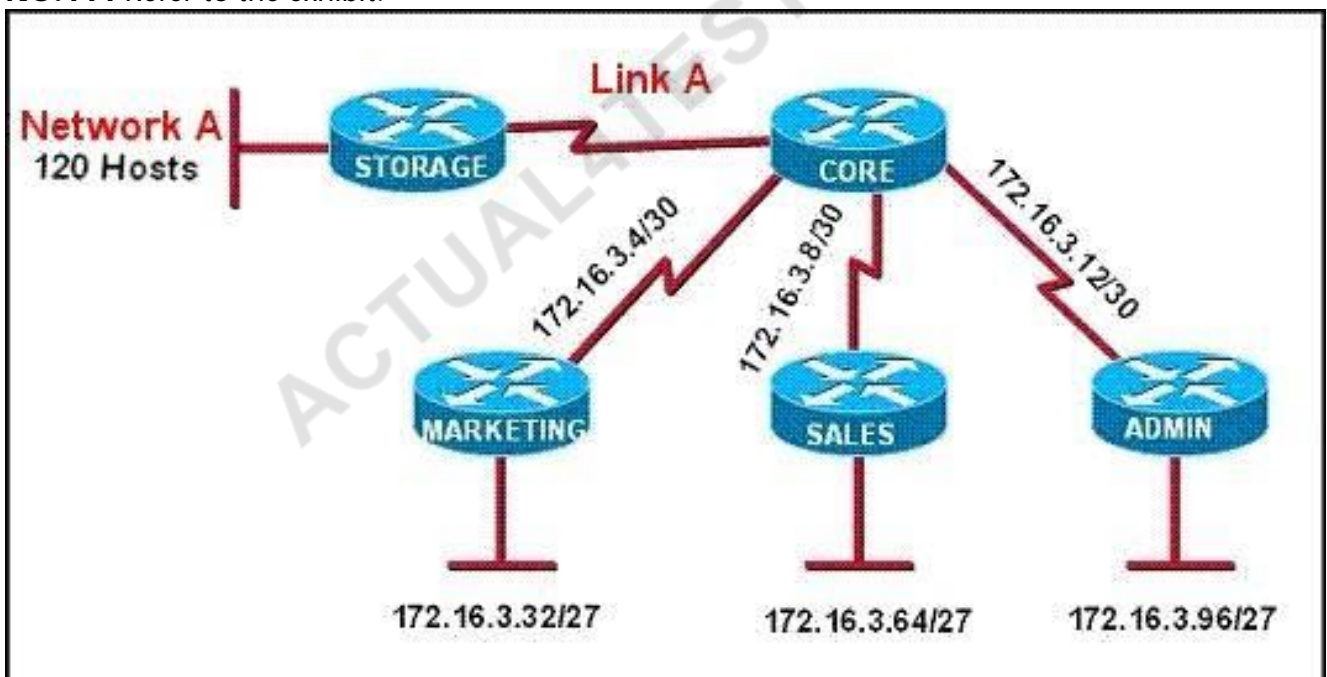
```

if R1 sends Traffic to 192.168.10.45 the traffic is sent through which interface ?

- A. FastEthernet 0/1
- B. FastEthernet 0/0
- C. FastEthernet 1/0
- D. FastEthernet 1/1

**Answer:** A

**NO.111** Refer to the exhibit.



All of the routers in the network are configured with the ip subnet-zero command. Which network addresses should be used for Link A and Network A? (Choose two.)

- A. Network A - 172.16.3.48/26
- B. Network A - 172.16.3.128/25
- C. Network A - 172.16.3.192/26
- D. Link A - 172.16.3.0/30

- E. Link A - 172.16.3.40/30  
 F. Link A - 172.16.3.112/30

**Answer:** B D

Explanation

Only a /30 is needed for the point to point link and since the use of the ip subnet-zero was used, 172.16.3.0/30 is valid. Also, a /25 is required for 120 hosts and again 172.16.3.128/25 is the best, valid option.

**NO.112** Based on the output below from SwitchB, Which Statement is True?

SwitchB# show spanning-tree vlan 40

VLAN0040						
Spanning tree enabled protocol rstp						
Root ID	Priority	24596				
	Address	0017.2935.6418				
	Cost	38				
	Port	11 (FastEthernet0/11)				
	Hello Time	2 sec	Max Age 20 sec	Forward Delay 15 sec		
Bridge ID	Priority	28892	(priority 28652 sys-id-ext 40)			
	Address	0017.596d.1580				
	Hello Time	2 sec	Max Age 20 sec	Forward Delay 15 sec		
	Aging Time	300				
Interface	Role	Sts	Cost	Prio.Nbr	Type	
Fa0/11	Root	FWD	19	128.11	P2p	
Fa0/12	Altn	BLK	19	128.11	P2p	

- A. VLAN 40 is running the per VLAN Spanning Tree Protocol  
 B. The Fa0/11 role confirms that SwitchB is the root bridge for VLAN 40  
 C. SwitchB is not the root bridge, because not all of the interface roles are designated  
 D. The MAC Address of the root bridge is 0017:596d.1580

**Answer:** C

**NO.113** Which two of these statements regarding mode allows traffic? (Choose two)

- A. 802.1Q trunks require full-duplex, point-to-point connectivity.  
 B. 802.1Q trunking ports can also be secure ports.  
 C. 802.1Q native VLAN frames are always untagged and cannot be tagged.  
 D. 802.1Q trunks should have native VLANs that are the same at both ends.  
 E. 802.1Q native VLAN frames are untagged by default.

**Answer:** D E

**NO.114** When EIGRP for IPv6 is configured, what is the effect of the command?

- A. It adds 100 to the external administrative distance and adds 150 to the internal administrative

distance

**B.** It sets the internal EIGRP administrative distance to 100 and the external EIGRP administrative distance to 150

**C.** It sets the external EIGRP administrative distance to 100 and the internal EIGRP administrative distance to 150

**E.** It adds 100 to the internal administrative distance and adds 150 to the external administrative distance

**Answer:** B

**NO.115** A Cisco router is booting and has just completed the POST process. It is now ready to find and load an IOS image. What function does the router perform next?

**A.** It attempts to boot from a TFTP server.

**B.** It checks the configuration register.

**C.** It inspects the configuration file in NVRAM for boot instructions.

**D.** It loads the first image file in flash memory.

**Answer:** B

**NO.116** Which two addresses are broadcast addresses? (Choose two)

**A.** 172.17.210.255/24

**B.** 10.1.2.255/23

**C.** 10.1.0 255/23

**D.** 10.1.2.255/22

**E.** 10.1.1.255/23

**Answer:** A E

**NO.117** Which statement describes the effect of the exec-timeout 30 command?

**A.** The router maintains a user session indefinitely after it is active for 30 seconds.

**B.** The router disconnects the user session if it is inactive for 30 minutes.

**C.** The router maintains a user session indefinitely after it is active for 30 minutes.

**D.** The router disconnects a user session if it is inactive for 30 seconds.

**Answer:** B

**NO.118** Which two statements about the ip default-network command are true? (Choose two.)

**A.** It specifies the network that is used when the device cannot find an exact match in the routing table.

**B.** It can be configured on a Layer 2 switch to specify the next hop.

**C.** It specifies the network that is used when the device finds an exact match in the routing table.

**D.** It requires IP routing to be enabled on the device.

**E.** It requires IP routing to be disabled on the device.

**Answer:** C D

Explanation

[https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute\\_pi/configuration/x3se/3650/iri-x3se-3650-book/ir](https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_pi/configuration/x3se/3650/iri-x3se-3650-book/ir)

**NO.119** Refer to the exhibit.

```
R1
ipv6 cef

interface FastEthernet0/0
no ip address
ipv6 enable
    ipv6 address 2001:DB8:1::1/64
    ipv6 ospf 1 area 0

ipv6 router ospf 1
    router-id 172.16.1.1
```

After you apply the given configuration to R1, you notice that it failed to enable OSPF. Which action can you take to correct the problem?

- A. Configure a loopback interface on R1
- B. Enable IPv6 unicast routing on R1.
- C. Configure an IPv4 address on interface FO/0.
- D. Configure an autonomous system number on OSPF.

**Answer:** C

**NO.120** Which IEEE mechanism is responsible for the authentication of devices when they attempt to connect to a local network?

- A. 802.1x
- B. 802.3x
- C. 802.11
- D. 802.2x

**Answer:** A

**NO.121** Which address block identifies all link-local addresses?

- A. FC00::/7
- B. FC00-78



C. FE80::10

D. FF00::/8

**Answer:** C

**NO.122** What are two requirements for an HSRP group? (Choose two.)

A. one or more standby routers.

B. one or more backup virtual routers

C. exactly one standby active router

D. exactly one backup virtual router

E. exactly one active router

**Answer:** A E

**NO.123** \*\*\*ip dhcp pool my pool\*\*\*\*\*

\*\*\*network 192.168.10.0/27\*\*\*

\*\*\*domain name cisco.com\*\*\*

\*\*\*\*name server some ip\*\*\*

Dhcp client in the back can not communicate with hosts in the outside of their subnet ?

A. need to activate dhcp pool

B. need to configure default gateway

C. other option

D. other option

**Answer:** B

**NO.124** Which two statements about fiber cable are true? (Choose two)

A. Single-mode fiber supports SC and LC connectors only.

B. Multimode cable supports speeds between 100 Mbps and 9.92 Gbps.

C. Single-mode cable is most appropriate for installations longer than 10 km.

D. Fiber cable is relatively inexpensive and supports a higher data rate than coaxial cable.

E. Multimode cable supports speeds between 100 Mbps and 100 Gbps.

**Answer:** C D

**NO.125**

```

R1#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is 192.168.14.4 to network 0.0.0.0

C    192.168.12.0/24 is directly connected, FastEthernet0/0
C    192.168.13.0/24 is directly connected, FastEthernet0/1
C    192.168.14.0/24 is directly connected, FastEthernet1/0
O    192.168.10.0/24 is variably subnetted, 3 subnets, 3 masks
O      192.168.10.0/24 [110/1] via 192.168.14.4, 00:02:01, FastEthernet1/0
O      192.168.10.32/27 [110/11] via 192.168.13.3, 00:00:52, FastEthernet1/0
O      192.168.0.0/16 [110/2] via 192.168.13.5, 00:05:01, FastEthernet1/0
D    192.168.10.1/32 [90/50778] via 192.168.12.2, 00:03:44, FastEthernet1/0
O*E2 0.0.0.0/0 [110/1] via 192.168.14.4, 00:00:10, FastEthernet1/0

```

refer to the exhibit , on R1, which routing protocol is in use on the route to 192.168.10.1?

- A. EIGRP
- B. OSPF
- C. RIP
- D. BGP

**Answer:** A

**NO.126** Which definition of a host route is true?

- A. a route to the exact /32 destination address
- B. a route used when a route to the destination network is missing
- C. a dynamic route learned from a server
- D. a route that is manually configured

**Answer:** A

**NO.127** Which statement about EIGRP on IPv6 device is true?

- A. It is configured directly on the interface
- B. the configuration uses secondary ip address
- C. the neighbors of each device are directly configured
- D. the configuration uses process numbers

**Answer:** A

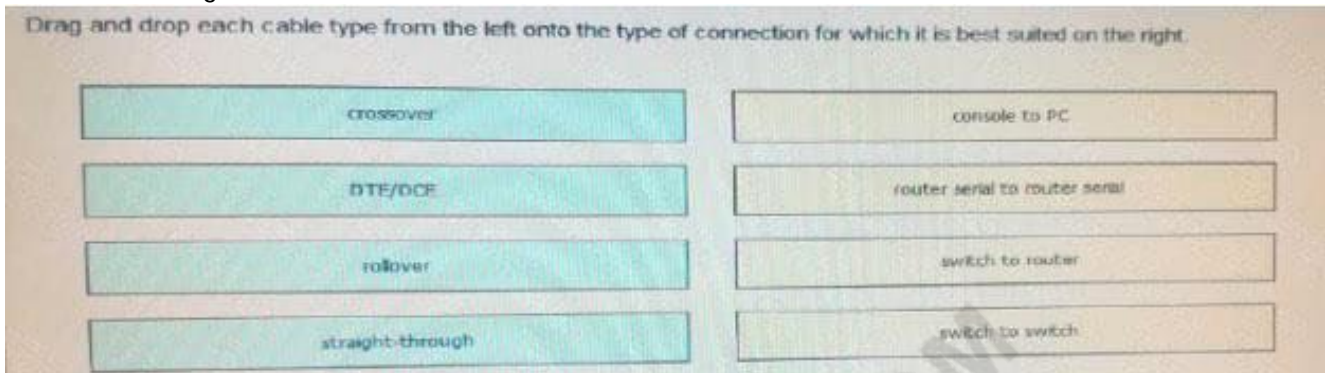
Explanation

Explanation/Reference:

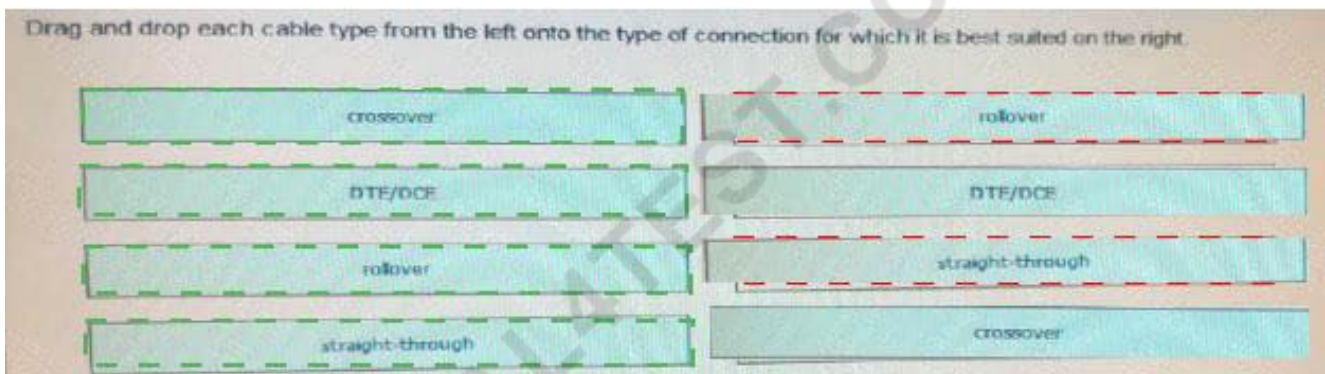
<http://www.cisco.com/c/en/us/support/docs/ip/enhanced-interior-gateway-routing-protocol-eigrp/113267-eigrp-ip>

**NO.128** Drag and drop each cable type from the left onto the type of connection for which it is best

suited on the right .



**Answer:**



Explanation



**NO.129** Which two statements about PAP authentication in a PPP environment are true? (Choose two.)

- A.** It sends the password in clear text
- B.** It uses a username with an MD5 password to authenticate.
- C.** It is performed at the beginning of the session and is repeated periodically for as long as the session is maintained
- D.** It is performed at the beginning of the session only
- E.** It hashes the password before sending it.

**Answer:** A D

**NO.130** Which statement about VLAN configuration is true?

- A. The switch must be in config-vlan mode before you configure an extended VLAN.
- B. Dynamic inter-VLAN routing is supported on VLAN 2 through VLAN 4064.
- C. A switch in VTP transparent mode saves the VLAN database to the running configuration only.
- D. The switch must be in VTP server or transparent mode before you configure a VLAN.

**Answer:** D

**NO.131** Which command is configured on a switch to enable neighbor discovery in a multivendor environment?

- A. cdp run
- B. lldp run
- C. lldp transmit
- D. lldp receive

**Answer:** B

**NO.132** Which command can you enter to determine the addresses that have been assigned on a DHCP Server?

- A. Show ip DHCP database.
- B. Show ip DHCP pool.
- C. Show ip DHCP binding.
- D. Show ip DHCP server statistic.

**Answer:** C

Reference:

<http://www.aubrett.com/InformationTechnology/RoutingandSwitching/Cisco/CiscoRouters/DHCPBindings.aspx>

"Router#show ip dhcp binding

Bindings from all pools not associated with VRF:

IP address Client-ID/ Lease expiration Type

10.16.173.0 24d9.2141.0ddd Jan 12 2013 03:42 AM Automatic"

**NO.133** If Router R1 knows a static route to a destination network and then learns about the same destination through a dynamic routing protocol does R1 respond?

- A. it disables the routing protocol
- B. it refuses to advertise the dynamic route to other neighbors
- C. it prefers the static route
- D. It sends a withdrawal notification to the neighboring router.

**Answer:** C

**NO.134** An administrator is working with the 192.168.4.0 network, which has been subnetted with a /26 mask. Which two addresses can be assigned to hosts within the same subnet? (Choose two.)

- A. 192.168.4.67
- B. 192.168.4.61
- C. 192.168.4.128

- D. 192.168.4.132
- E. 192.168.4.125
- F. 192.168.4.63

**Answer:** A E

**NO.135** Refer to the exhibit.

Which two statements about router R1 are true? (Choose two.)

- A. The router has two EIGRP neighbors and one OSPF neighbor.
- B. The router is learning external OSPF and EIGRP routes.
- C. At least two IGP routing protocols are running on the router.
- D. The least two IGP routing protocols are running on the router.
- E. The router has an OSPF Area 0 adjacency with the device at 10.82.4.42.

**Answer:** A B

**NO.136** Which VTP mode prevents you from making changes to vlans?

- A. Server.
- B. Client.
- C. Transparent.
- D. Off

**Answer:** B

Explanation

VTP Client

\* VTP clients function the same way as VTP servers, but you cannot create, change, or delete VLANs on a VTP client.

\* A VTP client only stores the VLAN information for the entire domain while the switch is on.

\* A switch reset deletes the VLAN information.

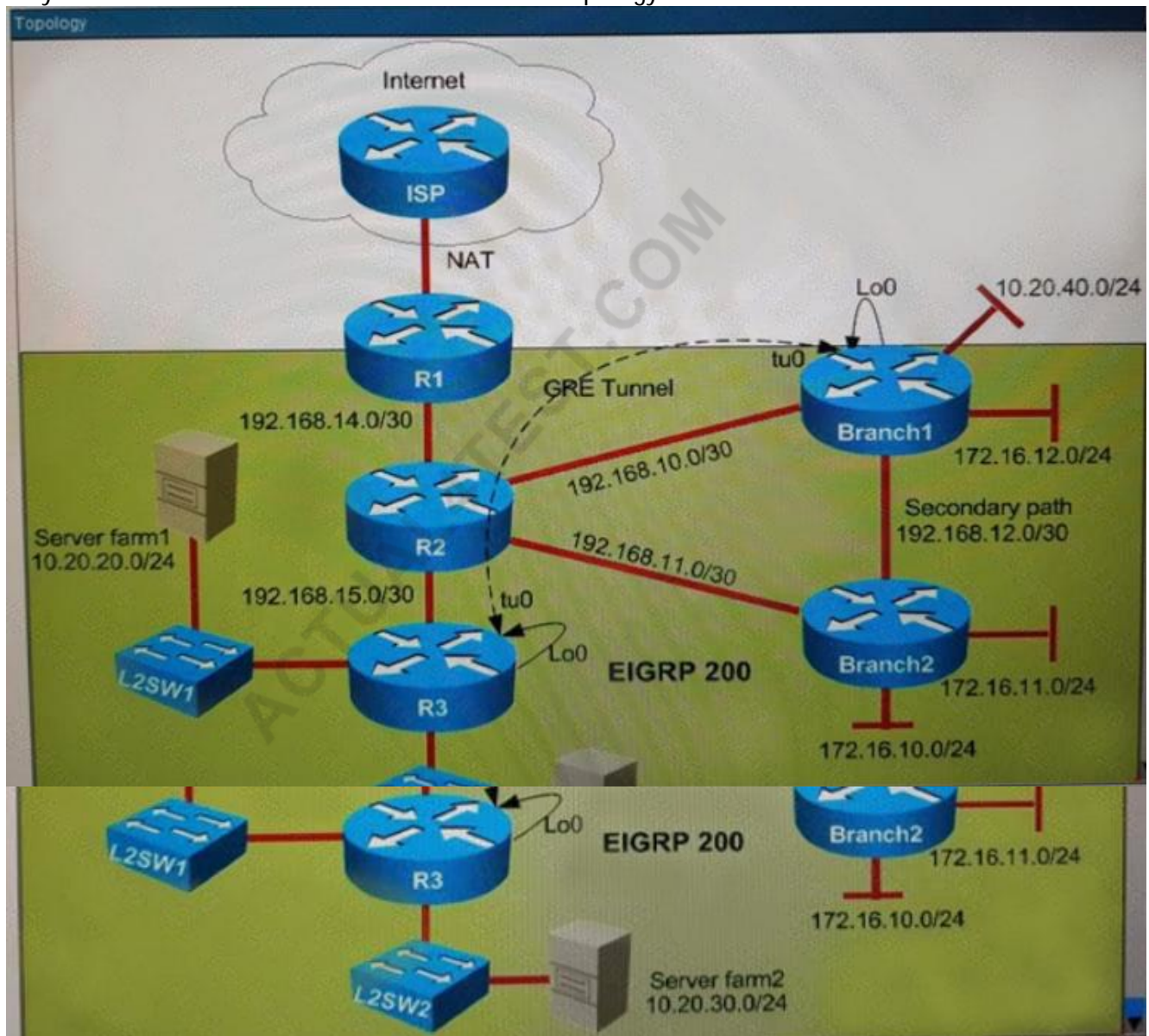
\* You must configure VTP client mode on a switch.

**NO.137** You are implementing EIGRP between the main office and branch offices. In Phase 1 you must implement and verify EIGRP configurations as mentioned in the topology in Phase 2. your colleague is expected to do NAT and ISP configurations Identity the issues that you are encountering during Phase 1 EIGRP implementation.

- \* Router R1 connects the main office to the Internet and routers R2 and R3 are internal routers
- \* Routers Branch 1 and Branch2 connect to router R2 in the main office.



- \* Users from the Branch1 LAN network 10.20.40.0/24 are expected to perform testing of the application that is hosted on the servers in Server farm1, before servers are available for production
- The GRE tunnel is configured between R3 and Branch1, and traffic between server farm1 and Branch1 LAN network 10.20.40.0/24 is routed through the GRE tunnel using static routes
- \* The link between Branch1 and Branch2 is used as a secondary path in the event of failure of the primary path to mam office You have console access on R1. R2. R3. Branch1, and Branch2 devices Use only show commands to troubleshoot the issues Topology:



```

Branch1
ip address 10.20.40.1 255.255.255.0
!
!
router eigrp 200
 network 10.16.200.2 0.0.0.0
 network 172.16.12.0 0.0.0.255
 network 192.168.10.0
 network 192.168.12.0
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
ip route 10.20.20.0 255.255.255.0 Tunnel
!

```

```

R3
interface Ethernet0/0
 description ***Link to Server farm2***
 ip address 10.20.30.1 255.255.255.0
!
interface Ethernet0/1
 description ***Link to Server farm1***
 ip address 10.20.20.1 255.255.255.0
!
interface Ethernet0/2
 description ***Link to R2***
 ip address 192.168.15.2 255.255.255.252
!
interface Ethernet0/3
 no ip address
 shutdown

```

Examine the R1 routing table. None of the internal routes other than locally connected appear in the routing table. Which cause of the issue is true?

- A. EIGRP neighbor relationship was not formed due to AS mismatch between routers R1 and R2.
- B. EIGRP neighbor relationship was not formed due to K values mismatch between routers R1 and R2.
- C. EIGRP packets were blocked by the inbound ACL on R1.
- D. IP address was misconfigured between the R1 and R2 interfaces.

**Answer:** C

**NO.138** Which header field is new in IPv6?

- A. Hop Limit
- B. Flow Label
- C. Version

**D. Traffic Class**

**Answer:** A

**NO.139** Which two IP SLA operations can you use to measure the end-to-end response time for all IP traffic between a Cisco router and an end device?

- A.** ICMP path echo
- B.** UDP echo
- C.** ICMP path jitter
- D.** UDP jitter
- E.** TCP connect
- F.** ICMP echo

**Answer:** A F

**NO.140** Which two command can you enter to display the current time sources statistics on devices ? (Choose TWO)

- A.** Show ntp associations.
- B.** Show clock details.
- C.** Show clock.
- D.** Show time.
- E.** Show ntp status.

**Answer:** A E

**NO.141** If all switches are configured with default values, which switch will take over when the primary root bridge experiences a power loss?

- A.** switch 00E0.F90B.6BE3
- B.** switch 0040. 0BC0.90C5
- C.** switch 004.9A1A C182
- D.** switch 00E0 F726. 3D C6

**Answer:** C

**NO.142** You are implementing WAN access for an enterprise network while running applications that require a fully meshed network, which two design standards are appropriate for such an environment? (Choose two)

- A.** a dedicated WAN distribution layer, to consolidate connectivity to remote sites.
- B.** a centralized DMVPN solution, to simplify connectivity for the enterprise.
- C.** multiple MPLS VPN connections with static routing
- D.** a collapsed core and distribution layer, to minimize costs.
- E.** multiple MPLS VPN connections with dynamic routing

**Answer:** B C

**NO.143** Which feature or utility enables a switch or router to monitor network performance and availability using a responder?

- A.** traceroute

- B. NetFlow
- C. ping
- D. IPSLA

**Answer:** D

**NO.144** Which two options are features of the extended ping command? (Choose two.)

- A. It can send a specified number of packets.
- B. It can resolve the destination host name.
- C. It can ping multiple hosts at the same time.
- D. It can send packets from a specified interface or IP address.
- E. It can count the number of hops to the remote host.

**Answer:** A D

**NO.145** What is the default encapsulation type for Cisco WAN serial interfaces?

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

**Answer:** B

**NO.146** On which type of port can switches interconnect for multi-VLAN communication?

- A. interface port
- B. access port
- C. switch port
- D. trunk port

**Answer:** D

**NO.147** which major ipv6 address type is supported in ipv4 but rarely used ?

- A. Broadcast
- B. multicast
- C. unicast
- D. anycast

**Answer:** B

**NO.148** Which of the following correctly describe steps in the OSI data encapsulation process?  
(Choose two)

- A. The transport layer divides a data stream into segments and may add reliability and flow control information.
- B. The data link layer adds physical source and destination addresses and an FCS to the segment.
- C. Packets are created when the network layer encapsulates a frame with source and destination host addresses and protocol-related control information.
- D. Packets are created when the network layer adds Layer 3 addresses and control information to a segment.



**E.** The presentation layer translates bits into voltages for transmission across the physical link.

**Answer:** A D

Explanation

Explanation

The transport layer segments data into smaller pieces for transport. Each segment is assigned a sequence number, so that the receiving device can reassemble the data on arrival.

The transport layer also use flow control to maximize the transfer rate while minimizing the requirements to retransmit. For example, in TCP, basic flow control is implemented by acknowledgment by the receiver of the receipt of data; the sender waits for this acknowledgment before sending the next part.

**NO.149** Drag and drop the descriptions of performing an initial device configuration from the left onto the correct features or components on the right.

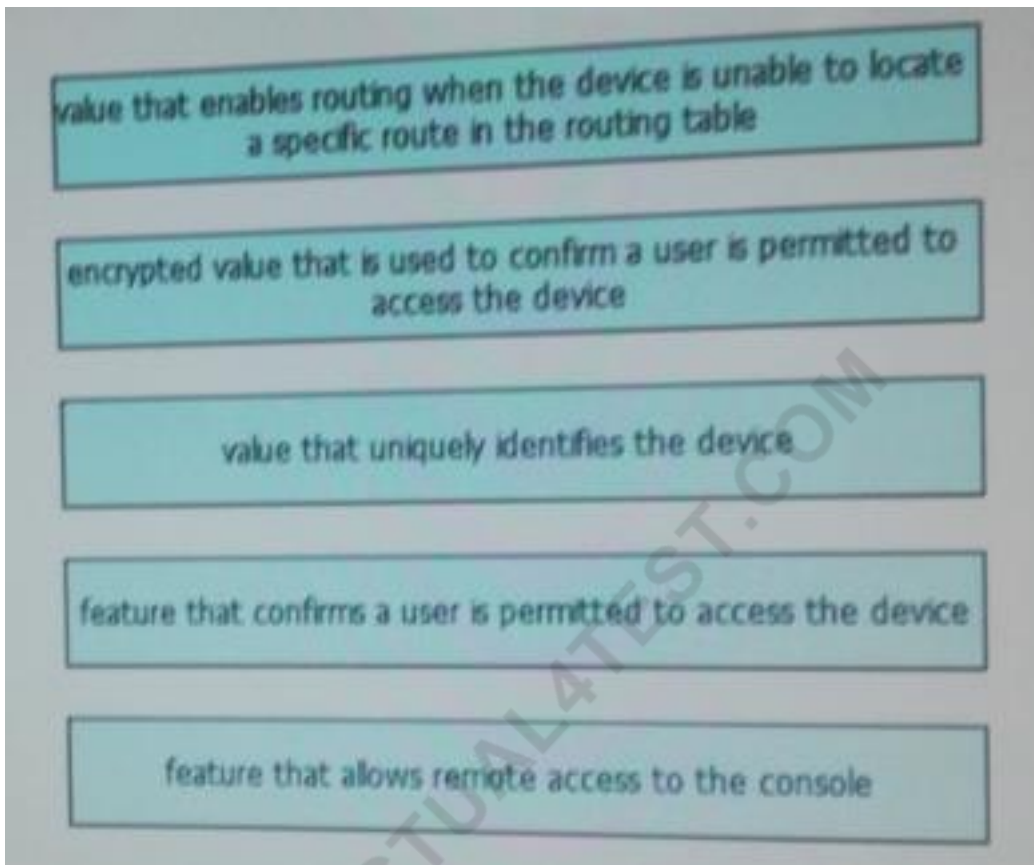
feature that allows remote access to the console	default gateway
feature that confirms a user is permitted to access the device	enable secret password
value that enables routing when the device is unable to locate a specific route in the routing table	hostname
value that uniquely identifies the device	password
encrypted value that is used to confirm a user is permitted to access the device	VTY line

**Answer:**

feature that allows remote access to the console	value that enables routing when the device is unable to locate a specific route in the routing table
feature that confirms a user is permitted to access the device	encrypted value that is used to confirm a user is permitted to access the device
value that enables routing when the device is unable to locate a specific route in the routing table	value that uniquely identifies the device
value that uniquely identifies the device	feature that confirms a user is permitted to access the device
encrypted value that is used to confirm a user is permitted to access the device	feature that allows remote access to the console

Explanation





**NO.150** Which protocol verifies connectivity between two switches that are configured with IP addresses in the same network?

- A. ICMP
- B. STP
- C. VTP
- D. HSRP

**Answer:** A

**NO.151** Which OoS feature can drop traffic that exceeds the committed access rate?

- A. policing
- B. shaping
- C. OFIFO
- D. weighted fair queuing

**Answer:** A

**NO.152** Which value can you modify to configure a specific interface as the preferred forwarding interface?

- A. the VLAN priority
- B. the hello time
- C. the port priority
- D. the interface number

**Answer:** C

**NO.153** A router has learned three possible routes that could be used to reach a destination network. One route is from EIGRP and has a composite metric of 07104371. Another route is from OSPF with a metric of 782. The last is from RIPv2 and has a metric of 4. Which route or routes will the router install in the routing table?

- A. the EIGRP route
- B. the OSPF route
- C. the RIPv2 route
- D. all three routes
- E. the OSPF and RIPv2 routes

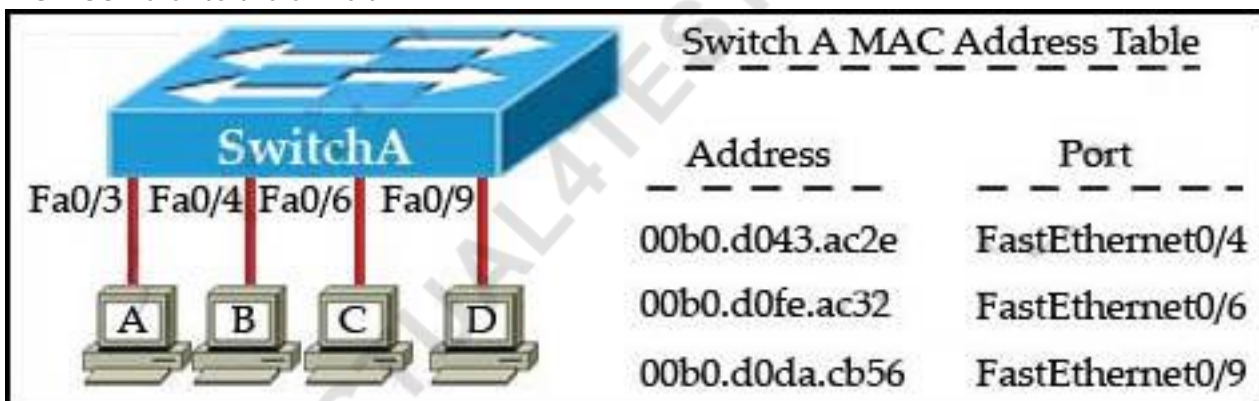
**Answer:** A

**NO.154** Which two statements about RFC 1918 addresses are true? (Choose two)

- A. They provide security to end users when the users access the Internet.
- B. They must be registered.
- C. They have reserved address space for Class A and Class B networks only.
- D. They require Network Address Translation or Port Address Translation to access the Internet.
- E. They increase network performance.

**Answer:** A B

**NO.155** Refer to the exhibit.



The exhibit is showing the topology and the MAC address table. Host A sends a data frame to host D. Which option describes what the switch will do when it receives the frame from host A?

- A. The switch will flood the frame out of all ports except for port Fa0/3.
- B. The switch will add the destination address of the frame to the MAC address table and forward the frame to host D.
- C. The switch will add the source address and port to the MAC address table and forward the frame to host D.
- D. The switch will discard the frame and send an error message back to host A.

**Answer:** C

**NO.156**

router#show ip route

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP, D - EIGRP  
 EX - EIGRP external, O - OSPF, IA - OSPF inter area, N1 - OSPF NSSA external type 1,  
 N2 - OSPF NSSA external type 2, E1 - OSPF external type 1, E2 - OSPF external type 2,  
 E - EGP, i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, \* - candidate default, U - per-user  
 static route, o - ODR

Gateway of last resort is 192.168.4.1 to network 0.0.0.0

10.0.0.0/24 is subnetted, 3 subnets

```
C      10.0.2.0 is directly connected, Ethernet1
D      10.0.3.0 [90/2195456] via 192.168.1.2, 00:03:01, Serial0
D      10.0.4.0 [90/2195456] via 192.168.3.1, 00:03:01, Serial1
C      192.168.1.0/24 is directly connected, Serial0
D      192.168.2.0/24 [90/2681856] via 192.168.1.2, 00:03:01, Serial0
          [90/2681856] via 192.168.3.1, 00:03:01, Serial1
C      192.168.3.0/24 is directly connected, Serial1
C      192.168.4.0/24 is directly connected, Serial2
```

Refer to the exhibit. How will the router handle a packet destined for 192.0.2.156?

- A. The router will forward the packet via either Serial0 or Serial1.
- B. The router will return the packet to its source.
- C. The router will forward the packet via Serial2.
- D. The router will drop the packet.

**Answer:** C

**NO.157** Refer to the exhibit.

```
R1
interface Loopback0
  ip address 172.16.1.1 255.255.255.255

interface FastEthernet0/0
  ip address 192.168.12.1 255.255.255.0

interface FastEthernet0/1
  ip address 192.168.10.1 255.255.255.0

router ospf 1
  router-id 172.16.1.1
  network 172.16.1.1 0.0.0.0 area 0
  network 192.168.10.0.0.0.255 area 0
```



You have discovered that computers on the 192.168.10.0/24 network can ping their default gateway, but they cannot connect to any resources on a remote network. Which reason for the problem is most likely true?

- A.** The 192.168.10.0/24 network is missing from OSPF
- B.** The OSPF process ID is incorrect
- C.** The OSPF area number is incorrect.
- D.** An ARP table entry is missing for 192.168.10.0.
- E.** A VLAN number is incorrect for 192.168.10.0.

**Answer:** A

**NO.158** Drag and Drop the route source codes in a routing table from the left onto the correct meanings on the right.

C	directly connected network
D	manually configured static route
I	route learned dynamically by EIGRP
	route learned dynamically by IGRP
O	route learned dynamically by IS-IS
S	route learned dynamically by OSPF

**Answer:**

C	C
D	S
I	D
I	I
O	I
S	O

## Explanation



**NO.159** In which STP state does MAC address learning take place on a PortFast-enabled port?

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

**Answer:** D

Explanation

<http://www.omnisecu.com/cisco-certified-network-associate-ccna/spanning-tree-port-states.php>

**NO.160** Which command should you enter to configure a single port to discard inferior BPDUs?

- A. spanning-tree portfast bpdupfilter default
- B. spanning-tree guard root
- C. spanning-tree portfast bpduguard



D. spanning-tree portfast bpdupfilter

**Answer:** C

**NO.161** Which two statements about Ethernet standards are true? (Choose two)

- A. Ethernet is defined by IEEE standard 802.2.
- B. Ethernet is defined by IEEE standard 802.3.
- C. Ethernet 10BASE-T does not support full-duplex.
- D. When an Ethernet network uses CSMA/CD, it terminates transmission as soon as a collision occurs.
- E. When an Ethernet network uses CSMA/CA, it terminates transmission as soon as a collision occurs.

**Answer:** B D

**NO.162** Which type of attack can be mitigated by configuring the default native vlan to be unused ?

- A. switch spoofing
- B. cam table overflow
- C. vlan hopping
- D. MAC spoofing

**Answer:** C

**NO.163** Which three advantages can static routing provide over dynamic routing? (Choose three)

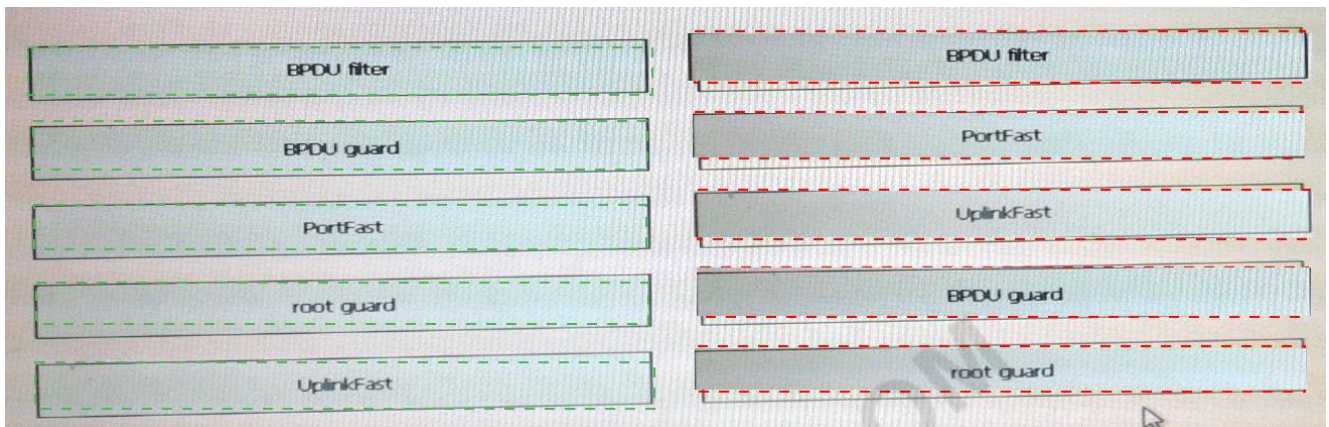
- A. Static routing is less time-consuming to manage in large networks than dynamic routing
- B. Static routing requires fewer resources than dynamic routing
- C. Static routes are more predictable than dynamic routes.
- D. Unlike dynamic routing, static routing can operate normally without routine advertisements
- E. Unlike dynamic routing, static routing allows the router to choose the best path
- F. Unlike dynamic routing, static routing can automatically adjust the topology when traffic requires rerouting

**Answer:** B C D

**NO.164** Drag and drop the STP features from the left onto the correct descriptions on the right

BPDU filter	disables the switch port when it receives a BPDU
BPDU guard	drops all BPDUs received on the switch port
PortFast	enables quick convergence when a direct link to a non-end device fails
root guard	forces the switch to transition directly from the blocking state to the forwarding state
UplinkFast	prevents the port from becoming a blocked port

**Answer:**



#### Explanation

Disables the switch port when it receives a BPDU = BPD Filter

Drops all BPDUs received on the switch port = PortFast

Enable quick convergence when a direct link to a non-end device fails. = UplinkFast Forces the switch to transition directly from the blocking state to the forwarding state = BPD guard Prevents the port from becoming a blocked port = root guard

**NO.165** Which two statements about the APIC-EM ACL Trace tool are true? (Choose two)

- A.** Traffic analysis is performed for an entire path from source to destination, even if an ACL along the path would have blocked the actual traffic
- B.** It analyzes egress traffic flow only
- C.** It can analyze ingress and egress traffic flows
- D.** It can ACL along the path from source to destination would have blocked the actual traffic, the traffic analysis stops at that ACL.
- E.** If traffic matches more than one entry in a single ACL, higher and lower priority entries are applied

**Answer:** C D

**NO.166** Which network configuration can you use to segregate broadcast traffic for two different departments in your organization?

- A.** Configure two VTP domains and configure the switches in transparent mode.
- B.** Enable spanning-tree load balancing.
- C.** Implement switch port security on designated ports.
- D.** Configure a separate VLAN for each department.

**Answer:** D

**NO.167** What are three features of the IPv6 protocol?

(Choose three.)

- A.** optional IPsec
- B.** autoconfiguration
- C.** no broadcasts
- D.** complicated header
- E.** plug-and-play
- F.** checksums

**Answer:** B C E

### Explanation

An important feature of IPv6 is that it allows plug and play option to the network devices by allowing them to configure themselves independently. It is possible to plug a node into an IPv6 network without requiring any human intervention. This feature was critical to allow network connectivity to an increasing number of mobile devices. This is accomplished by autoconfiguration.

IPv6 does not implement traditional IP broadcast, i.e. the transmission of a packet to all hosts on the attached link using a special broadcast address, and therefore does not define broadcast addresses.

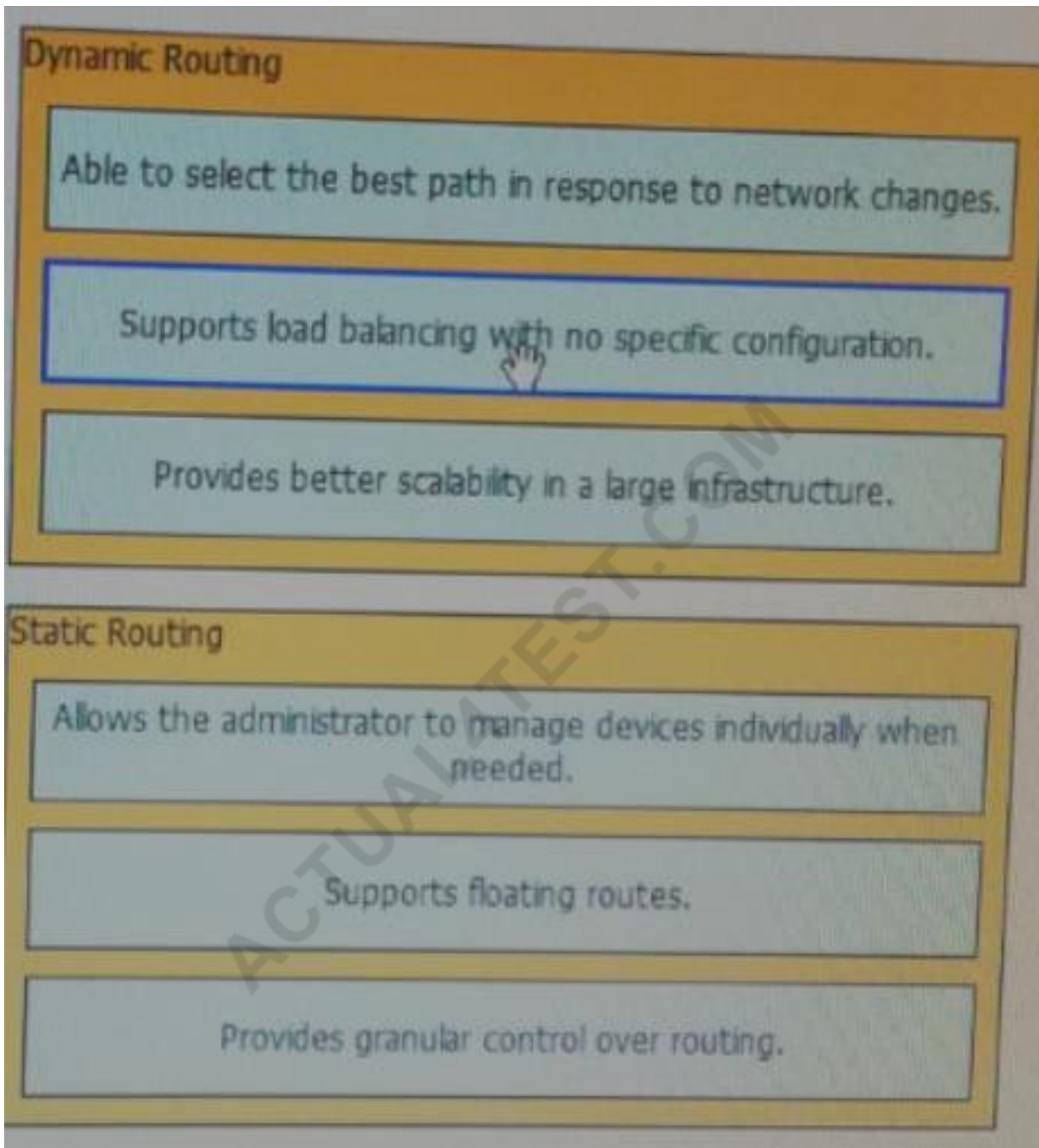
In IPv6, the same result can be achieved by sending a packet to the link-local all nodes multicast group at address ff02::1, which is analogous to IPv4 multicast to address 224.0.0.1.

**NO.168** Drag and drop each advantage of static or dynamic routing from the left onto the correct routing type on the right.

**Answer:**

### Explanation





**NO.169** Which two descriptions of TACACS+ are true? (Choose two)

- A. It can authorize specific router commands.
- B. It encrypts only the password.
- C. It separates authentication, authorization, and accounting functions
- D. It combines authentication and authorization.
- E. It uses UDP as its transport protocol

**Answer:** A C

Explanation

<https://www.cisco.com/c/en/us/support/docs/security-vpn/remote-authentication-dial-user-service-radius/13838-1>

**NO.170** How many host addresses are available on the network 192.168.1.0 subnet 255.255.255.240 ?

- A. 6
- B. 8
- C. 14
- D. 16

**Answer:** C

**NO.171** 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 learns new addresses, up to the maximum defined.
- C. The network administrator can configure static secure or sticky secure MAC address in the voice a VLAN.
- D. The sticky learning feature allows the addition of dynamic learned address to the running configuration.
- E. The network administrator can apply security to EtherChannels.

**Answer:** B D

**NO.172** Which two statements about IPv6 multicast addresses are true?(Choose two )

- A. If the lifetime parameter is set to 1, the route is permanent
- B. They use the prefix FF00:: /8.
- C. They use the prefix FC00::/8.
- D. If the scope parameter is set to 5, the route is local to the node
- E. They identify a group of interfaces on different devices.

**Answer:** B E

**NO.173** When troubleshooting ethernet connectivity issues how can you verify that an ip address is known to a router?

- A. Check Whether the ip address is in the routing table
- B. Check Whether an ACL is blocking the ip address
- C. Check Whether the ip address is in the CAM Table
- D. Check Whether the ip address is in the ARP Table

**Answer:** D

**NO.174** If two OSPF neighbors have formed complete adjacency and are exchanging link-state advertisements, which state have they reached?

- A. Exstart
- B. 2-Way
- C. FULL
- D. Exchange

**Answer:** C



Explanation

<https://www.google.com/search?q=state+ospf&source=lnms&tbm=isch&sa=X&ved=0ahUKEwjg7ebXjtLVAhX>

**NO.175** Which type of MAC address is aged automatically by the switch?

- A. automatic
- B. manual
- C. dynamic
- D. static

**Answer:** C

**NO.176** Which two Qos tools can provide congestion management?

- A. CAR
- B. CBWFQ
- C. FRTS
- D. PBR
- E. PQ

**Answer:** B E

**NO.177** Which algorithm is used for the frame check sequence in an Ethernet frame?

- A. SHA-1
- B. AES-256
- C. CRC
- D. MD5

**Answer:** C

**NO.178** Which information is used to install the best route to a destination in IP routing table?

- A. the tunnel ID
- B. the prefix length
- C. the interface number
- D. the autonomous system

**Answer:** B

**NO.179** After you configure a GRE tunnel between two networks, the tunnel comes up normally, but workstations on each side of the tunnel cannot communicate. Which reason for the problem is most likely true?

- A. The tunnel source address is incorrect.
- B. The tunnel destination address is incorrect.
- C. The route between the networks is undefined.
- D. The IP MTU is incorrect.
- E. The distance configuration is missing.

**Answer:** D

**NO.180** Which NAT function can map multiple inside addresses to a single outside address?

- A. PAT
- B. SFTP
- C. RARP
- D. TFTP
- E. ARP

**Answer:** A

**NO.181** which two statements about vtp are true ?

- A. all switches must be configured with the same VTP domain name
- B. all switches must be configured with a unique vtp domain name
- C. all switches must be configured to perform trunk negotiation
- D. all switches must use the same VTP Version
- E. The VTP Server must have the highest revision number in the domain

**Answer:** A D

**NO.182** Which table displays the MAC addresses that are learned on a switch?

- A. FIB
- B. ARP
- C. TCAM
- D. CAM

**Answer:** D

**NO.183** Which protocol is a Cisco proprietary implementation of STP?

- A. CST
- B. RSTP
- C. MSTP
- D. PVST+

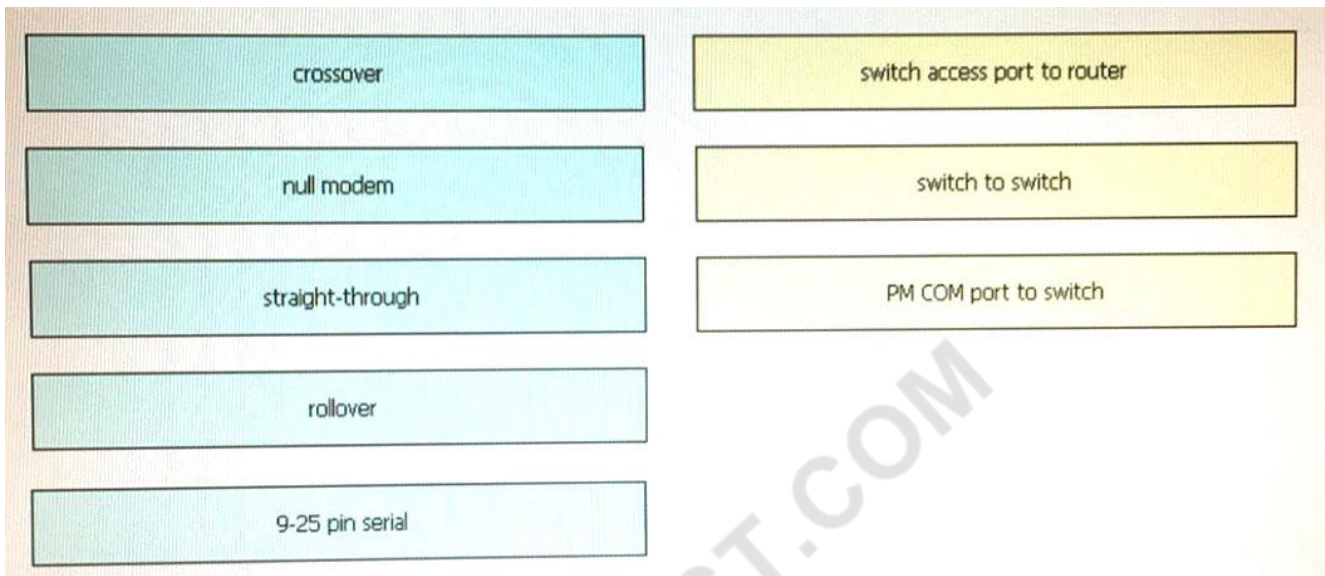
**Answer:** D

**NO.184** Which two commands can you use to configure an LACP EtherChannel? (Choose two.)

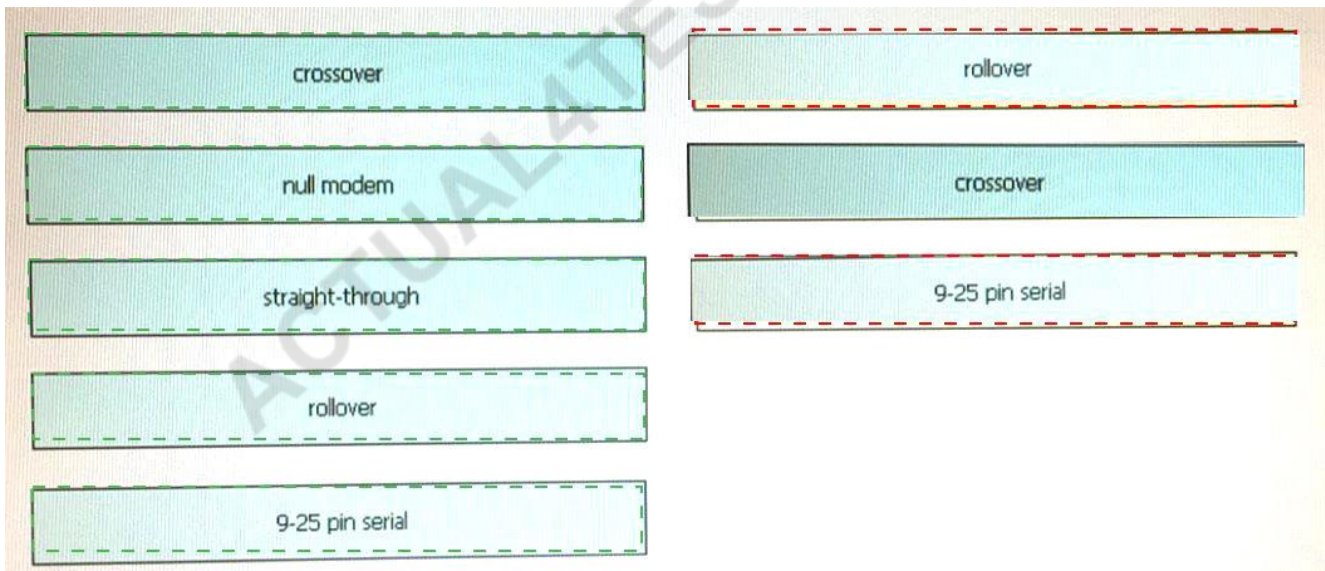
- A. channel-group 10 mode active
- B. channel-group 10 mode auto
- C. channel-group 10 mode on
- D. channel-group 10 mode desirable
- E. channel-group 10 mode passive

**Answer:** A D

**NO.185** Drag the cable type on the left to the purpose for which is it best suited on the right. (Not all options are used.)



**Answer:**



Explanation

Switch to router : rollover

Switch to switch : crossover

PM Com port: 9 - 25 pin

**NO.186** A workstation has just resolved a browser URL to the IP address of a server. Which protocol will the workstation now use to determine the destination MAC address to be placed into frames directed toward the sever?

- A. ARP
- B. RARP
- C. DNS
- D. DHCP
- E. HTTP

**Answer:** A

**NO.187** Which WAN topology is most appropriate for a centrally located server farm with several

satellite branches?

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

**Answer:** B

Explanation

Explanation/Reference:

In a Hub-and-spoke Site-to-Site Wide Area Network (WAN) network topology, one physical site act as Hub (Example, Main Office), while other physical sites act as spokes. Spoke sites are connected to each other via Hub site. In Huband-spoke Wide Area Network (WAN) topology, the network communication between two spokes always travels through the hub.

**NO.188** which three options are benefits of using TACACS+ on a device ?

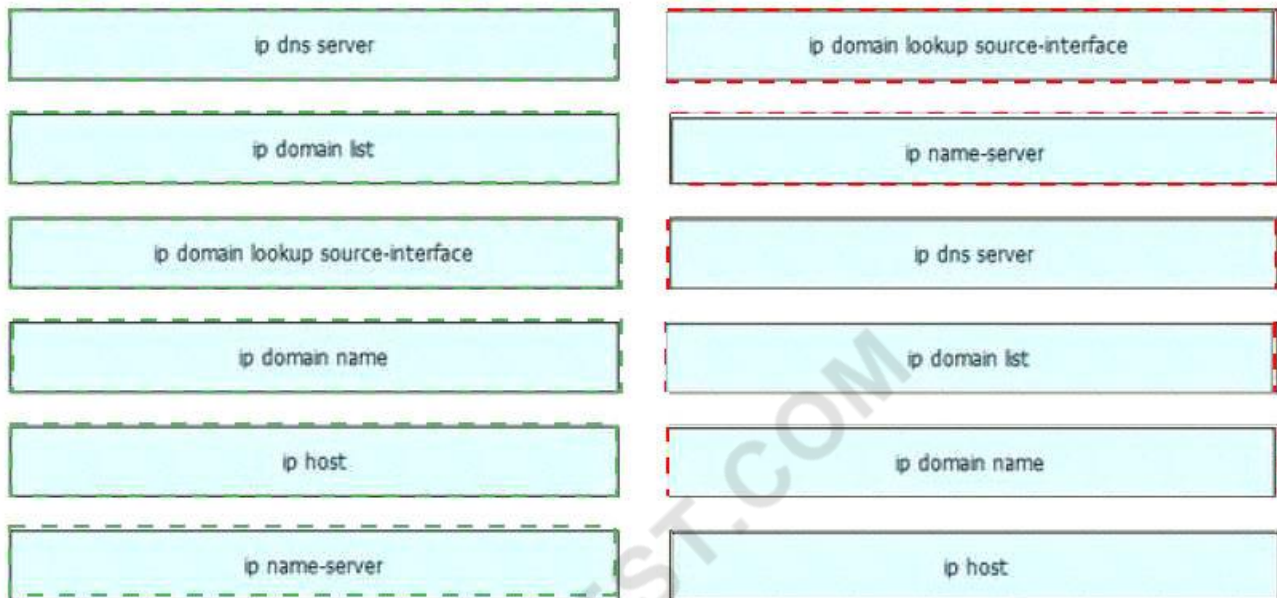
- A. Device administration packets are encrypted in their entirety
- B. it allows the user to remotely access devices from other vendors
- C. it supports access level authorization for commands
- D. it ensures that user activity is untraceable
- E. it allows users to be authenticated against a remote server
- F. it provides a secure accounting facility on the device

**Answer:** A C E

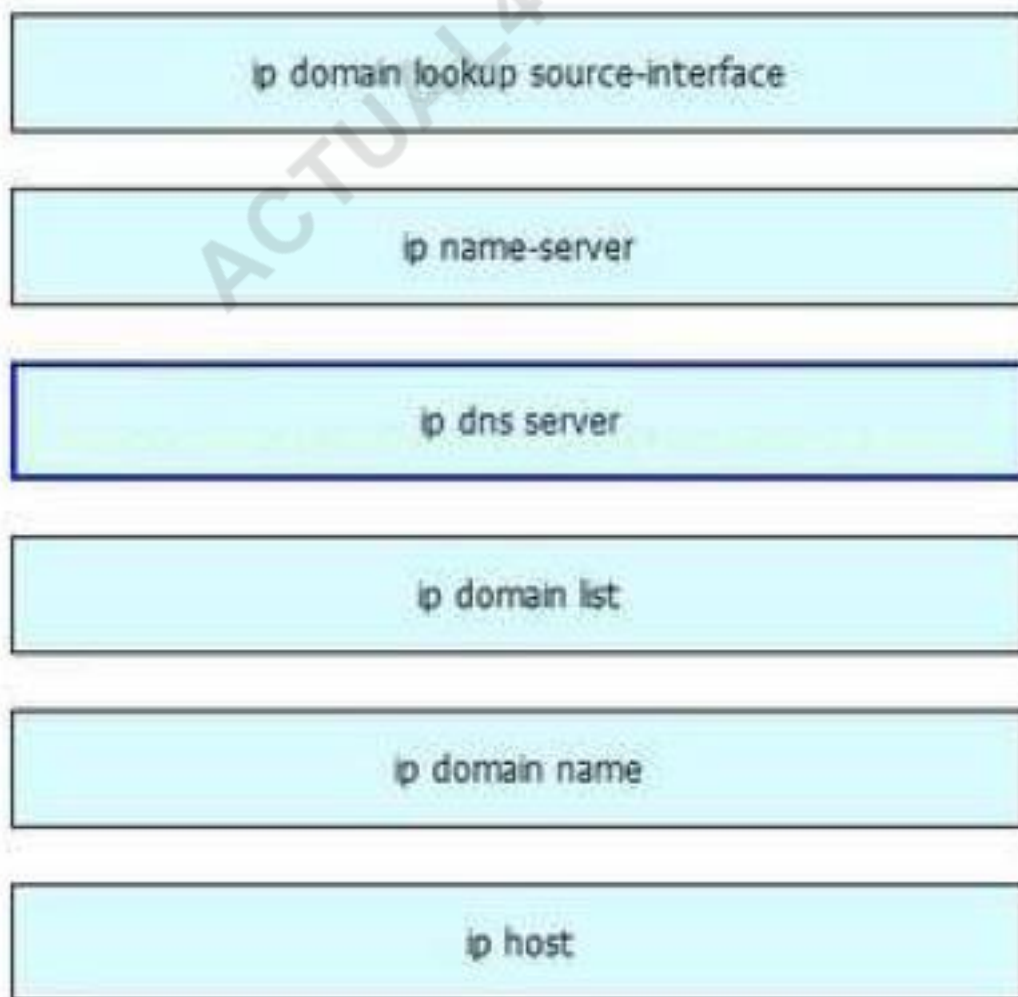
**NO.189** Drag and drop the DNS lookup commands from the left onto the correct effects on the right

ip dns server	enables DNS lookup on an individual interface
ip domain list	enables the DNS server on the device
ip domain lookup source-interface	identifies a DNS server to provide lookup services
ip domain name	specifies a sequence of domain names
ip host	specifies the default domain to append to unqualified host names
ip name-server	statically maps an IP address to a hostname

**Answer:**



Explanation



**NO.190** Refer to the exhibit.



```
R1(config)#ip nat pool cisco 10.1.1.0 10.1.1.50 255.255.255.0
```

Which feature is enabled by this configuration?

- A. static NAT translation
- B. a DHCP pool
- C. a dynamic NAT address pool
- D. PAT

**Answer:** C

**NO.191** What is one benefit of PVST+?

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

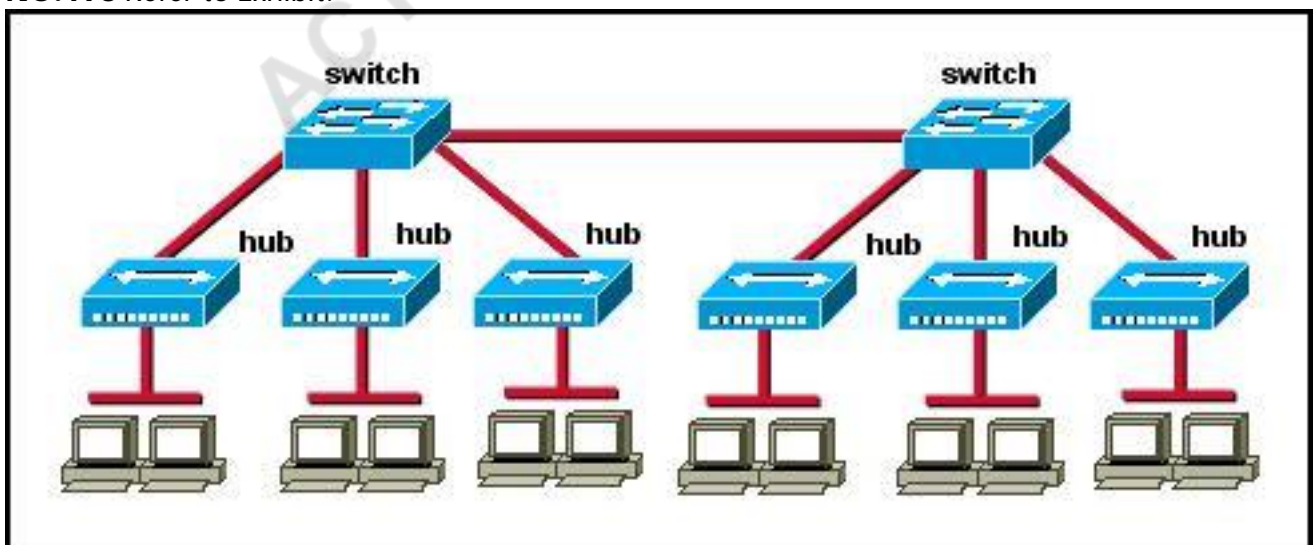
**Answer:** D

**NO.192** Which two fields are included in the TCP and UDP packet headers? (Choose two)

- A. destination port
- B. sequence number
- C. checksum
- D. offset
- E. window

**Answer:** A B

**NO.193** Refer to Exhibit:



How many broadcast domains are shown in the graphic assuming only the default VLAN is configured on the switches?

- A. one
- B. two

- C. six
- D. twelve

**Answer:** A

Explanation

Only router can break up broadcast domains but in this exhibit no router is used so there is only 1 broadcast domain.

For your information, there are 7 collision domains in this exhibit (6 collision domains between hubs & switches + 1 collision between the two switches).

**NO.194** Which command can you execute to set the user inactivity timer to 10 seconds?

- A. SW1(config-line)#exec-timeout 0 10
- B. SW1(config-line)#exec-timeout 10
- C. SW1(config-line)#absolute-timeout 0 10
- D. SW1(config-line)#absolute-timeout 10

**Answer:** A

**NO.195** Refer to the Exhibit.

```

R1# show ip route
C    192.168.10.0/24 is directly connected, Vlan10
O    192.168.11.0/24 [110/2] via 172.20.3.2, 1w1d, GigabitEthernet0/1
S    192.168.12.0/24 [1/0] via 172.20.4.5
R    172.20.10.21 [120/2] via 192.168.250.35, 7w0d
B    172.20.20.21 [20/0] via 192.168.220.40, 7w9d
O    172.20.30.21 [110/2] via 192.168.200.45, 2d19h

```

Which two routes are using a link state protocol? (Choose two)

- A. 172.20.30.21
- B. 192.168.11.0/24
- C. 172.20.20.21
- D. 172.20.10.21
- E. 192.168.10.0/24

**Answer:** B C

**NO.196** Which two statements about chassis aggregation with mLACP are true? (Choose two)

- A. It supports full-duplex links only
- B. It supports FastEthernet interfaces
- C. MTP traffic flows on all members of port channel
- D. It supports single neighbors only
- E. It supports multiple neighbors

**Answer:** A D

**NO.197** Which command do you enter to view EIGRPv6 adjacencies?

- A. show ipv6 eigrp 1 interface
- B. show ipv6 route eigrp
- C. show ipv6 eigrp neighbors

D. show running-configuration eigrp

**Answer:** C

**NO.198** Drag and drop the steps to configure a basic GRE tunnel from the left into the correct sequence on the right (Not all options are used)

Create a logical tunnel interface	
Specify the carrier protocol	
Install a point to point link between the tunnel source and destination	
Specify the cryptographic protocol	
Specify the source and destination address for the tunnel endpoints	
Specify the passenger Protocol.	

**Answer:**

Create a logical tunnel interface	Create a logical tunnel interface
Specify the carrier protocol	Specify the carrier protocol
Install a point to point link between the tunnel source and destination	Specify the passenger Protocol.
Specify the cryptographic protocol	Specify the source and destination address for the tunnel endpoints
Specify the source and destination address for the tunnel endpoints	
Specify the passenger Protocol.	

Explanation

Create a logical tunnel interface

Specify the carrier protocol

Specify the passenger protocol

Specify the source and destination address for the tunnel endpoints.

**NO.199** Which functionality does split horizon provide?

- A. It prevents routing loops in link-state protocols.
- B. It prevents switching loops in distance-vector protocols.
- C. It prevents routing loops in distance-vector protocols.
- D. It prevents switching loops in link-state protocols.

**Answer:** C

**NO.200** While troubleshooting a connection problem on a computer, you determined that the computer can ping a specific web server but it cannot connect to TCP port 80 on that server. Which reason for the problem is most likely true?

- A. A VLAN number is incorrect.
- B. A Route is missing
- C. An ARP table entry is missing.
- D. An ACL is blocking the TCP port.

**Answer:** D

**NO.201** Which two statements about BPDU guard are true? (Choose two)

- A. It is supported on trunk ports
- B. It sends BPDUs on a port to maintain the up status.
- C. It error-disables a PortFast-configured port when the port receives a BPDU.
- D. It is required on private VLAN access ports
- E. It is supported on non-trunking access ports
- F. It can increase the likelihood of loops occurring in a network

**Answer:** C E

**NO.202** Which two statements about TACACS+ are true? (Choose two.)

- A. It can run on a UNIX server.
- B. It authenticates against the user database on the local device.
- C. It is more secure than AAA authentication.
- D. It is enabled on Cisco routers by default.
- E. It uses a managed database.

**Answer:** A E

**NO.203** Which option is the main function of congestion management ?

- A. providing long term storage of buffered data
- B. queuing traffic based on priority
- C. discarding excess traffic
- D. classifying traffic

**Answer:** B

**NO.204** Which two statements about UTP cables are true? (Choose two)

- A. Category 5 Ethernet cables support speeds up to 1000 Mbps beyond 100m.
- B. Category 6 Ethernet cables are appropriate for installations of up to 200m .
- C. Category 6a Ethernet cable can transmit up to 10 Gbps.
- D. Category 5e Ethernet cables support speeds up to 1000 Mbps.
- E. All Ethernet cable types from Category 1 through Category 6 are suitable for transmitting data in the appropriate environments.

**Answer:** C D

**NO.205** After you configure a default route to the Internet on a router, the route is missing from the routing table.

Which option describes a possible reason for the problem?

- A. The next-hop address is unreachable.
- B. The default route was configured on a passive interface.
- C. Dynamic routing is disabled.
- D. Cisco Discovery Protocol is disabled on the interface used to reach the next hop.

**Answer:** A

**NO.206** Which protocol is typically used for communication between an NMS and an agent on a network device?

- A. syslog
- B. MIB
- C. SNMP
- D. SMTP

**Answer:** C

**NO.207** On which type of interface can you perform an ACL-based Path Trace with APIC-EM?

- A. Layer 2
- B. Layer 4
- C. Layer 3
- D. Layer 1

**Answer:** C

**NO.208** Drag and drop the DNS lookup components from the left onto the correct functions on the right.

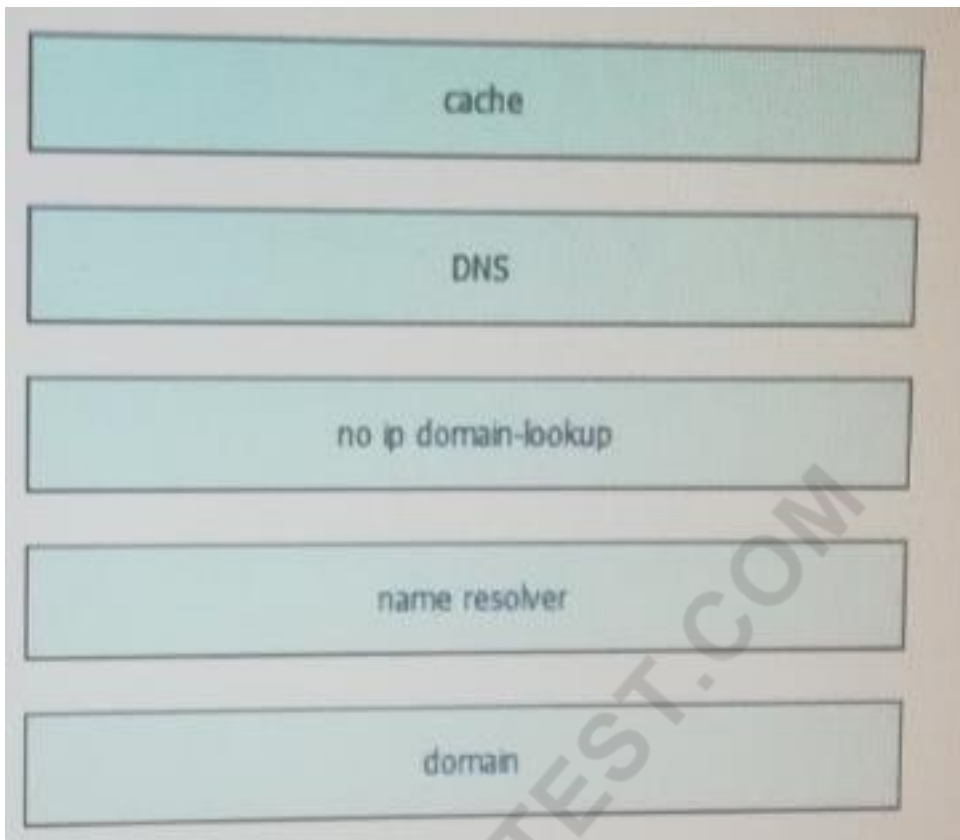


cache	local database of address mappings that improves name-resolution performance
DNS	service that maps hostnames to IP addresses
domain	disables DNS services on a Cisco device
name resolver	in response to client requests, queries a name server for IP address information
no ip domain-lookup	component of a URL that indicates the location or organization type, such as .com or .edu

**Answer:**

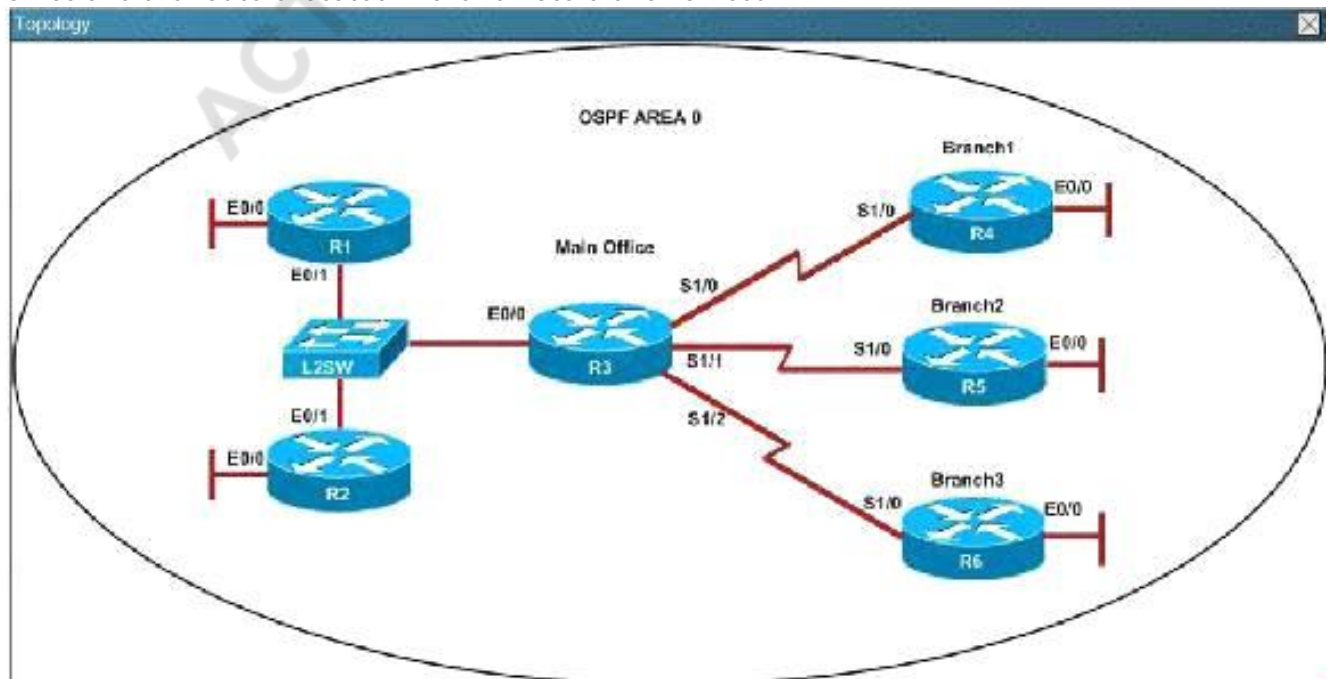
cache	cache
DNS	DNS
domain	no ip domain-lookup
name resolver	name resolver
no ip domain-lookup	domain

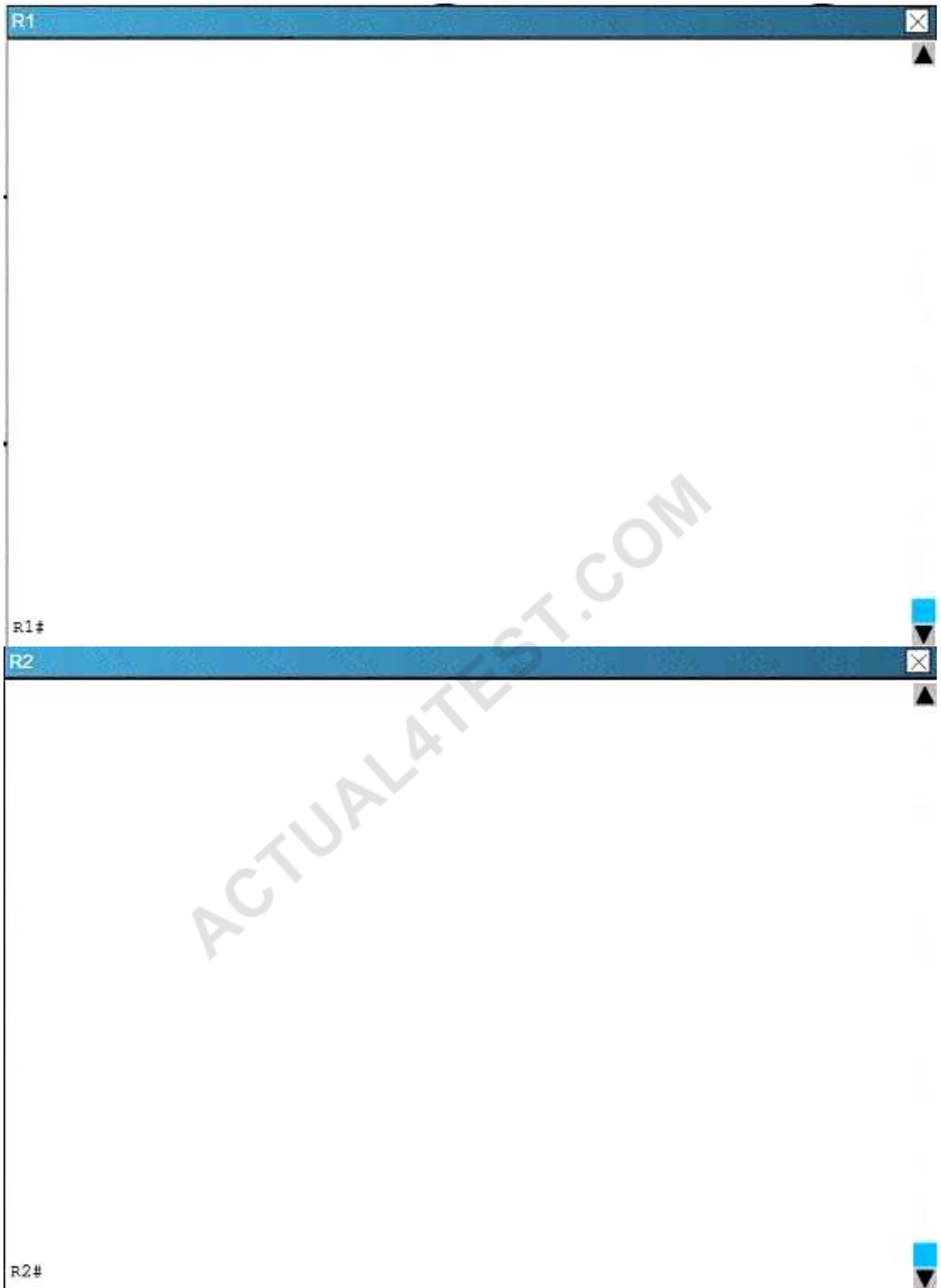
Explanation

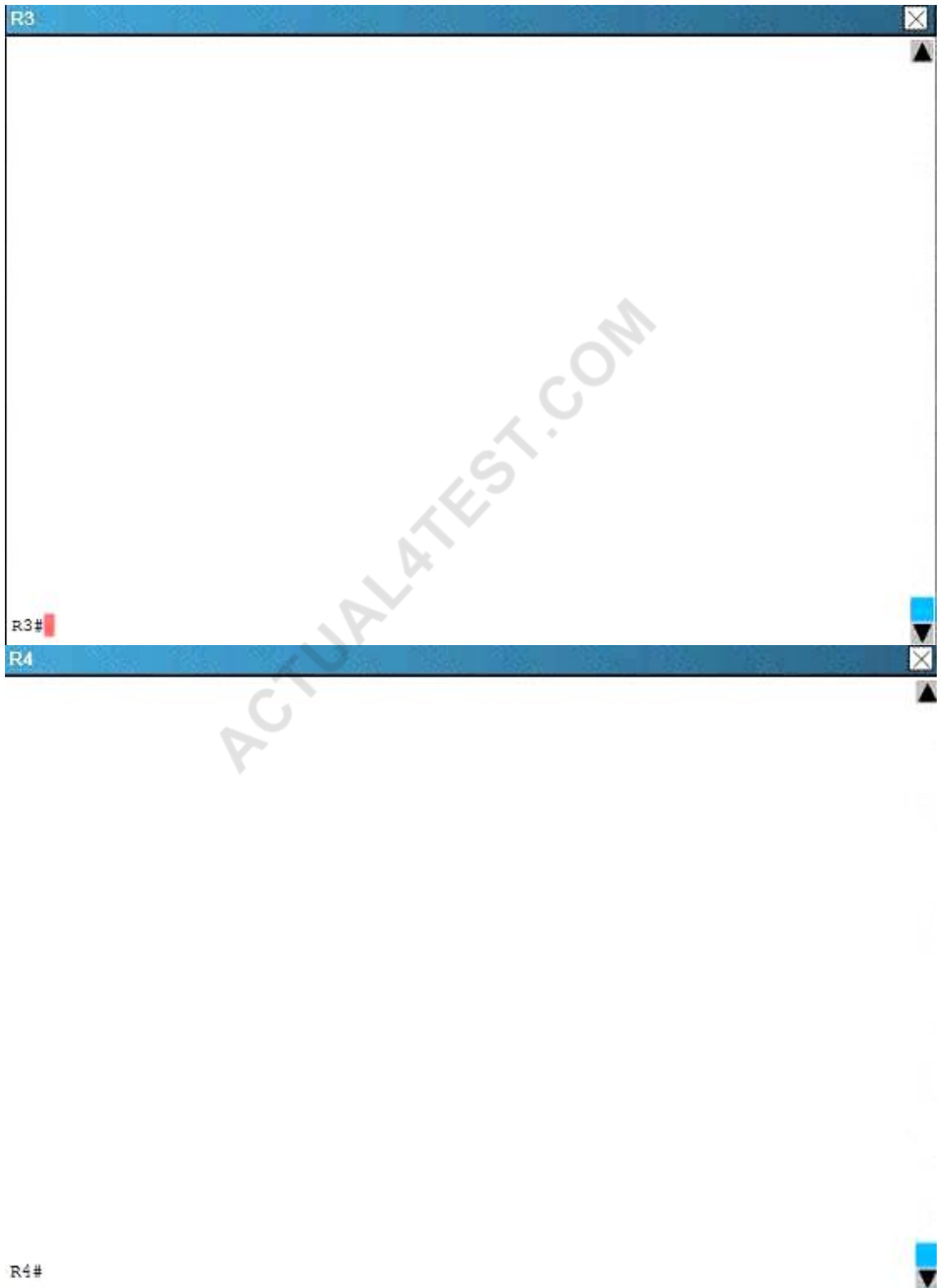
**NO.209** Scenario

Refer to the topology. Your company has decided to connect the main office with three other remote branch offices using point-to-point serial links.

You are required to troubleshoot and resolve OSPF neighbor adjacency issues between the main office and the routers located in the remote branch offices.







R5



R5#

R6



R6#





L2SW



L2SW#



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

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

**Answer:** C

Explanation

The "show ip ospf interface command on R3 and R5 shows that the hello and dead intervals do not match.

They are 50 and 200 on R3 and 10 and 40 on R5.

R3	R5
<pre> Suppress hello for 0 neighbor(s) Serial1/1 is up, line protocol is up Internet Address 10.10.240.5/30, Area 0, Attached via Interface Process ID 3, Router ID 192.168.3.3, Network Type POINT_TO_POINT Topology-MTID Cost Disabled Shutdown Topology Name 0 64 no no Base Enabled by interface config, including secondary ip addresses Transmit Delay is 1 sec, State POINT_TO_POINT Timer intervals configured, Hello 50, Dead 200, Wait 200, Retransmit 5 cch-resync timeout 200 Hello due in 00:00:39 Supports Link-local Signaling (LLS) Cisco NSF helper support enabled IETF NSF helper support enabled Index 4/4, flood queue length 0 Next 0x0(0)/0x0(0) Last flood scan length is 0, maximum is 0 Last flood scan time is 0 msec, maximum is 0 msec Neighbor Count is 0, Adjacent neighbor count is 0 Suppress hello for 0 neighbor(s) Serial1/0 is up, line protocol is up Internet Address 10.10.240.1/30, Area 0, Attached via Interface Process ID 3, Router ID 192.168.3.3, Network Type POINT_TO_POINT Topology-MTID Cost Disabled Shutdown Topology Name 0 64 no no Base Enabled by interface config, including secondary ip addresses Transmit Delay is 1 sec, State POINT_TO_POINT Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5 cch-resync timeout 40 Hello due in 00:00:08 Supports Link-local Signaling (LLS) Cisco NSF helper support enabled IETF NSF helper support enabled Index 3/3, flood queue length 0 Next 0x0(0)/0x0(0) Last flood scan length is 0, maximum is 0 Last flood scan time is 0 msec, maximum is 0 msec Neighbor Count is 0, Adjacent neighbor count is 0 Suppress hello for 0 neighbor(s) Ethernet0/0 is up, line protocol is up Internet Address 172.16.114.1/24, Area 0, Attached via Interface Enable </pre>	<pre> 0 1 no no Base Enabled by interface config, including secondary ip addresses Loopback interface is treated as a stub host Serial1/0 is up, line protocol is up Internet Address 10.10.240.6/30, Area 0, Attached via Interface Enable Process ID 5, Router ID 192.168.5.5, Network Type POINT_TO_POINT, Cost: 64 Topology-MTID Cost Disabled Shutdown Topology Name 0 64 no no Base Enabled by interface config, including secondary ip addresses Transmit Delay is 1 sec, State POINT_TO_POINT Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5 cch-resync timeout 40 Hello due in 00:00:08 Supports Link-local Signaling (LLS) Cisco NSF helper support enabled IETF NSF helper support enabled Index 3/3, flood queue length 0 Next 0x0(0)/0x0(0) Last flood scan length is 0, maximum is 0 Last flood scan time is 0 msec, maximum is 0 msec Neighbor Count is 0, Adjacent neighbor count is 0 Suppress hello for 0 neighbor(s) Ethernet0/0 is up, line protocol is up Internet Address 172.16.114.1/24, Area 0, Attached via Interface Enable </pre>

**NO.210** Which command can you enter on a Cisco IOS device to enable a schedule algorithm that directs lookup calls to multiple DNS hosts?

- A. ip name-server 192.168.10.14.192.168.10.15
- B. ip domain lookup
- C. ip domain round-robin
- D. ip domain list

**Answer: A**

**NO.211** Refer to the exhibit.

```

%PM-4-ERR_DISABLE: psecure-violation error detected on Fa0/1, putting Fa0/1 in err-disable state
%PORT_SECURITY-2-PSECURE_VIOLATION: Security violation occurred, caused by MAC address 00AA.1AA9.022F on port FastEthernet0/1
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
%LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to down

```

Which port security violation mode is configured on interface Fa0/1 ?

- A. Protect
- B. shutdown VLAN
- C. restrict
- D. shutdown

**Answer: A**

**NO.212** Drag and drop the extended traceroute options from the left onto the correct descriptions on the right.

Maximum time to live	value that, when reached, terminates the traceroute command
Minimum time to live	IP header options
numeric display	overrides the router selection of an outbound interface
Source address	sets the interval for which the probe waits for a response
Timeout	suppresses the display of known hops
Timestamp, verbose	suppresses the display of hostnames

**Answer:**

Maximum time to live	Maximum time to live
Minimum time to live	Timestamp, verbose
numeric display	Source address
Source address	Timeout
Timeout	Minimum time to live
Timestamp, verbose	numeric display

Explanation



**NO.213** Which type of address is the public IP address of a NAT device?

- A. outside global
- B. outside local
- C. inside global
- D. inside local
- E. outside public
- F. inside public

**Answer:** C

**NO.214** Which two statements about static routing are true? (Choose two )

- A. It provides only limited security unless the administrator performs additional configuration
- B. Its default administrative distance is lower than EIGRP.
- C. It allows packets to transit a different path if the topology changes
- D. It allows the administrator to determine the entire path of a packet
- E. Its initial implementation is more complex than OSPF.

**Answer:** B D

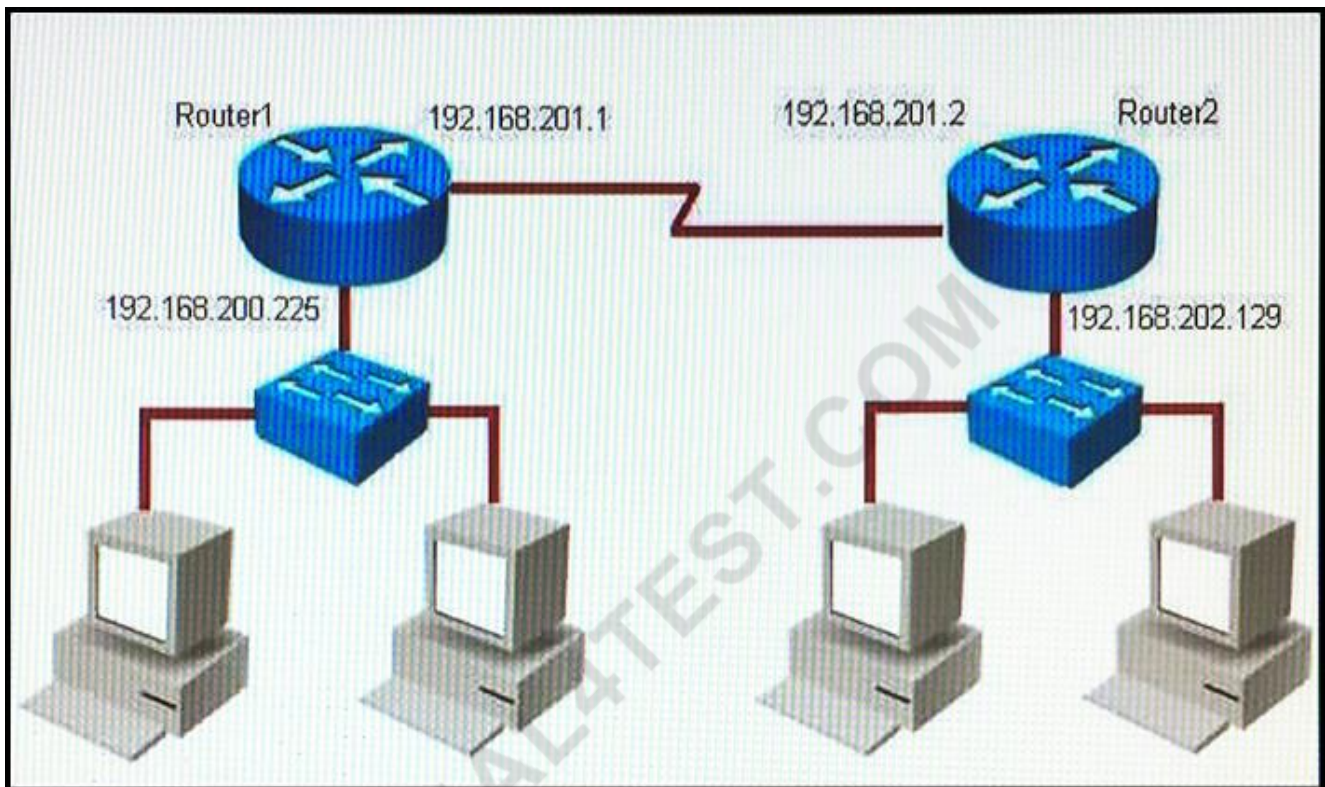


**NO.215** When is the most appropriate time to escalate an issue that you are troubleshooting?

- A. When you lack the proper resources to resolve the issue.
- B. when you have gathered all available information about the issue.
- C. When you have been unable to resolve the issue after 30 min
- D. when a more urgent issue that requires your intervention is detected.

**Answer:** C

**NO.216**



Refer to the exhibit. Which command would you use to configure a static route on Router1 to network 192.168.202.0/24 with a nondefault administrative distance?

- A. router1(config)#ip route 192.168.202.0 255.255.255.0 192.168.201.2 1
- B. router1(config)#ip route 192.168.202.0 255.255.255.0 192.168.201.2 5
- C. router1(config)#ip route 1 192.168.201.1 255.255.255.0 192.168.201.2
- D. router1(config)#ip route 5 192.168.202.0 255.255.255.0 192.168.201.2

**Answer:** A

**NO.217** Which two are displayed with the show ipv6 ospf command? (Choose two)

- A. transmit and receive rates of each local interface
- B. OSPF interface of the local router
- C. number of interfaces in each area on the device
- D. number of times the SPF algorithm executed on the device
- E. ID of the advertised router

**Answer:** C D

**NO.218** After you enable routing on a switch, which two tasks must you perform to configure inter-



VLAN routing on an SVI interface? (Choose two)

- A. Configure a routing protocol to route the traffic
- B. Configure the ip default-gateway command on the switch
- C. Configure an ACL to route only the necessary traffic
- D. Configure an IP address on each VLAN interface.
- E. Ensure that the target VLANs are present in the switch database

**Answer:** C E

**NO.219** Which command should you use to display detailed information about EBGp peers?

- A. show ip bgp
- B. show ip bgp neighbors
- C. show ip bgp summary
- D. show ip bgp paths

**Answer:** D

**NO.220** Which command is used to enter IP SLA configuration mode?

- A. icmp-echo
- B. frequency
- C. ip sla
- D. enable

**Answer:** C

**NO.221** Which value is used to build the can table

- A. Source ip address
- B. Destination ip address
- C. Destination MAC address
- D. Source MAC address

**Answer:** C

**NO.222** Which step must you perform first to begin a TACACS+ configuration?

- A. Configure a TACACS+ server.
- B. Associate the TACACS+ server to an AAA group
- C. Enable AAA services.
- D. Configure a local user

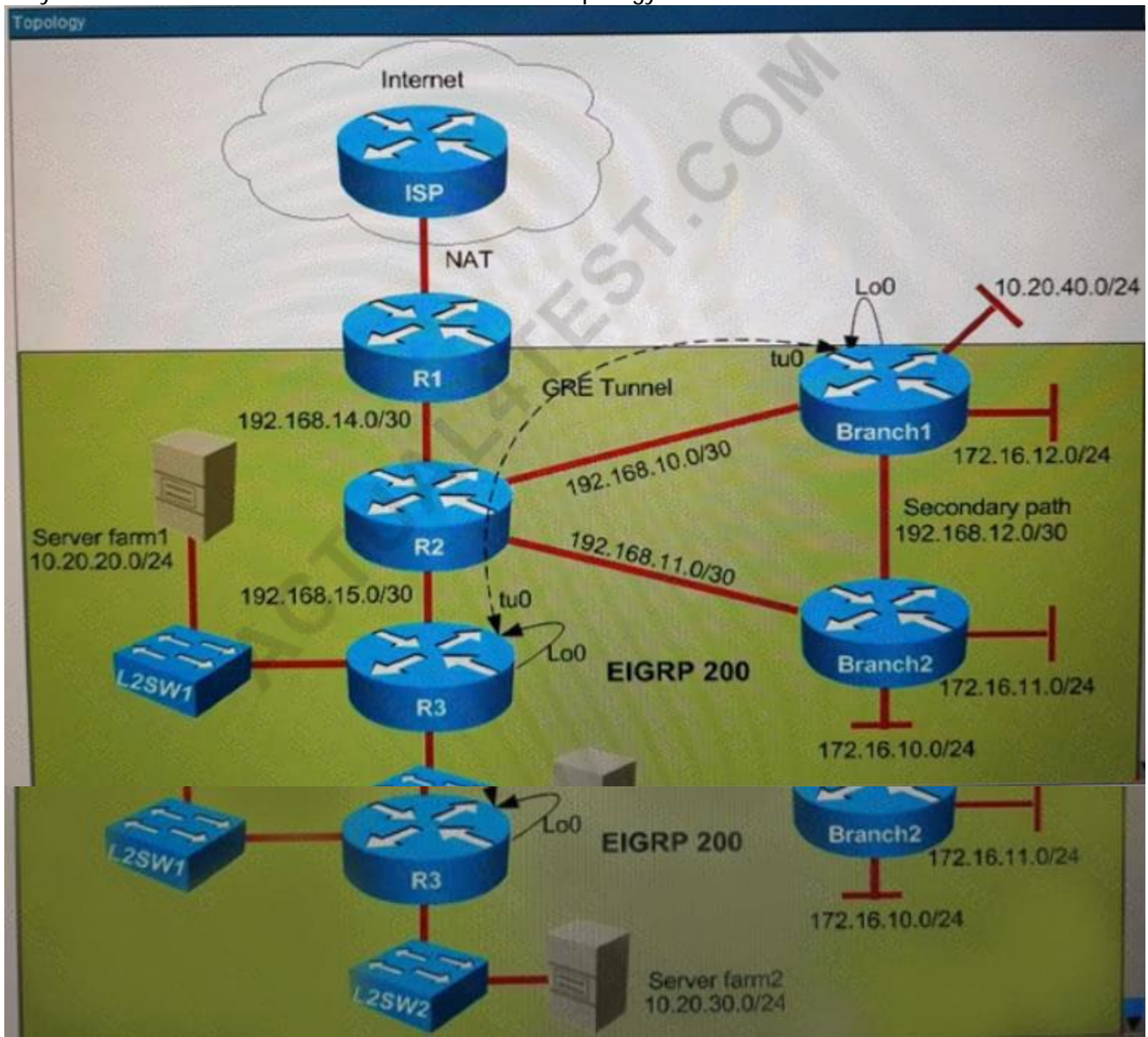
**Answer:** C

**NO.223** You are implementing EIGRP between the main office and branch offices. In Phase 1 you must implement and verify EIGRP configurations as mentioned in the topology in Phase 2. your colleague is expected to do NAT and ISP configurations Identity the issues that you are encountering during Phase 1 EIGRP implementation.

- \* Router R1 connects the main office to the Internet and routers R2 and R3 are internal routers
- \* Routers Branch 1 and Branch2 connect to router R2 in the main office.
- \* Users from the Branch1 LAN network 10 20 40 0724 are expected to perform testing of the

application that is hosted on the servers in Server farm1, before servers are available for production

- The GRE tunnel is configured between R3 and Branch1, and traffic between server farm1 and Branch1 LAN network 10.20.40.0/24 is routed through the GRE tunnel using static routes
- \* The link between Branch1 and Branch2 is used as a secondary path in the event of failure of the primary path to mam office You have console access on R1. R2. R3. Branch1, and Branch2 devices Use only show commands to troubleshoot the issues Topology:



```

Branch1
ip address 10.20.40.1 255.255.255.0
!
!
router eigrp 200
 network 10.16.200.2 0.0.0.0
 network 172.16.12.0 0.0.0.255
 network 192.168.10.0
 network 192.168.12.0
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
ip route 10.20.20.0 255.255.255.0 Tunnel
!
!

```

```

R3
interface Ethernet0/0
 description ***Link to Server farm2***
 ip address 10.20.30.1 255.255.255.0
!
interface Ethernet0/1
 description ***Link to Server farm1***
 ip address 10.20.20.1 255.255.255.0
!
interface Ethernet0/2
 description ***Link to R2***
 ip address 192.168.13.2 255.255.255.252
!
interface Ethernet0/3
 no ip address
 shutdown
!

```

You are verifying the EIGRP configurations in the topology. Which statement is true?

- A. Branch2 LAN network 172.16.11.0/24 is not advertised into the EIGRP network.
- B. Branch2 LAN network 172.16.10.0/24 is not advertised into the EIGRP network
- C. R3 server farm2 network 10.20.30.0/24 is not advertised into the EIGRP network.
- D. Branch1 LAN network 172.16.12.0/24 is not advertised into the EIGRP network

**Answer:** B

**NO.224** Cisco IOS supports which QoS models?

- A. best-effort and integrated services
- B. best-effort and differentiated services
- C. best-effort, integrated services, and differentiated
- D. integrated services and differentiated services

**Answer:** D

**NO.225** Which command should you enter to configure a DHCP client?

- A. ip dhcp client
- B. ip helper-address
- C. ip address dhcp
- D. ip dhcp pool

**Answer:** B

**NO.226** Which cloud service is typically used to provide operating systems services to an enterprise?

- A. SLBaaS
- B. IaaS
- C. PaaS
- D. SaaS

**Answer:** C

**NO.227** Which command is needed to send RIPv2 updates as broadcast when configured for RIPv2?

- A. ip rip v2-broadcast
- B. ip rip receive version 1
- C. ip rip receive version 2
- D. version 2

**Answer:** A

**NO.228** Which two statements about EUI-64 addressing are true? (Choose two)

- A. A 64-bit interface identifier is derived from the interface MAC address
- B. A 96-bit interface identifier is derived from the interface MAC address.
- C. A locally administered address has the universal/local bit set to 0.
- D. The address includes the hex digits FFFE after the first 24 bits of the interface MAC address
- E. The address includes the hex digits FFFE after the last 24 bits of the interface MAC address

**Answer:** A D

**NO.229** Which statement about DHCP address pools is true?

- A. A network must be defined before you can configure a manual binding.
- B. Only one DNSserver can be identified for an individual DHCP group.
- C. You can use a subnet mask or prefix length to define a network.
- D. The domain name of the DHCP pool is specified in the global configuration of the router.

**Answer:** C

**NO.230** A switch has 48 ports and 4 VLANs. How many collision and broadcast domains exist on the switch (collision, broadcast)?

- A. 4,48
- B. 48,4
- C. 48,1
- D. 4,1

E. 1,48

**Answer:** B

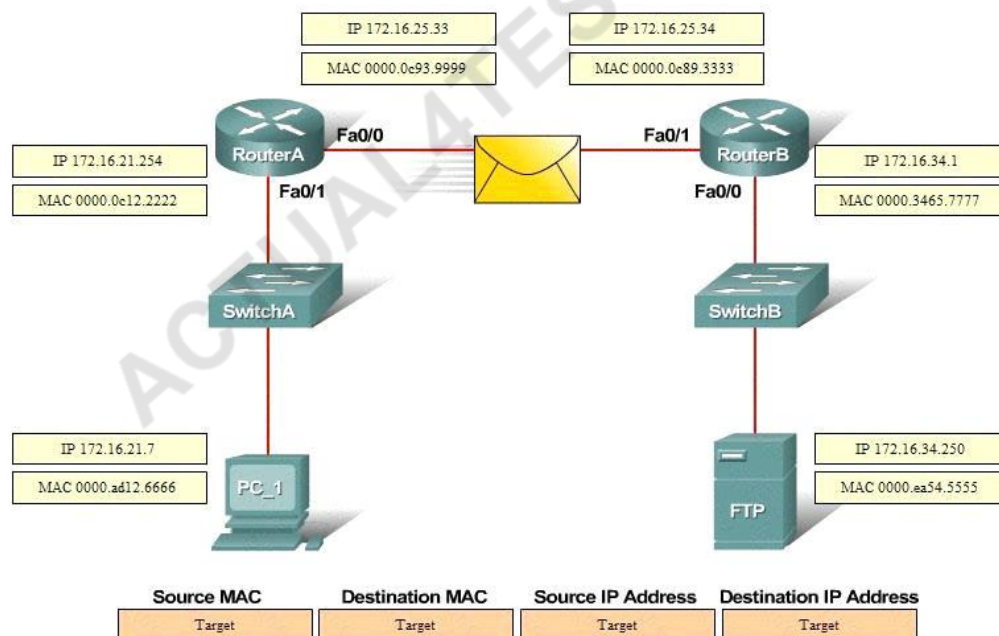
**NO.231** At which layer of the OSI model does the protocol that provides the information that is displayed by the show cdp neighbors command operate?

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

**Answer:** A

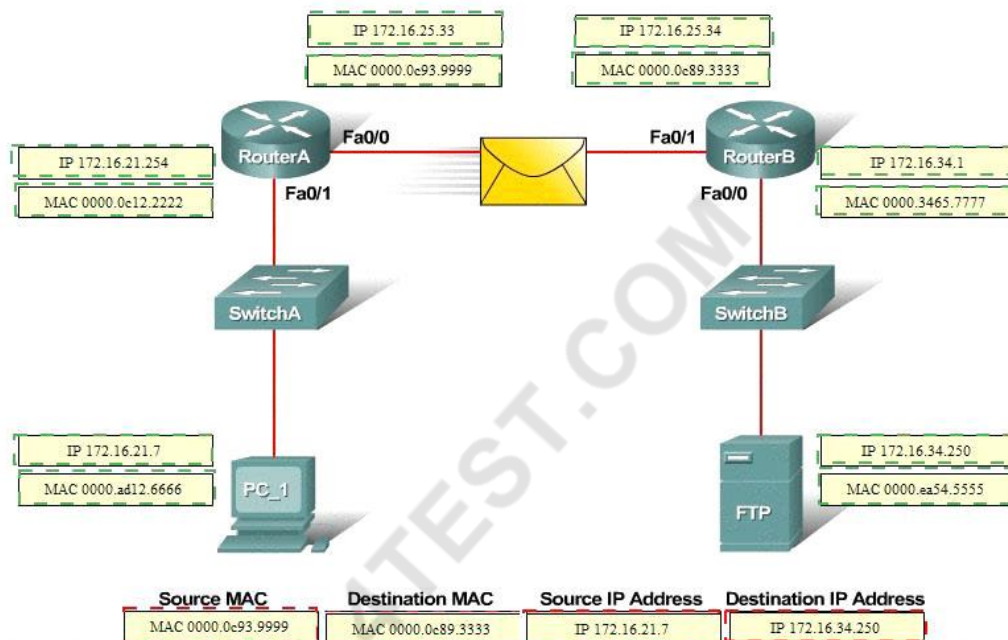
**NO.232** Refer to the exhibit. PC\_1 is sending packets to the FTP server. Consider the packets as they leave RouterA interface Fa0/0 towards RouterB. Drag the correct frame and packet address to their place in the table.

Refer to the exhibit. PC\_1 is sending packets to the FTP server. Consider the packets as they leave RouterA interface Fa0/0 towards RouterB. Drag the correct frame and packet address to their place in the table.

**Answer:**



Refer to the exhibit. PC\_1 is sending packets to the FTP server. Consider the packets as they leave RouterA interface Fa0/0 towards RouterB. Drag the correct frame and packet address to their place in the table.



Explanation

Source MAC	Destination MAC	Source IP Address	Destination IP Address
MAC 0000.0c93.9999	MAC 0000.0c89.3333	IP 172.16.21.7	IP 172.16.34.250

**NO.233** Which port-security feature allows a switch to learn MAC addresses dynamically and add them to the running configuration?

- A. security violation restrict mode
- B. switch port protection
- C. sticky learning
- D. security violation protect mode

**Answer:** C

Explanation

You can configure an interface to convert the dynamic MAC addresses to sticky secure MAC addresses and to add them to the running configuration by enabling sticky learning. To enable sticky learning, enter the switchport port-security mac-address sticky interface configuration command. When you enter this command, the interface converts all the dynamic secure MAC addresses, including those that were dynamically learned before sticky learning was enabled, to sticky secure MAC addresses.

**NO.234** Which condition that service password-encryption is enabled?

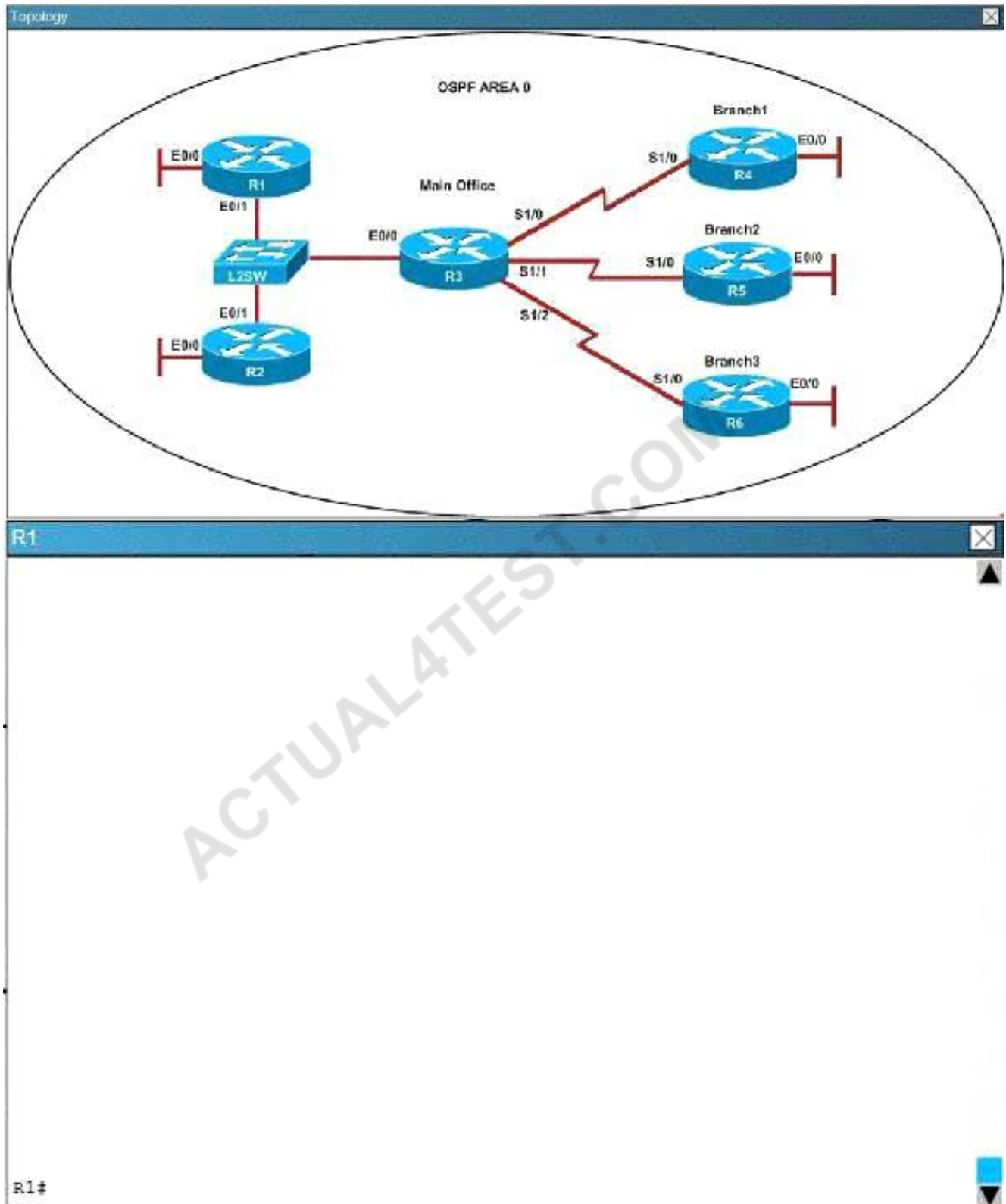
- A. The enable secret is in clear text in the configuration.
- B. The enable secret is encrypted in the configuration.
- C. The local username password is in clear text in the configuration.
- D. The local username password is encrypted in the configuration.

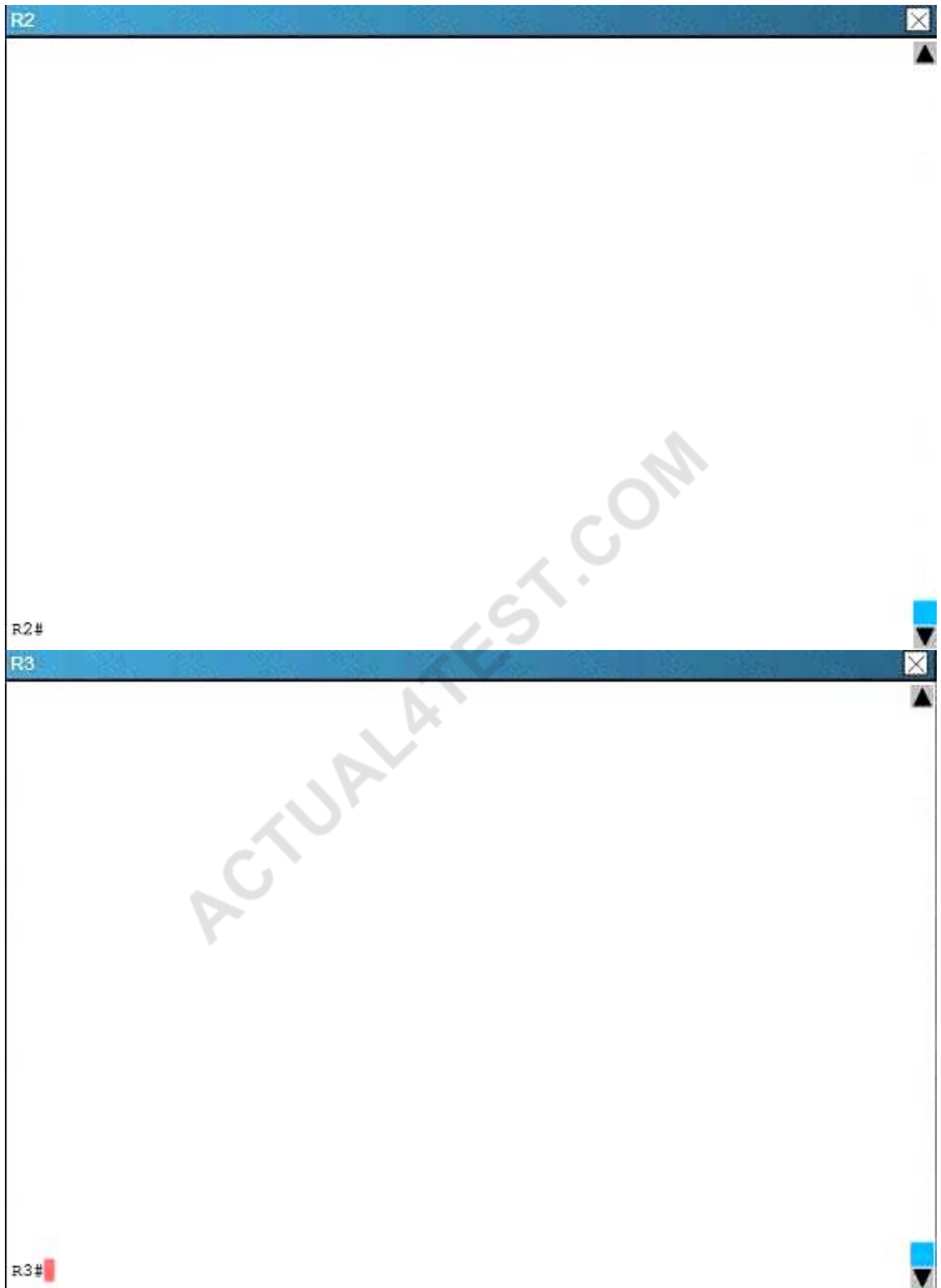
**Answer:** D

**NO.235** Scenario:

Refer to the topology. Your company has decided to connect the main office with three other remote branch offices using point-to-point serial links.

You are required to troubleshoot and resolve OSPF neighbor adjacency issues between the main office and the routers located in the remote branch offices.





R4



R4#



R5



R5#



R6



R6#



L2SW



L2SW#



An OSPF neighbor adjacency is not formed between R3 in the main office and R4 in the Branch1



office. What is causing the problem?

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

**Answer: A**

Explanation

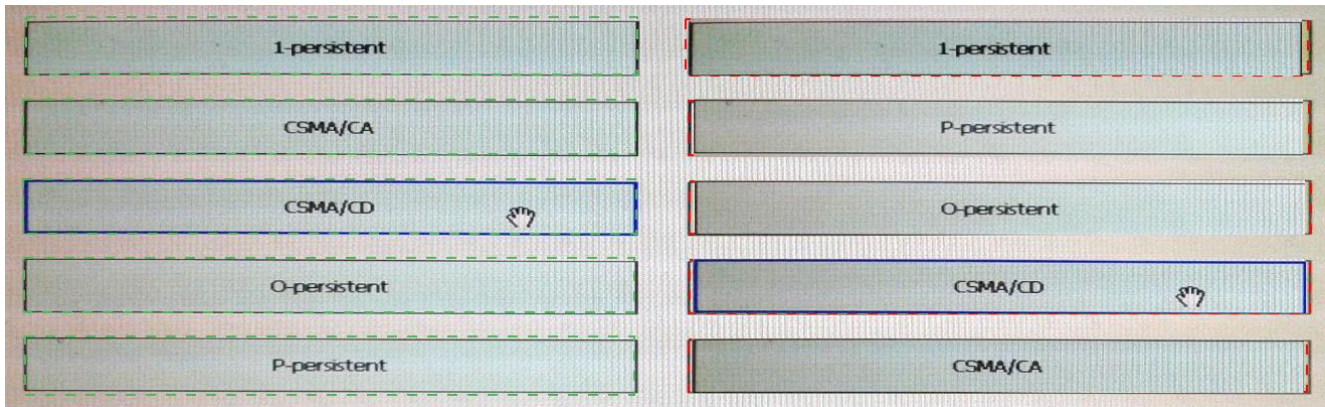
A show running-config command on R3 and R4 shows that R4 is incorrectly configured for area 2:

R3	R4
<pre> no ip address shutdown ! interface Ethernet0/2 no ip address shutdown ! interface Ethernet0/3 no ip address shutdown ! interface Serial1/0 description ***Connected to R4-Branch1 office*** ip address 10.10.240.1 255.255.255.252 encapsulation ppp ip ospf 3 area 0 serial restart-delay 0 ! interface Serial1/1 description ***Connected to R5-Branch2 office*** ip address 10.10.240.5 255.255.255.252 encapsulation ppp ip ospf hello-interval 50 ip ospf 3 area 0  ppp authentication chap           </pre>	<pre> ! interface Ethernet0/2 no ip address shutdown ! interface Ethernet0/3 no ip address shutdown ! interface Serial1/0 description ***Connected to R3-Main Branch office*** ip address 10.10.240.2 255.255.255.252 encapsulation ppp ip ospf 4 area 2 serial restart-delay 0 ! interface Serial1/1 no ip address shutdown serial restart-delay 0 ! interface Serial1/2 no ip address shutdown  --- More (37) ---           </pre>

**NO.236** Drag and drop the CSMA components from the left onto the correct descriptions on the right

1-persistent	access mode used for Ethernet networks
CSMA/CA	access mode used for Wi-Fi networks
CSMA/CD	access mode used in the controller area network
0-persistent	rules that define the system response when a collision occurs on an Ethernet network
P-persistent	rules that define the system response when a collision occurs on a Wi-Fi network

**Answer:**



#### Explanation

Access mode used for Ethernet networks = 1-Persistent

Access mode used for Wi-fi networks = P-Persistent

Access mode used in the controller area network = O-persistent

Rules that define the system response when a collision occurs on an Ethernet network = CSMA/CD

Rules that define the system response when a collision occurs on a Wi-Fi network = CSMA/CA

**NO.237** Which two benefits can you get by stacking cisco switches?(choose Two)

- A. The stack enables any active member to take over as the master switch if the existing master fails.
- B. Each switch in the stack can use a different IOS image
- C. You can add or remove switches without taking the stack down
- D. you can license the entire stack with a single master license
- E. each switch in the stack handles the mac table independently from the others

**Answer:** A C

**NO.238** What are two benefits that the UDP protocol provides for application traffic? (Choose two)

- A. UDP maintains the connection state to provide more stable connections than TCP
- B. The CTL field in the UDP packet header enables a three-way handshake to establish the connection.
- C. UDP traffic has lower overhead than CTP traffic
- D. The application can use checksum to verify the integrity of application data
- E. UDP provides a built in recover mechanism to retransmit lost packets

**Answer:** B C

**NO.239** You notice that packets that are sent from a local host to well-known service on TCP port 80 remote host are sometimes lost. You suspect an ACL issue. Which two APIC-EM path Trace ACL-analysis option should you use to troubleshooting the problem? (Choose two.)

- A. destination port
- B. QoS
- C. debug
- D. protocol
- E. performance Monitor

**Answer:** A C

**NO.240** For what two purposes does the Ethernet protocol use physical addresses? (Choose two)

- A.** to establish a priority system to determine which device gets to transmit first
- B.** to allow communication between different devices on the same network
- C.** to allow communication with devices on a different network
- D.** to uniquely identify devices at Layer 2
- E.** to allow detection of a remote device when its physical address is unknown
- F.** to differentiate a Layer 2 frame from a Layer 3 packet

**Answer:** B D

**NO.241** which command can you enter to troubleshoot the failure of address assignment ?

- A.** sh ip dhcp database
- B.** sh ip dhcp pool
- C.** sh ip dhcp import
- D.** sh ip dhcp server statistics

**Answer:** B

**NO.242** The following have already been configured on the router:

- \* The basic router configuration
- \* The appropriate interfaces have been configured for NAT inside and NAT outside.
- \* The appropriate static routes have also been configured (since the company will be a stub network, no routing protocol will be required)
- \* All passwords have been temporarily set to "cisco".

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.

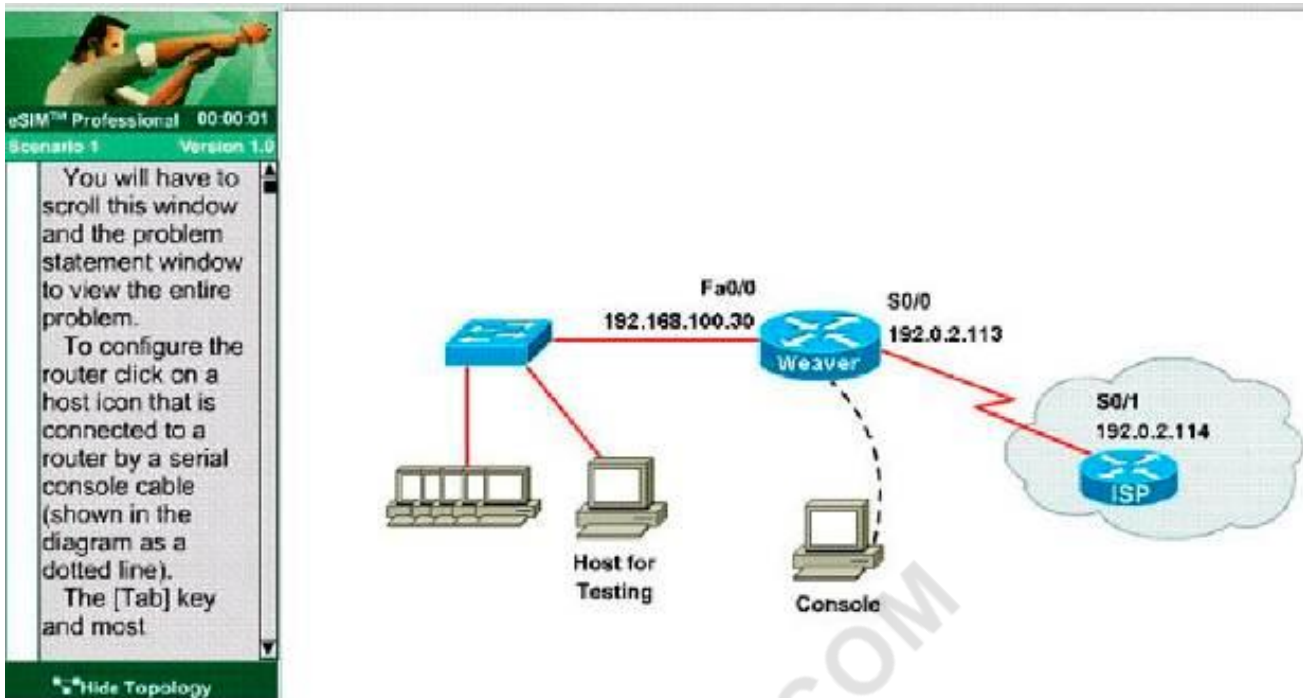
Configuration information:

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



A network associate is configuring a router for the weaver company to provide internet access. The ISP has provided the company six public IP addresses of 198.18.184.105 198.18.184.110. The company has 14 hosts that need to access the internet simultaneously. The hosts in the company LAN have been assigned private space addresses in the range of 192.168.100.17 - 192.168.100.30.

### Answer:

The company has 14 hosts that need to access the internet simultaneously but we just have 6 public IP addresses from 198.18.184.105 to 198.18.184.110/29.

Therefore we have to use NAT overload (or PAT)

Double click on the Weaver router to open it

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

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 allows to 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
```

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

```
Weaver#copy running-config startup-config
```

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

**NO.243** How does a Cisco switch respond if you boot it without a valid configuration in the NVRAM?

- A. it enters setup mode.
- B. it uses the running -configuration
- C. It prompts you to restore the startup configuration
- D. it enters user EXEC mode.

**Answer:** B

**NO.244** Which two addresses can be used to communicate with more than one device at a time?

(Choose two)

- A. 01-00-53-ab-11-c1
- B. 10.1.1.255/22
- C. 01-00-5e-7b-11-c1
- D. 10.1.2.255/23
- E. 172.17.210.255/24

**Answer:** A C

**NO.245** Which two statements about firewalls are true? (Choose two.)

- A. They can be used with an intrusion prevention system.
- B. They can limit unauthorized user access to protect data.
- C. Each wireless access point requires its own firewall.
- D. They must be placed only at locations where the private network connects to the internet.
- E. They can prevent attacks from the internet only.

**Answer:** A B

**NO.246** A network administrator enters the following command on a router: logging trap 3. What are three message types that will be sent to the Syslog server? (Choose three.)

- A. informational
- B. emergency
- C. warning
- D. critical
- E. debug
- F. error



**Answer:** B D F

Explanation

The Message Logging is divided into 8 levels as listed below:

Level

Keyword

Description

0

emergencies

System is unusable

1

alerts

Immediate action is needed

2

critical

Critical conditions exist

3

errors

Error conditions exist

4

warnings

Warning conditions exist

5

notification

Normal, but significant, conditions exist

6

informational

Informational messages

7

debugging

Debugging messages

If you specify a level with the "logging trap level" command, that level and all the higher levels will be logged. For example, by using the "logging trap 3 command, all the logging of emergencies, alerts, critical, and errors, will be logged.

**NO.247** Which two neighbor types are supported in a BGP environment? (Choose two)

A. remote

B. directly attached

C. external

D. autonomous

E. internal

**Answer:** C E

**NO.248** Which configuration command can you apply to a router so that its local interface becomes active if all other routers in the group fail?

A. Router(config)#standby 1 preempt

- B. No additional configuration is required
- C. Router(config)#standby 1 Priority 250
- D. Router(config)#standby 1 track Ethernet

**Answer:** A

**NO.249** Which Command can you enter on a switch to display the IP address associated with connected devices?

- A. Show cdp neighbors
- B. Show cdp neighbors detail
- C. show cdp traffic
- D. show cdp interface

**Answer:** B

**NO.250** Which three statements about Syslog utilization are true? (Choose three.)

- A. Utilizing Syslog improves network performance.
- B. The Syslog server automatically notifies the network administrator of network problems.
- C. A Syslog server provides the storage space necessary to store log files without using router disk space.
- D. There are more Syslog messages available within Cisco IOS than there are comparable SNMP trap messages.
- E. Enabling Syslog on a router automatically enables NTP for accurate time stamping.
- F. A Syslog server helps in aggregation of logs and alerts.

**Answer:** C D F

Explanation

The Syslog sender sends a small (less than 1KB) text message to the Syslog receiver. The Syslog receiver is commonly called "syslogd," "Syslog daemon," or "Syslog server." Syslog messages can be sent via UDP (port

514) and/or TCP (typically, port 5000). While there are some exceptions, such as SSL wrappers, this data is typically sent in clear text over the network. A Syslog server provides the storage space necessary to store log files without using router disk space.

In general, there are significantly more Syslog messages available within IOS as compared to SNMP Trap messages. For example, a Cisco Catalyst 6500 switch running Cisco IOS Software Release 12.2(18)SXJ contains about 90 SNMP trap notification messages, but has more than 6000 Syslog event messages.

System logging is a method of collecting messages from devices to a server running a syslog daemon. Logging to a central syslog server helps in aggregation of logs and alerts. Cisco devices can send their log messages to a UNIX-style syslog service. A syslog service accepts messages and stores them in files, or prints them according to a simple configuration file.

Reference: [http://www.cisco.com/c/en/us/products/collateral/services/high-availability/white\\_paper\\_c11-557812.html](http://www.cisco.com/c/en/us/products/collateral/services/high-availability/white_paper_c11-557812.html)

**NO.251** Which command can you enter to verify that a router is synced with a configured time source ?

- A. Show ntp associations

- B. show ntp authenticate
- C. ntp server time
- D. ntp authenticate
- E. ntp associations

**Answer:** A

**NO.252** Which two values are needed to run the APIC-EM ACL Analysis tool? (Choose two.)

- A. destination address
- B. protocol
- C. source address
- D. source port
- E. periodic refresh interval
- F. destination port

**Answer:** A D

**NO.253** Which two benefits of implementing point-to-point links for WAN connections are true? (Choose two)

- A. You can configure multiple point-to-point connections on each interface.
- B. They can provide dedicated capacity
- C. They are a low-cost option
- D. They operate with low latency
- E. They can provide flexible routing.

**Answer:** B C

**NO.254** Which two circumstances can prevent two routers from establishing an EIGRP neighbor adjacency ? (Choose two.)

- A. Both routers have the same router ID
- B. The routers are on different subnets
- C. The two routers have the same autonomous system number
- D. The routers have mismatched K values.
- E. An ACL is blocking traffic from multicast address 224.0.0.5.

**Answer:** C D

**NO.255** After an FTP session to ftp.cisco.com fails. You attempt to ping the server. Aping to ftp.cisco.com also fails.

But a ip address successful .what is reason for the failed ftp session?

- A. An ACL is blocking the ftp request
- B. The internet connection is down
- C. The assigned dns server is down
- D. A firewall is blocking traffic from the ftp site

**Answer:** A

**NO.256** Which two statements about access points are true? (Choose Two)

- A. They can provide access within enterprises and to the public.
- B. in Most cases, they are physically connected to other network devices to provide network connectivity.
- C. They can protect a network from internal and external threats.
- D. Most access points provide Wi-Fi and Bluetooth connectivity.
- E. They must be hardwired to a modem.

**Answer:** C D

**NO.257** Which NAT command can be applied to an interface?

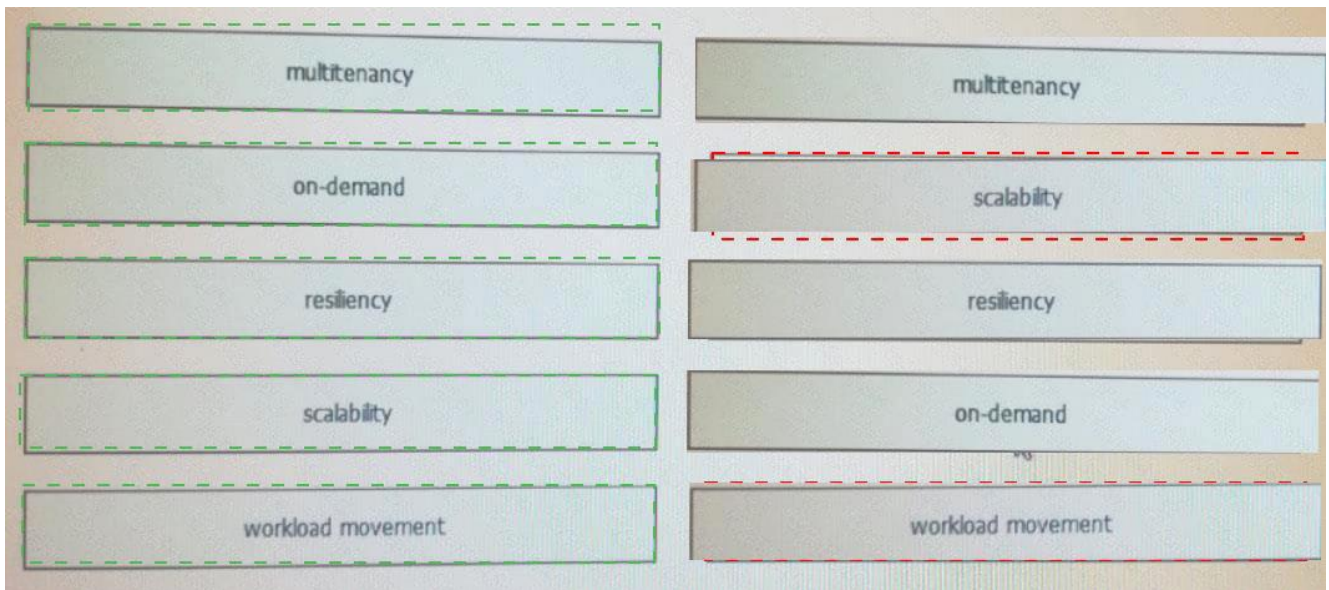
- A. ip nat inside
- B. ip nat inside test access-list-number pool pool-name
- C. ip nat inside source static 10.10.10.0 10.10.10.50
- D. ip nat pool test 10.10.10.0 10.10.10.50 255.255.255.0

**Answer:** A

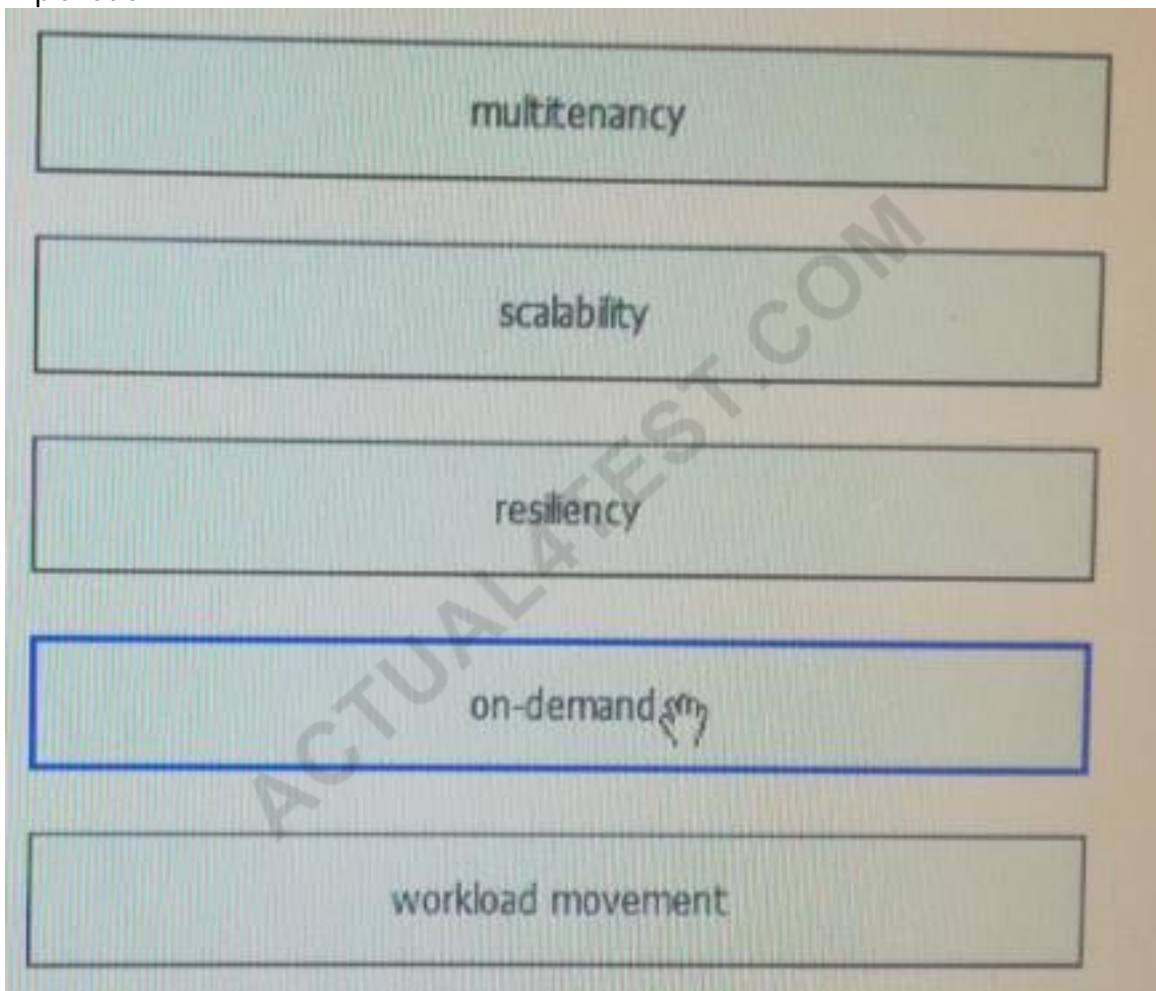
**NO.258** Drag and drop the characteristics of a cloud environment from the left onto the correct examples on the right

multitenancy	One or more clients can be hosted with the same physical or virtual infrastructure.
on-demand	Resources can be added and removed as needed to support current workload and tasks.
resiliency	Tasks can be migrated to different physical locations to increase efficiency or reduce cost.
scalability	Resources are dedicated only when necessary instead of on a permanent basis.
workload movement	Tasks and data residing on a failed server can be seamlessly migrated to other physical resources.

**Answer:**



Explanation



**NO.259** Which keyword enables an HSRP router to take the active role immediately when it comes online?

- A. IP address
- B. Priority
- C. Preempt



D. Version

**Answer:** C

**NO.260** What is the subnet address of 192.168.1.42 255.255.255.248?

A. 192.168.1.16/28

B. 192.168.1.32/27

C. 192.168.1.40/29

D. 192.168.1.8/29

E. 192.168.1.48/29

**Answer:** C

**NO.261** In which two circumstances are private IPv4 addresses appropriate? (Choose two)

A. on internal hosts that stream data solely to external resources

B. on hosts that communicates only with other internal hosts

C. on the public-facing interface of a firewall

D. on hosts that require minimal access to external resources

E. to allow hosts inside an enterprise to communicate in both directions with hosts outside the enterprise

**Answer:** A B

**NO.262** Refer to the exhibit.

Port Security	: Enabled
Port Status	: Secure-up
Violation Mode	: Protect
Aging Time	: 0 mins
Aging Type	: Absolute
SecureStatic Address Aging	: Disabled
Maximum MAC Addresses	: 4
Total MAC Addresses	: 3
Configured MAC Addresses	: 1
Sticky MAC Addresses	: 2
Last Source Address:Vlan	: 0001.0fAA.33BB:1
Security Violation Count	: 0

Which two events occur on the interface. If packets from an unknown source address arrive after the interface learn the maximum number of secure MAC addresses.

A. The port led turns off

B. The security violation counter does not increment

C. A sys log message is generated

D. The interface drops traffic from unknown mac addresses

E. The interface is error-disabled

**Answer:** B D

**NO.263** What are two advantages of static routing? (Choose two)

A. It cannot be used to load-balance traffic over multiple links

- B. It allows the network to respond immediately to changes
- C. It can be implemented easily even in large environments.
- D. It allows the administrator to control the path of traffic
- E. It produces minimal CPU load.

**Answer:** C D

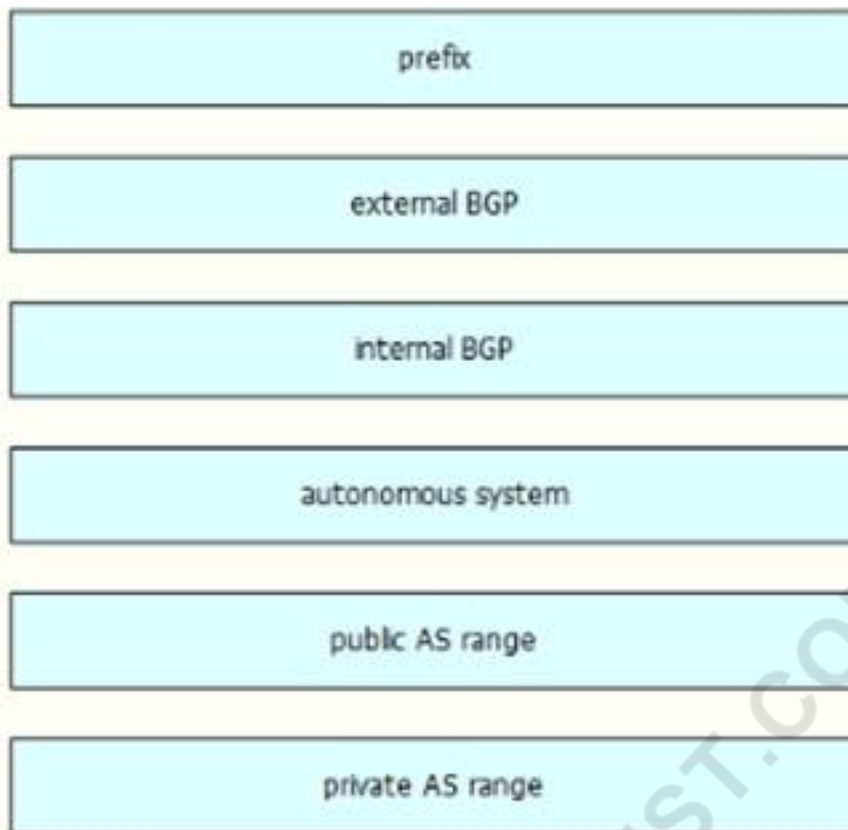
**NO.264** Drag and drop BGP terms from the left onto the correct description on the right.

autonomous system	block of IP addresses
external BGP	relationship between peers in different autonomous system
internal BGP	relationship between peers in the same autonomous system
prefix	separate network operating within one administrative domain
private AS range	value between 1 and 64,511
public AS range	value between 64,512 and 65,535

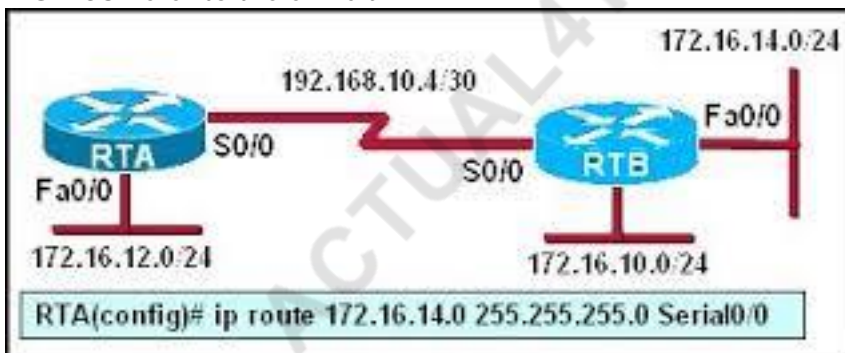
**Answer:**

autonomous system	prefix
external BGP	external BGP
internal BGP	internal BGP
prefix	autonomous system
private AS range	public AS range
public AS range	private AS range

Explanation



**NO.265** Refer to the exhibit.



RTA is configured with a basic configuration. The link between the two routers is operational and no routing protocols are configured on either router. The line shown in the exhibit is then added to router RTA. Should interface Fa0/0 on router RTB shut down, what effect will the shutdown have on router RTA?

- A.** A route to 172.16.14.0/24 will remain in the RTA routing table.
- B.** Because router RTB will send a poison reverse packet to router RTA, RTA will remove the route.
- C.** Router RTA will send an ICMP packet to attempt to verify the route.
- D.** A packet to host 172.16.14.225 will be dropped by router R.

**Answer:** A

**NO.266** Under normal operations, cisco recommends that you configure switch ports on which vlan ?

- A.** on the default vlan
- B.** on the management vlan

- C. on the native vlan
- D. on any vlan except the default vlan

**Answer:** D

Explanation

/Reference:

<http://www.cisco.com/c/en/us/support/docs/switches/catalyst-6500-series-switches/24330-185.html>

**NO.267** Which two tasks does a router perform when it receives a packet that is being forwarded from one network to another? (Choose two.)

- A. It removes the Layer 2 frame header and trailer.
- B. It encapsulates the Layer 2 packet.
- C. It removes the Layer 3 frame header and trailer.
- D. It examines the routing table for the best path to the destination IP address of the packet.
- E. It examines the MAC address table for the forwarding interface.

**Answer:** A D

**NO.268** Which two advantages do dynamic routing protocols provide over static routing? (Choose two)

- A. Dynamic routing requires fewer resources than static routing.
- B. Only dynamic routing is supported on all topologies that require multiple routers.
- C. Dynamic routing protocols are easier to manage on very large networks.
- D. Dynamic routing protocols automatically adapt to reroute traffic if possible.
- E. Dynamic routing is more secure than static routing.

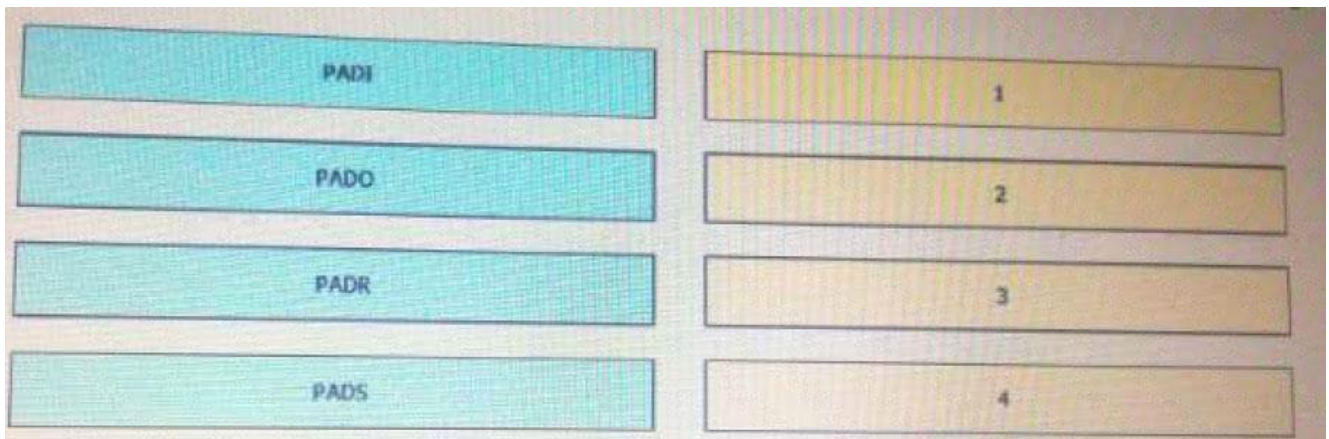
**Answer:** C D

**NO.269** Which command should you enter to configure an LLDP delay time of 5 seconds?

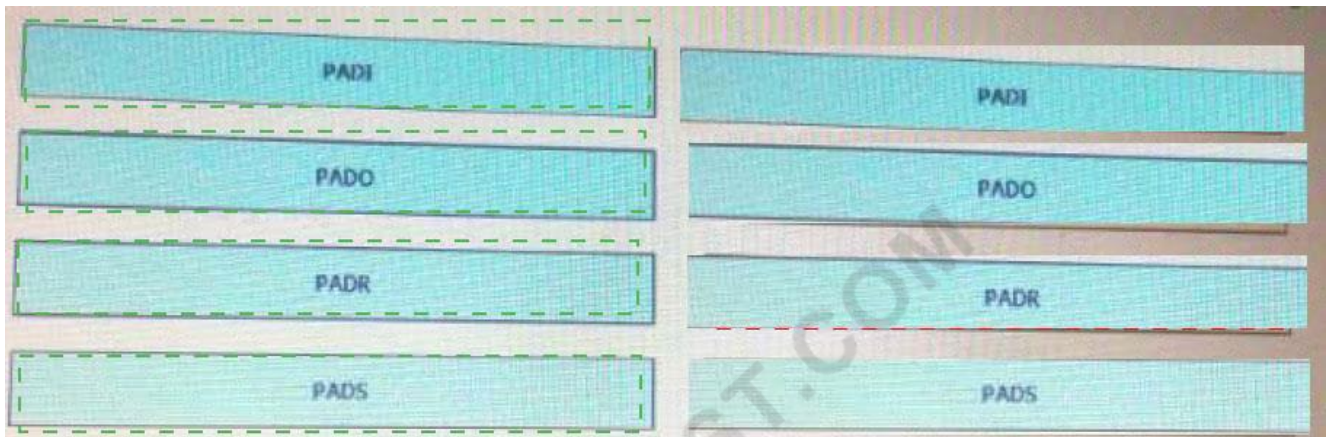
- A. lldp reinit 5000
- B. lldp reinit 5
- C. lldp holdtime 5
- D. lldp timer 5000

**Answer:** B

**NO.270** Drag and Drop the PPPoE message types from the left into the sequence in which PPPoE messages are sent on the right.



**Answer:**



Explanation

PADI

PADO

PADR

PADS

**NO.271** Which two design models can you use to deploy DMVPN? (Choose two)

**A.** WAN aggregation

**B.** DMVPN only

**C.** Internet VPN

**D.** DMVPN backup shared

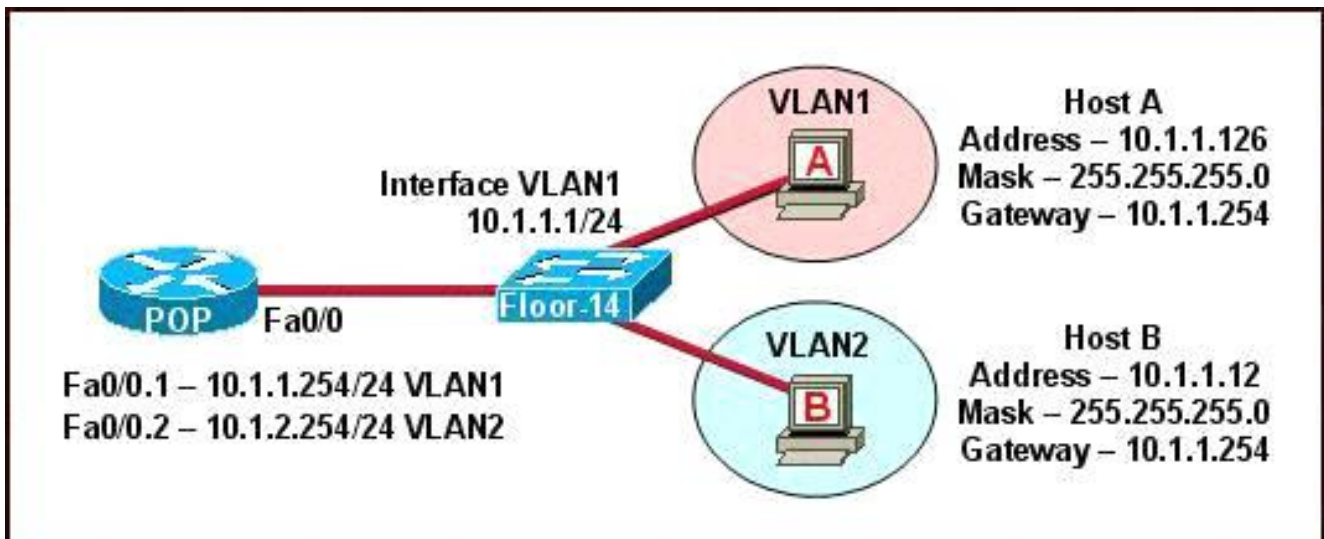
**E.** dual DMVPN

**F.** DMVPN backup dedicated

**Answer:** B E

**NO.272** Refer to the exhibit.





The network shown in the diagram is experiencing connectivity problems. Which of the following will correct the problems? (Choose two.)

- A. Configure the gateway on Host A as 10.1.1.1.
- B. Configure the gateway on Host B as 10.1.2.254.
- C. Configure the IP address of Host A as 10.1.2.2.
- D. Configure the IP address of Host B as 10.1.2.2.
- E. Configure the masks on both hosts to be 255.255.255.224.
- F. Configure the masks on both hosts to be 255.255.255.240.

**Answer:** B D

Explanation

The switch 1 is configured with two VLANs: VLAN1 and VLAN2.

The IP information of member Host A in VLAN1 is as follows:

Address : 10.1.1.126

Mask : 255.255.255.0

Gateway : 10.1.1.254

The IP information of member Host B in VLAN2 is as follows:

Address : 10.1.1.12

Mask : 255.255.255.0

Gateway : 10.1.1.254

The configuration of sub-interface on router 2 is as follows:

Fa0/0.1 -- 10.1.1.254/24 VLAN1

Fa0/0.2 -- 10.1.2.254/24 VLAN2

It is obvious that the configurations of the gateways of members in VLAN2 and the associated network segments are wrong. The layer3 addressing information of Host B should be modified as follows:

Address : 10.1.2.X

Mask : 255.255.255.0

**NO.273** Which statement about the default switch configuration for remote access managements is true?

- A. The system name is set to Cisco.
- B. The Telnet password is set to cisco.

- C. No default gateway is defined.
- D. One IP address is preconfigured.

**Answer:** C

**NO.274** Which two commands should you enter to view the PID and serial number of a router?  
(Choose two)

- A. show version
- B. show license udi
- C. show license
- D. show license status
- E. show license feature

**Answer:** A C

**NO.275** Which type does a port become when it receives the best BPDU on a bridge?

- A. the backup port
- B. the root port
- C. the designated port
- D. the alternate port

**Answer:** B

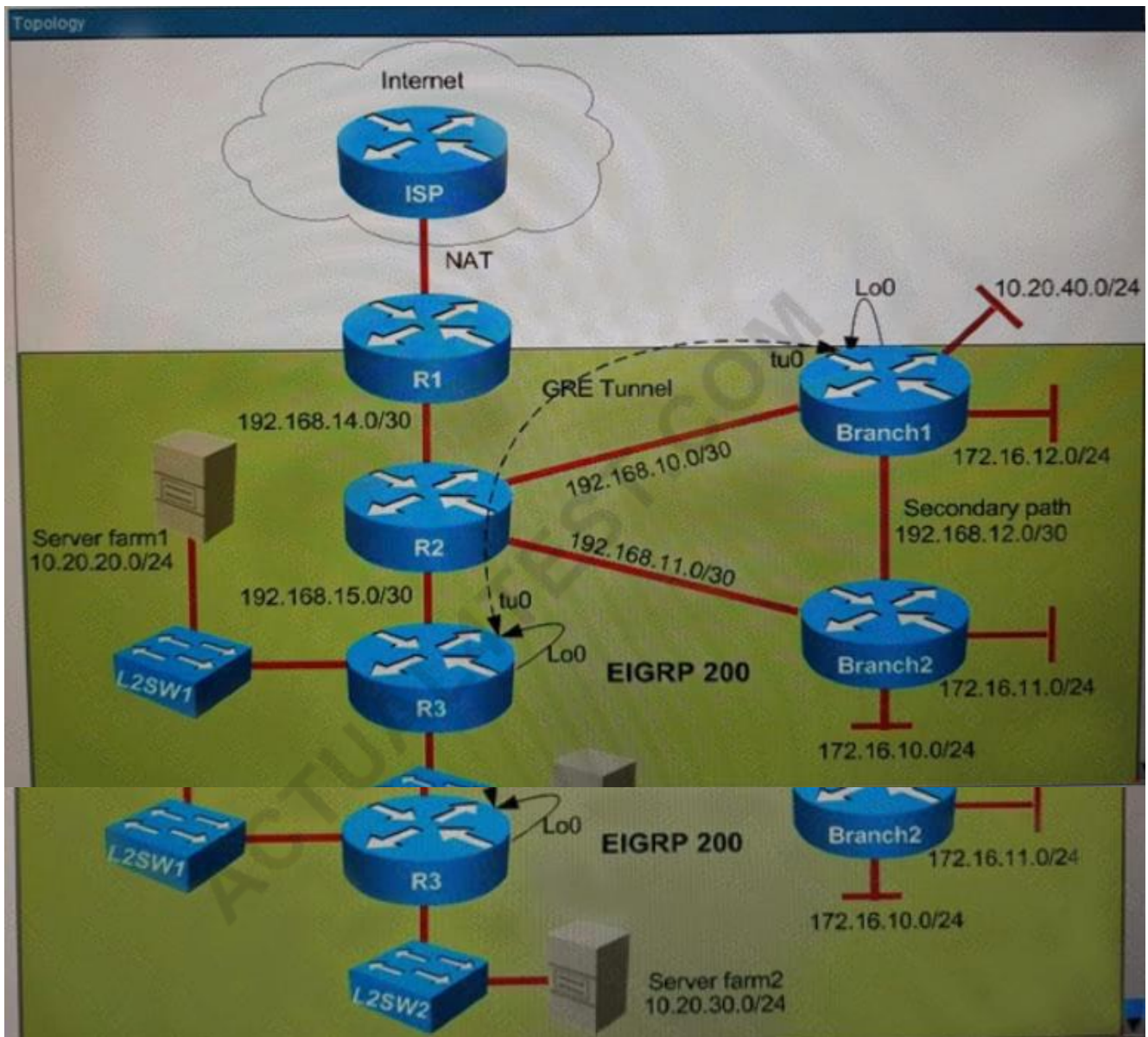
**NO.276** How does a Layer 2 switch differ from a hub?

- A. A switch tracks MAC addresses of directly-connected devices.
- B. A switch always induces latency into the frame transfer time.
- C. A switch operates at a lower, more efficient layer of the OSI model.
- D. A switch decreases the number of collision domains.

**Answer:** A

**NO.277** You are implementing EIGRP between the main office and branch offices. In Phase 1 you must implement and verify EIGRP configurations as mentioned in the topology in Phase 2. your colleague is expected to do NAT and ISP configurations Identity the issues that you are encountering during Phase 1 EIGRP implementation.

- \* Router R1 connects the main office to the Internet and routers R2 and R3 are internal routers
- \* Routers Branch 1 and Branch2 connect to router R2 in the main office.
- \* Users from the Branch1 LAN network 10.20.40.0/24 are expected to perform testing of the application that is hosted on the servers in Server farm1, before servers are available for production
- The GRE tunnel is configured between R3 and Branch1, and traffic between server farm1 and Branch1 LAN network 10.20.40.0/24 is routed through the GRE tunnel using static routes
- \* The link between Branch1 and Branch2 is used as a secondary path in the event of failure of the primary path to main office You have console access on R1, R2, R3, Branch1, and Branch2 devices Use only show commands to troubleshoot the issues Topology:



```

Branch1
ip address 10.20.40.1 255.255.255.0
!
router eigrp 200
 network 10.16.200.2 0.0.0.0
 network 172.16.12.0 0.0.0.255
 network 192.168.10.0
 network 192.168.12.0
!
ip forward-protocol nd
!
no ip http server
no ip http secure-server
ip route 10.20.20.0 255.255.255.0 Tunnel
!

```

```

R3
interface Ethernet0/0
  description ***Link to Server farm2***
  ip address 10.20.30.1 255.255.255.0
!
interface Ethernet0/1
  description ***Link to Server farm1***
  ip address 10.20.20.1 255.255.255.0
!
interface Ethernet0/2
  description ***Link to R2***
  ip address 192.168.15.2 255.255.255.252
!
interface Ethernet0/3
  no ip address
  shutdown

```

The traffic from Branch2 to the main office is using the secondary path instead of the primary path connected to R2. Which cause of the issue is true?

- A. The network 192.163.11,0/30 was not advertised into EIGRP on Branch2.
- B. The IP address was misconfigured between the Branch2 and R2 interfaces.
- C. EIGRP packets were blocked by the inbound ACL on Branch2.
- D. The primary path has more link delay configured then secondary path which causes EIGRP to choose the secondary path.

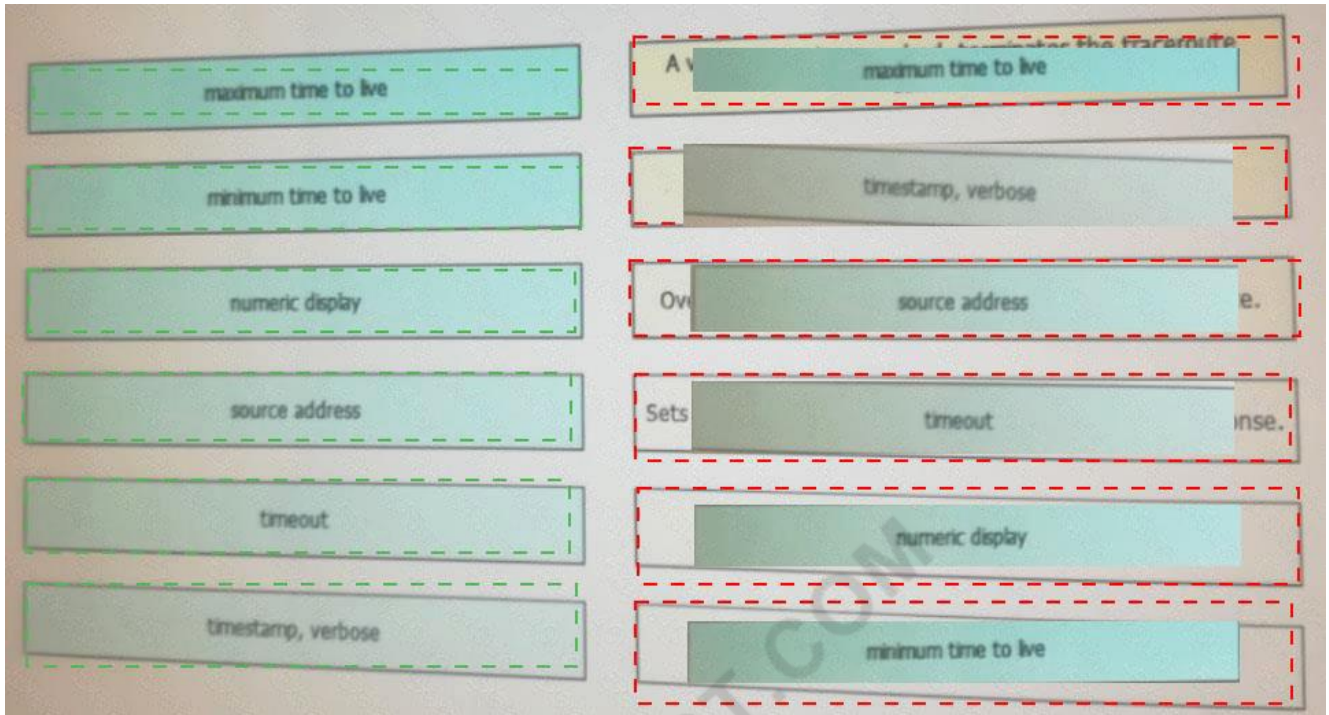
**Answer:** B

**NO.278** Drag and drop the extended traceout option from the left onto the correct description on the right.

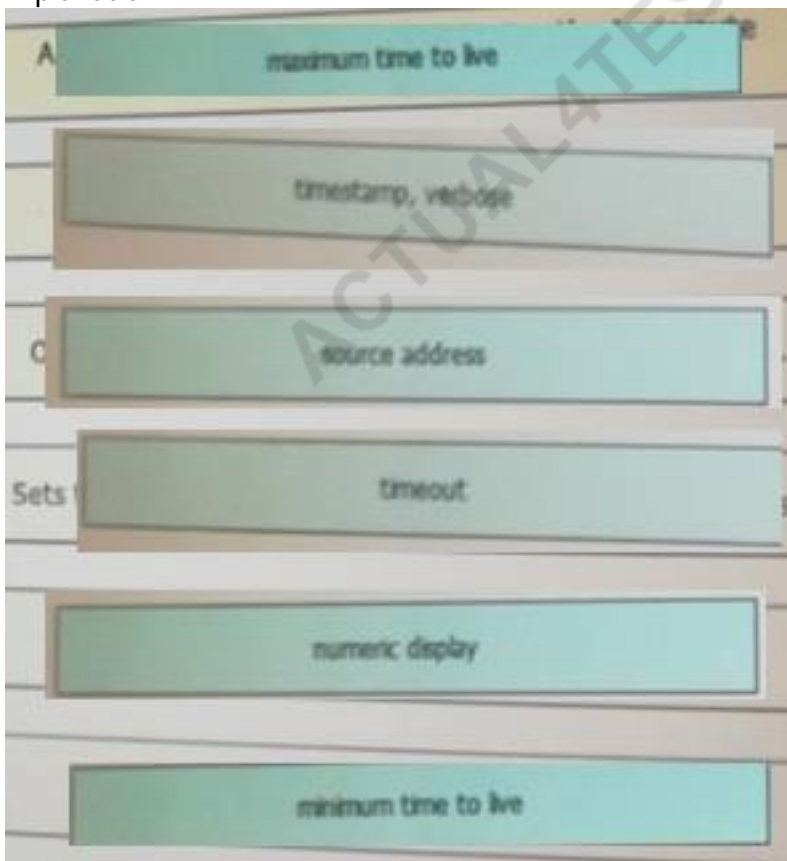
maximum time to live	A value that, when reached, terminates the traceroute command.
minimum time to live	IP header options.
numeric display	Overrides the router's selection of an outbound interface.
source address	Sets the interval for which the probe will wait for a response.
timeout	Suppresses the display of known hops.
timestamp, verbose	Suppresses the display of hostnames.



**Answer:**



**Explanation**



<https://www.cisco.com/c/en/us/support/docs/ip/routing-information-protocol-rip/13730-ext-ping-trace.html>

**NO.279** Which command do you enter to enable an interface to support PPPoE on a client?

**A.** Dev1(config)# bba-group pppoe bba1



- B. Dev1(config-if)# pppoe-client dial-pool-number1
- C. Dev1(config-if)# pppoe enable group bba1
- D. Dev1(config-if)# pppoe enable

**Answer:** D

**NO.280** Which type of cable must you use to connect two device with mdi interfaces ?

- A. rolled
- B. crosseover
- C. crossed
- D. straight through

**Answer:** C

**NO.281** Which subnet address is for the IP address 172.19.20.23/28?

- A. 172.19.20.20
- B. 172.19.20.0
- C. 172.19.20.32
- D. 172.19.20.15
- E. 172.19.20.16

**Answer:** E

**NO.282** Scenario:

You are a junior network engineer for a financial company, and the main office network is experiencing network issues. Troubleshoot the network issues.

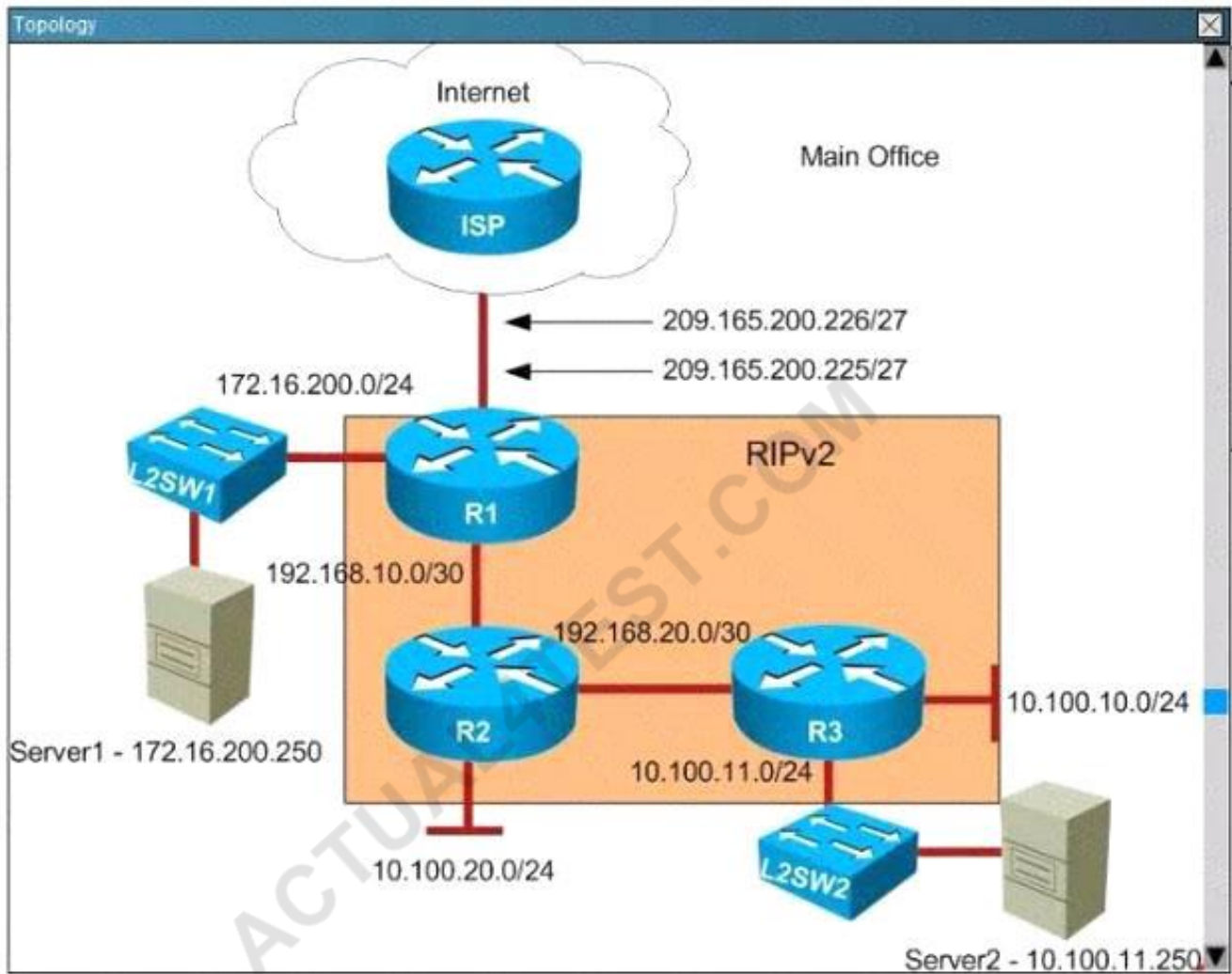
Router R1 connects the main office to the internet, and routers R2 and R3 are internal routers.

NAT is enabled on router R1.

The routing protocol that is enabled between routers R1, R2 and R3 is RIPv2.

R1 sends the default route into RIPv2 for the internal routers to forward internet traffic to R1.

You have console access on R1, R2 and R3 devices. Use only show commands to troubleshoot the issues.



```
R1
Current configuration : 1651 bytes
!
! No configuration change since last restart
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
--- More (105) ---
```

```

R1
ip cef
no ipv6 cef
multilink bundle-name authenticated
redundancy
--- More (79) ---

```

```
R1
interface Ethernet0/0
description ***Link to ISP***
ip address 209.165.200.225 255.255.255.224
ip nat outside
ip virtual-reassembly in
!
interface Ethernet0/1
description ***Link to Server1 segment***
ip address 172.16.200.1 255.255.255.0
ip nat inside
ip virtual-reassembly in
!
interface Ethernet0/2
description ***Link to R2***
ip address 192.168.10.1 255.255.255.252
ip access-group R2LANBLOCK in
ip nat inside
ip virtual-reassembly in
!
interface Ethernet0/3
no ip address
shutdown
!
router rip
version 2

R1
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 0.0.0.0 0.0.0.0 209.165.200.226
!
ip access-list standard R2LANBLOCK
deny 10.100.20.0 0.0.0.255
permit any
!
ip access-list extended LOCAL
permit ip host 127.0.0.1 any
!
!
!
control-plane
!
!
!
!
line con 0
logging synchronous
line aux 0
--- More (7) ---
```

```
R1
ip access-list extended LOCAL
 permit ip host 127.0.0.1 any
!
!
!
control-plane
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
!
ntp server 209.165.200.226
!
end
R1#

R2
Building configuration...

Current configuration : 1243 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
--- More (92) ---
```



**R2**

```
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
```

```
!
```

```
hostname R2
```

```
!
```

```
boot-start-marker
boot-end-marker
```

```
!
```

```
!
```

```
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
```

```
!
```

```
!
```

```
!
```

**R2**

```
!
```

```
!
```

```
!
```

```
ip dhcp excluded-address 192.168.20.1
```

```
!
```

```
ip dhcp pool DHCPASSIGNR3
 network 10.10.10.0 255.255.255.252
```

```
!
```

```
!
```

```
ip cef
no ipv6 cef
```

```
!
```

```
multilink bundle-name authenticated
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

R2#



R3

```
!
interface Loopback0
 ip address 192.168.250.3 255.255.255.255
!
interface Ethernet0/0
 description ***Link to LAN***
 ip address 10.100.10.1 255.255.255.0
!
interface Ethernet0/1
 description ***Link to R2***
 ip address dhcp
!
interface Ethernet0/2
 description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0
```

R3

```
description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0
 network 192.168.250.0
 no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
control-plane
!
```

```
R3
network 192.168.250.0
no auto-summary
!
ip forward-protocol nd
!
no ip http server
no ip http secure-server
!
!
control-plane
!
!
!
!
line con 0
logging synchronous
line aux 0
line vty 0 4
--- More (5) ---
R3
no ip http server
no ip http secure-server
!
!
control-plane
!
!
!
!
line con 0
logging synchronous
line aux 0
line vty 0 4
login
transport input all
!
end
R3#
```

Users complain that they are unable to reach internet sites. You are troubleshooting internet

connectivity problem at main office. Which statement correctly identifies the problem on Router R1?

- A. Interesting traffic for NAT ACL is incorrectly configured.
- B. NAT configurations on the interfaces are incorrectly configured
- C. NAT translation statement incorrectly configured.
- D. Only static NAT translation configured for the server, missing Dynamic NAT or Dynamic NAT overloading for internal networks.

**Answer:** B

Explanation

```
R1
!
!
!
!
!
interface Loopback0
 ip address 192.168.250.1 255.255.255.255
!
interface Ethernet0/0
 description ***Link to ISP***
 ip address 209.165.200.225 255.255.255.224
 ip nat inside
 ip virtual-reassembly in
!
interface Ethernet0/1
 description ***Link to Server1 segment***
 ip address 172.16.200.1 255.255.255.0
 ip nat outside
 ip virtual-reassembly in
!
interface Ethernet0/2
 description ***Link to R2***
 ip address 192.168.10.1 255.255.255.252
 ip nat outside
 ip virtual-reassembly in
!
```

**NO.283** Which logging command can enable administrators to correlate syslog messages with millisecond precision?

- A. no logging console
- B. logging buffered 4
- C. no logging monitor
- D. service timestamps log datetime msec
- E. logging host 10.2.0.21



**Answer:** D

**NO.284** Which command would you configure globally on a Cisco router that would allow you to view directly connected Cisco devices?

- A. enable cdp
- B. cdp enable
- C. cdp run
- D. run cdp

**Answer:** C

Explanation

CDP is enabled on Cisco routers by default. If you prefer not to use the CDP capability, disable it with the no cdp run command. In order to reenabling CDP, use the cdp run command in global configuration mode. The

"cdp enable" command is an interface command, not global.

**NO.285** Which the system management command is used frequently when IOS backups, upgrades, and restores are performed?

- A. show file
- B. show dir
- C. copy
- D. delete

**Answer:** C

**NO.286** Which three elements are field in a basic Ethernet data frame? (Choose three.)

- A. Preamble
- B. Length/ Type
- C. Header Checksum
- D. Time to Live
- E. Frame Check Sequence
- F. Version

**Answer:** B D

**NO.287** Which statement about 6to4 tunneling is true?

- A. One tunnel endpoint must be configured with IPv4 only.
- B. Both tunnel endpoint must be configured with IPv4 only.
- C. It establishes a point-to-point tunnel.
- D. Both tunnel endpoints must support IPv4 and IPv6.

**Answer:** D

**NO.288** What is a valid HSRP virtual MAC address?

- A. 0000.5E00.01A3
- B. 0007.B400.AE01
- C. 0000.0C07.AC15

**D. 0007.5E00.B301**

**Answer:** C

Explanation

With HSRP, two or more devices support a virtual router with a fictitious MAC address and unique IP address.

There are two version of HSRP.

+ With HSRP version 1, the virtual router's MAC address is 0000.0c07.ACxx , in which xx is the HSRP group.

+ With HSRP version 2, the virtual MAC address if 0000.0C9F.Fxxx, in which xxx is the HSRP group.

Note: Another case is HSRP for IPv6, in which the MAC address range from 0005.73A0.0000 through 0005.73A0.0FFF.

**NO.289** Routers R1 and R2 are on the same network segment, and both routers use interface GigabitEthernet0/0. If R1 loses communication to R2, which two items should you check as you begin troubleshooting? (Choose two.)

**A.** Verify that R2 is using 802.1q encapsulation.

**B.** Verify that the GigabitEthernet0/0 interfaces on R1 and R2 are configured with the same subnetmask.

**C.** Verify that the R1 GigabitEthernet0/0 interface is up and the line protocol is down.

**D.** Verify that R1 and R2 both are using HDLC encapsulation.

**E.** Verify that the R1 GigabitEthernet0/0 interface is up and the line protocol is up.

**Answer:** B E

**NO.290** which three options are fields in a basic ethernet data frame ?

**A.** preamble

**B.** time to live

**C.** version

**D.** header checksum

**E.** length type

**F.** frame check sequence

**Answer:** A E F

**NO.291** Which two states are the port states when RSTP has converged? (Choose two.)

**A.** discarding

**B.** listening

**C.** learning

**D.** forwarding

**E.** disabled

**Answer:** A D

Explanation

There are only three port states left in RSTP that correspond to the three possible operational states. The

802.1D disabled, blocking, and listening states are merged into a unique 802.1w discarding state.

STP (802.1D) Port State

RSTP (802.1w) Port State

Is Port Included in Active Topology?

Is Port Learning MAC Addresses?

Disabled

Discarding

No

No

Blocking

Discarding

No

No

Listening

Discarding

Yes

No

Learning

Learning

Yes

Yes

Forwarding

Forwarding

Yes

Yes

Reference:

[http://www.cisco.com/en/US/tech/tk389/tk621/technologies\\_white\\_paper09186a0080094cfa.shtml#states](http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cfa.shtml#states)

**NO.292** Refer to the exhibit.

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

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

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

**Answer:** C

Explanation

Since the port is in the blocked status, we must assume that there is a shorter path to the root bridge

elsewhere.

**NO.293** Which three statements are true about the operation of a full-duplex Ethernet network? (Choose three.)

- A.** The host network card and the switch port must be capable of operating in full-duplex mode.
- B.** Ethernet hub ports are preconfigured for full-duplex mode.
- C.** A dedicated switch port is required for each full-duplex node.
- D.** There are no collisions in full-duplex mode.
- E.** In a full-duplex environment, the host network card must check for the availability of the network media before transmitting.

**Answer:** A C D

**NO.294** Which three statements about the features of SNMPv2 and SNMPv3 are true? (Choose three.)

- A.** SNMPv3 enhanced SNMPv2 security features.
- B.** SNMPv3 added the Inform protocol message to SNMP.
- C.** SNMPv2 added the Inform protocol message to SNMP.
- D.** SNMPv3 added the GetBulk protocol messages to SNMP.
- E.** SNMPv2 added the GetBulk protocol message to SNMP.
- F.** SNMPv2 added the GetNext protocol message to SNMP.

**Answer:** A C E

Explanation

SNMPv1/v2 can neither authenticate the source of a management message nor provide encryption. Without authentication, it is possible for nonauthorized users to exercise SNMP network management functions. It is also possible for nonauthorized users to eavesdrop on management information as it passes from managed systems to the management system. Because of these deficiencies, many SNMPv1/v2 implementations are limited to simply a read-only capability, reducing their utility to that of a network monitor; no network control applications can be supported. To correct the security deficiencies of SNMPv1/v2, SNMPv3 was issued as a set of Proposed Standards in January 1998. -> A is correct.

The two additional messages are added in SNMP2 (compared to SNMPv1)

**GetBulkRequest** The GetBulkRequest message enables an SNMP manager to access large chunks of data.

**GetBulkRequest** allows an agent to respond with as much information as will fit in the response PDU. Agents that cannot provide values for all variables in a list will send partial information. -> E is correct

**InformRequest** The InformRequest message allows NMS stations to share trap information. (Traps are issued by SNMP agents when a device change occurs.) InformRequest messages are generally used between NMS stations, not between NMS stations and agents. -> C is correct.

Note: These two messages are carried over SNMPv3.

**NO.295** Which command can you enter to set the default route for all traffic to an IP address router interface?

- A.** router(config)#ip router 0.0.0.0 255.255.255.255 GigabitEthernet0/1
- B.** router(config)#ip route 0.0.0.0 0.0.0.0 GigabitEthernet0/1

- C. router(config)#ip default-gateway GigabitEthernet0/1
- D. router(config-router) #default-information originate

**Answer:** B

**NO.296** Which two circumstances can prevent two routers from establishing an ospf neighbor adjacency?

- A. Mismatched autonomous system numbers
- B. Mismatched hello timers and dead timers
- C. An ACL blocking traffic from multicast address 224.0.0.10
- D. Use of the same router id on both devices
- E. Mismatched process ids

**Answer:** A B

**NO.297** Which feature facilitates the tagging of frames on a specific VLAN?

- A. routing
- B. hairpinning
- C. switching
- D. encapsulation

**Answer:** D

**NO.298** What is the danger of the permit any entry in a NAT access list?

- A. It can lead to overloaded resources on the router.
- B. It can cause too many addresses to be assigned to the same interface.
- C. It can disable the overload command.
- D. It prevents the correct translation of IP addresses on the inside network.

**Answer:** A

**NO.299** Which option is the primary purpose of traffic shaping?

- A. Providing best-effort service
- B. limiting bandwidth usage
- C. enabling policy-based routing
- D. enabling dynamic flow identification

**Answer:** B

**NO.300** Which statement about upgrading a cisco ios device with TFTP is True ?

- A. The Cisco IOS device must be on the same lan as the TFTP server
- B. The operation is performed in passive mode
- C. The operation is performed in an unencrypted format
- D. The operation is performed in active mode

**Answer:** A

**NO.301** Which two layers can be found in the TCP/IP model and the OSI model? (Choose two)

- A. application



- B. presentation
- C. network
- D. transport
- E. physical

**Answer:** B D

### NO.302 Scenario:

You work as Junior Network Engineer for RADO Network Ltd company. Your colleague has set up a Layer 2 network for testing purpose in one of your client locations. You must verify the configuration and fix if any issues identified as per customer requirements.

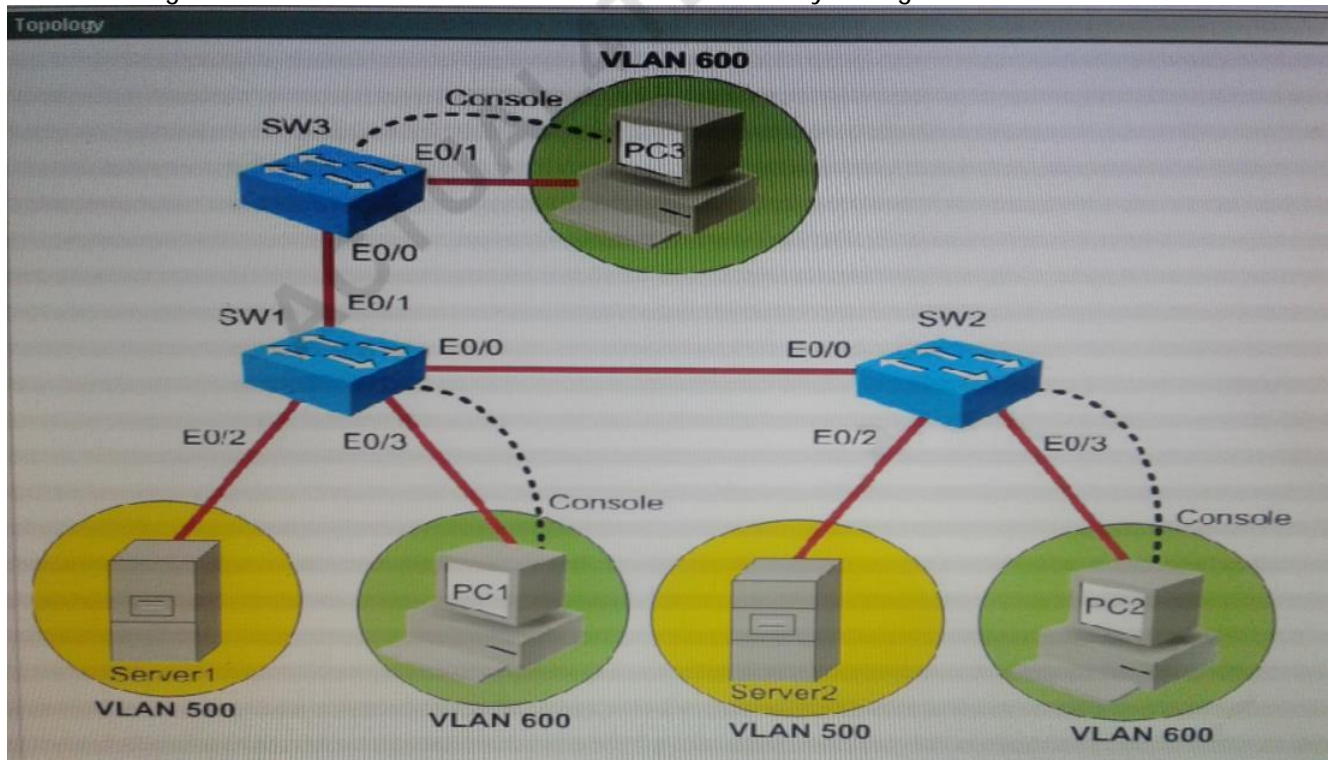
#### Topology Details

- Three switches (SW1, SW2, and SW3) are connected using Ethernet link as shown in the topology diagram.
- Server1 and PC1 are connected to SW1 and are assigned to VLAN 500 and VLAN 600 respectively.
- Server2 and PC2 are connected to SW2 and are assigned to VLAN 500 and VLAN 600 respectively.
- PC3 is connected to SW3 and assigned to VLAN 600.

#### Customer requirements

- Verify if switch ports are assigned in correct VLANs as per topology diagram Identify and fix any misconfigurations found in three switches.
- Verify if trunk links are operational between switches and the IEEE 802.1q trunk encapsulation method is used Identify and fix if any misconfigurations are found in the trunk configuration
- You must make sure the ports connected between switches are set as trunk ports.

Special Note: To gain the maximum number you must make sure that VLANs are assigned to switch ports as per customer requirements and make sure the trunk links are operational between switches. Do not change VLAN names and VLAN number that are already configured in the switches



See the explanation below:

**Answer:**

**Explanation**

Switch 1 port E0/1 WAS CONNECTED TO A COMPUTER WITH A STRAIGHT THROUGH CABLE AND AS WELL AS ROLLOVER CABLE (FOR CONFIGURATION OF SWITCH PORTS ON THIS SWITCH) WHICH WAS SHOWN IN VLAN 600 IN THE DIAGRAM BUT ACTUALLY THAT PC WAS NOT IN VLAN 600 AFTER CHECKING THE VLAN CONFIGURATION USING SHOW VLAN COMMAND. INSTEAD THIS PORT WAS CONFIGURED IN VLAN 1. SO WE NEEDED TO PUT THAT PC IN VAN 600 USING FOLLOWING COMMANDS-SW1(CONFIG)# INTERFACE E0/0SW1(CONFIG-IF)#SWITCHPORT MODE ACCESSSW1(CONFIG-IF)#SWITCHPORT ACCESS VLAN 600 NOW THE E0/0-PORT OF THIS SWITCH-SW1 WAS RECEIVING NATIVE VLAN MISMATCH FROM SW3 SWITCH-PORT E0/1. ALSO E0/0 OF SW1 AND E0/1 OF SW3 WERE NOT IN TRUNKING MODE.

AND THE QUESTION WAS ASKED TO MAKE SURE THAT CONNECTION BETWEEN BOTH SWITCHES SHOULD BE IN TRUNKING MODE WITH 802.1Q ENCAPSULATION ENABLED SO USED THE BELOW COMMANDS-SW1(CONFIG)#INT E0/0SW1(CONFIG-IF)#SWITCHPORT TRUNK ENCAPSULATION DOT1QSW1(CONFIG-IF)# SWITCHPORT MODE TRUNK.

ON OTHER SWITCH WHICH IS SWITCH3

SW3(CONFIG)#INT E0/0SW3(CONFIG-IF)#SWITCHPORT TRUNK ENCAPSULATION DOT1QSW3(CONFIG-IF)# SWITCHPORT MODE TRUNK.SW3(CONFIG-IF)# SWITCHPORT TRUNK NATIVE VLAN 1 ALSO PORT E0/2 OF SW3 WAS CONNECTED TO SERVER AND IN VLAN 600 AND PORT E0/3 WAS ASSIGNED TO VLAN 500 AND TO A COMPUTER AGAIN IN VLAN 500 ITSELF. SO THAT COMPUTER HAD A CONSOLE CABLE CONNECTED TO SW3 AS WELL IN ORDER TO CONFIGURE SW3 PORTS AS TRUNK PORTS AND SWITCHPORTS USING THE ABOVE STEPS FOR SW1 WHICH WAS MENTIONED ABOVE.

SIMILARLY SW2 PORT E0/1 PORT WAS CONNECTED TO E0/4 PORT OF SW3 SO AGAIN TRUNK LINK CONFIGURATIONS BETWEEN E0/1 AND E0/4 PORTS BETWEEN TWO SWITCHES NEED TO BE DONE HERE. BUT YOU NEEDED NOT TO AGAIN RUN THAT NATIVE VLAN COMMAND CHANGE ON SW3 OR SW2 SINCE ON SW3 WE ALREADY CHANGED IN ABOVE STEP AND IN SW2 ITS FINE IN VLAN 1 ONLY.

A COMPUTER WAS CONNECTED TO PORT E0/2 OF SW2 AND WAS IN VLAN 600 AND E0/3 WAS CONNECTED TO SERVER WHICH WAS IN VLAN 600 AGAIN. ALSO AGAIN THIS TIME THE COMPUTER WAS CONNECTED TO THE SWITCH USING A CONSOLE CABLE AS WELL TO GIVE YOU CONSOLE ACCESS TO CONFIGURE AND VERIFY THE CONFIGURATIONS ON SW2. SO JUST VERIFY THE ACCESS PORTS ARE CORRECTLY ASSIGNED AND TRUNK PORTS AS WELL USING BELOW COMMANDS.

**NO.303** Which two commands can you use to configure a PAgP EtherChannel? (Choose two )

- A. channel-group 10 mode desirable
- B. channel-group 10 mode on
- C. channel-group 10 mode active
- D. channel-group 10 mode auto
- E. channel-group 10 mode passive

**Answer:** A D

**NO.304** Which two commands can you enter to configure an interface to actively negotiate an EtherChannel? (Choose two.)

- A. channel-group 10 mode on
- B. channel-group 10 mode passive
- C. channel-group 10 mode active

- D. channel-group 10 mode desirable
- E. channel-group 10 mode auto

**Answer:** C D

**NO.305** Which two options are benefits of dhcp snooping ?

- A. it prevents dhcp reservations
- B. it simplifies the process of adding DHCP Servers to the network
- C. it prevents the deployment of rogue DHCP Servers
- D. it prevents static reservations
- E. it Tracks the location of hosts in the network

**Answer:** C E

**NO.306** Which component of the Cisco SDN solution serves as the centralized management system?

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

**Answer:** C

**NO.307** Which two statements about 1000BASE-T UTP cable are true? (Choose two)

- A. It uses four wires.
- B. It uses four wire pairs.
- C. It is most appropriate for installations up to 1000 feet in length.
- D. It is most appropriate for installations up to 1000 meters in length.
- E. Both ends of the cable can transmit and receive simultaneously.

**Answer:** B E

**NO.308** which option is the correct CIDR notation for 192.168.0.0 subnet 255.255.255.252?

- A. /29
- B. /30
- C. /31
- D. /32

**Answer:** B

**NO.309** How many bits represent network id in a IPv6 address?

- A. 32
- B. 48
- C. 64
- D. 128

**Answer:** C

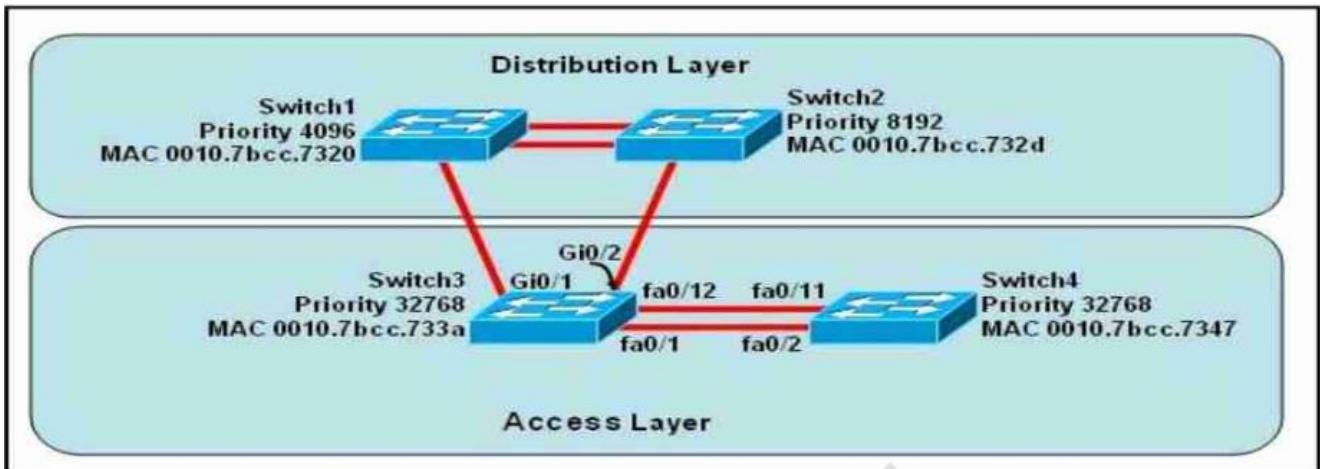
Explanation

Explanation/Reference:

<http://networkengineering.stackexchange.com/questions/30836/calculate-networking-bits-for-ipv6>

64 bits for Network ID and 64 bits for Interface ID  
 $64+64=128$

**NO.310** Refer to the exhibit.



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

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

**Answer:** C

Explanation

MAC of Switch3 is smaller than that of Switch4 so both ports of Switch3 will be in forwarding state. The alternative port will surely belong to Switch4. Switch4 will need to block one of its ports to avoid a bridging loop between the two switches. But how does Switch4 select its blocked port? Well, the answer is based on the BPDUs it receives from Switch3. A BPDU is superior than another if it has: 1. A lower Root Bridge ID. 2. A lower path cost to the Root. 3. A lower Sending Bridge ID. 4. A lower Sending Port ID. These four parameters are examined in order. In this specific case, all the BPDUs sent by Switch3 have the same Root Bridge ID, the same path cost to the Root and the same Sending Bridge ID. The only parameter left to select the best one is the Sending Port ID (Port ID = port priority + port index). In this case the port priorities are equal because they use the default value, so Switch4 will compare port index values, which are unique to each port on the switch, and because Fa0/12 is inferior to Fa0/1, Switch4 will select the port connected with Fa0/1 (of Switch3) as its root port and block the other port -> Port fa0/11 of Switch4 will be blocked (discarding role).

**NO.311** Which of the following is a security best practice?

- A. Use multifactor VPN authentication.
- B. Use only commercially licensed software
- C. Use only WiFi instead of Ethernet cabling
- D. Use only solid state hard drives in servers.

**Answer:** A

**NO.312** Which two values must you specify to perform an ACL-based Path Trace using APIC-EM?  
(Choose two)

- A. destination port
- B. source port
- C. source interface
- D. destination IP address
- E. source IP address

**Answer:** D E

**NO.313** What feature you should use to analyse and monitor your traffic for troubleshooting?

- A. RSPAN
- B. SPAN
- C. Netflow
- D. SNMP

**Answer:** C

**NO.314** Which benefit of implementing a dual-homed WAN connection instead of a single homed connection is true?

- A. Only dual-homed connections support recursive routing
- B. Only dual-homed connections support split horizon with EIGRP
- C. Only dual-homed connections enable an individual router to tolerate the loss of a network link
- D. Only dual-homed connections support OSPF in conjunction with BGP

**Answer:** C

**NO.315** Which two options are primary responsibilities of the APIC-EM controller? (Choose two.)

- A. It automates network actions between different device types.
- B. It provides robust asset management.
- C. It tracks license usage and Cisco IOS versions.
- D. It automates network actions between legacy equipment.
- E. It makes network functions programmable.

**Answer:** A E

Explanation

<http://www.cisco.com/c/en/us/products/cloud-systems-management/application-policy-infrastructure-controllere module/index.html> Automate network configuration and setup Deploy network devices faster Automate device deployment and provisioning across the enterprise.

Provide a programmable network

Enable developers to create new applications that use the network to fuel business growth.

**NO.316** Which two features can you enable on a switch to capture and analyze frames that transit an interface ?  
(choose two)

- A. IP SLA
- B. SPAN



- C. NetFlow
- D. SNMP
- E. RSPAN

**Answer:** C D

**NO.317** Which IPv6 address is the all-router multicast group?

- A. FF02::1
- B. FF02::2
- C. FF02::3
- D. FF02::4

**Answer:** B

Explanation

Well-known IPv6 multicast addresses:

Address

Description

ff02::1

All nodes on the local network segment

ff02::2

All routers on the local network segment

**NO.318** 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 an 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

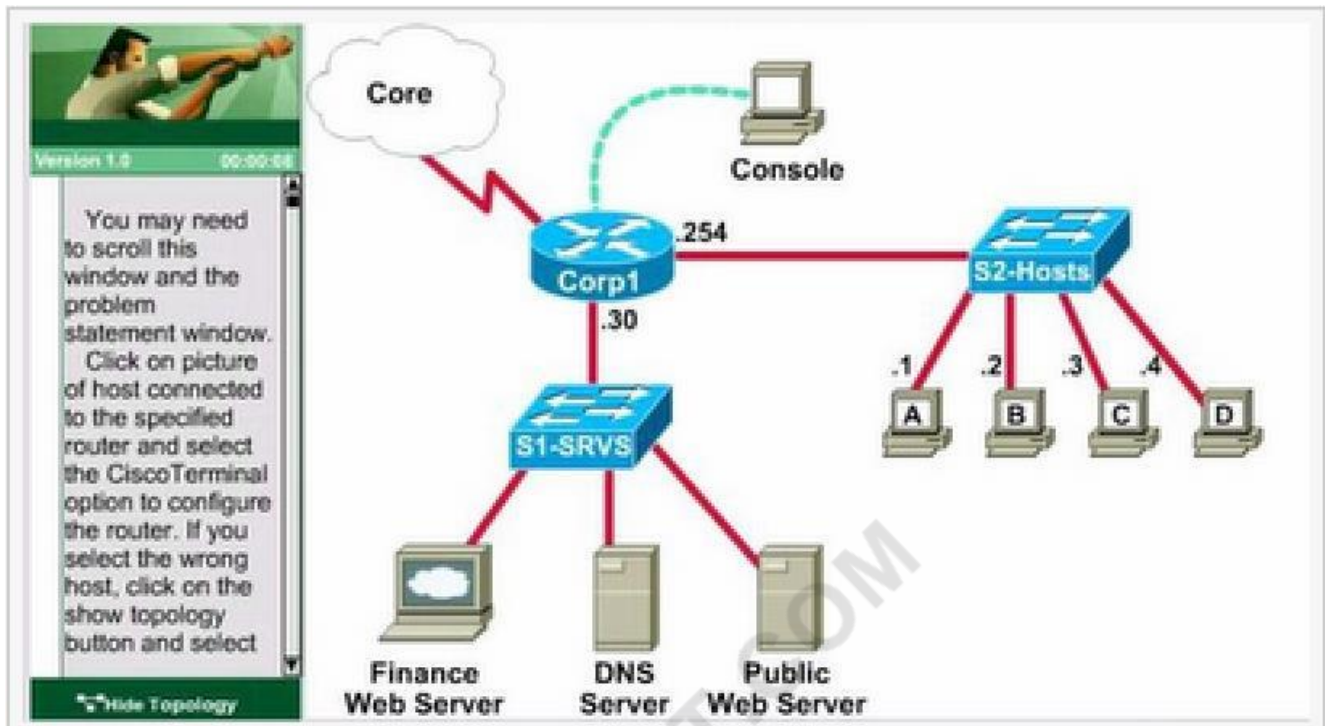
\* host B 192.168.33.2

\* 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.

**Answer:**

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 ipaddress 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.

Step 3: Only Host C (192.168.33.3) has access to the server. If the other host can also access then maybe something went wrong in your configuration. Check whether you configured correctly and in order.

Step 4: If only Host C (192.168.33.3) can access the Finance Web Server you can click on NEXT button to successfully submit the ACL SIM.

**NO.319** Which feature is configured by setting a variance that is at least two times the metric?

- A. equal cost load balancing
- B. unequal cost load balancing
- C. Path selection
- D. path count

**Answer:** B

**NO.320** You work as a network engineer for SASCOM Network Ltd company. On router HQ, a provider link has been enabled and you must configure an IPv6 default route on HQ and make sure that this route is advertised in IPv6 OSPF process. Also, you must troubleshoot another issue. router HQ is not forming an IPv6 OSPF neighbor relationship with router BR.

**Topology Details**

Two routers HQ and BR are connected via serial links.

Router HQ has interface Ethernet0/1 connected to the provider cloud and interface Ethernet 0/0 connected to RA1 Router BR has interface Ethernet 0/0 connected to another router RA2.

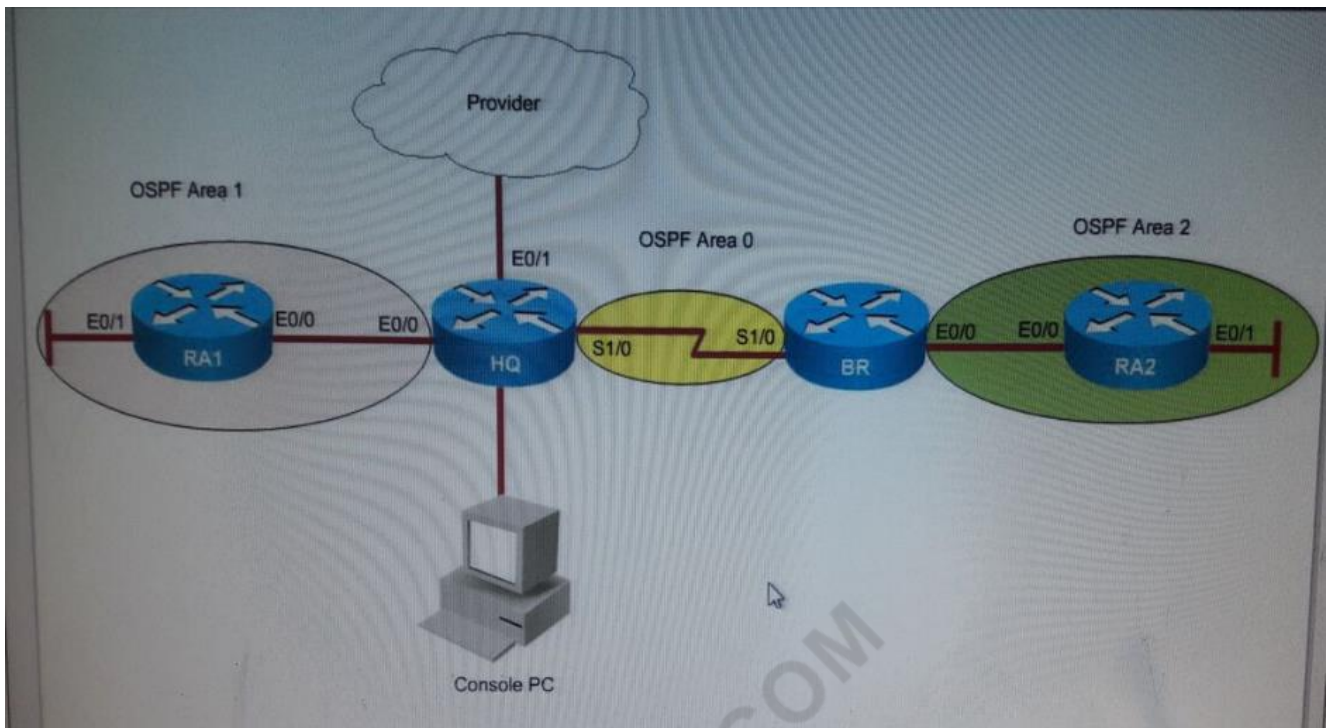
**IPv6 Routing Details**

All routers are running IPv6 OSPF routing with process ID number 100 Refer to the topology diagram for information about the OSPF areas The Loopback 0 IPv4 address is the OSPF router ID on each router Configuration requirements

- \* Configure IPv6 default route on router HQ with default gateway as 2001:DB8:B:B1B2::1.
- \* Verify by pinging provider test IPv6 address 2001 :DB8:0:1111:1 after configuring default route on HQ.
- \* Make sure that the default route is advertised in IPv6 OSPF on router HQ This default route should be advertised only when HQ has a default route in its routing table.
- \* Router HQ is not forming IPv6 OSPF neighbor with BR. You must troubleshoot and resolve this issue

Special Note: To gain the maximum number of points, you must complete the necessary configurations and fix IPv6 OSPF neighbor issue with router BR IPv6 OSPFv3 must be configured without using address families.

Do not change the IPv6 OSPF process ID.



See the full configuration and steps below.

**Answer:**

Explanation

1-configure default route on router HQ : ipv6 unicast-routing

ipv6 route ::/0 2001:DB8:B:B1B2::1

2-advertise this route under ospfv3

ipv6 router ospf 100

Default-information originate

3-fix adjacency problem if a area mismatches

We need to enter in s1/0

ipv6 ospf 100 area 0

**NO.321** Where does the configuration reside when a helper address is configured to support DHCP ?

- A. on the switch trunk interface.
- B. on the router closest to the client.
- C. on the router closest to the server.
- D. on every router along the path.

**Answer:** B

**NO.322** Which three encapsulation layers in the OSI model are combined into the TCP/IP application layer? (Choose three)

- A. Session
- B. transport
- C. presentation
- D. application
- E. data-link
- F. network

**Answer:** A C D

**NO.323** Which two functions can be performed by a local DNS server? (Choose two)

- A. transferring spirt horizon traffic between zones
- B. Forwarding name resolution requests to an external DNS server
- C. assigning IP addresses to local clients
- D. resolving names locally
- E. copying updatedIOS images to Cisco switches

**Answer:** B D

**NO.324** Which two statements about link-state routing protocols are true? (Choose two.)

- A. Each router is aware only of its neighbor routers.
- B. Link-state routing protocols use split horizon to avoid routing loops.
- C. Each router determines its own path to a destination.
- D. Each router maintains its own unique routing database.
- E. Each router shares a database of known routes.

**Answer:** C E

**NO.325** Which chassis-aggregation technology combines two physical switches into one virtual switch?

- A. LACP
- B. VRRP
- C. VSS
- D. StackWise

**Answer:** C

**NO.326** Which technology is a critical component of a cloud-based architecture?

- A. MPLS
- B. DNS
- C. DHCP
- D. IPv6

**Answer:** B

**NO.327** Which two EtherChannel PAgP modes can you configure? (Choose two.)

- A. active
- B. passive
- C. desirable
- D. on
- E. auto

**Answer:** C E

**NO.328** Which two address spaces are valid class b ipv4 ranges that are non-routable to the internet ?



- A. 10.0.0.0 through 10.0.255.255
- B. 169.254.0.0 through 169.254.255.255
- C. 172.16.0.0 through 172.31.255.255.
- D. 172.16.0.0 through 172.32.255.255
- E. 192.168.0.0. through 192.168.255.255

**Answer:** A E

**NO.329** What would be the effect of issuing the command `ip access-group 114 in` to the `fa0/0` interface?

- A. Attempts to telnet to the router would fail.
- B. It would allow all traffic from the 10.4.4.0 network.
- C. IP traffic would be passed through the interface but TCP and UDP traffic would not.
- D. Routing protocol updates for the 10.4.4.0 network would not be accepted from we `fa0/0` interface.

**Answer:** B

Explanation

From the output of access-list 114: `access-list 114 permit ip 10.4.4.0 0.0.0.255` any we can easily understand that this access list allows all traffic (ip) from 10.4.4.0/24 network

**NO.330** Which three are benefits of VLANs? (Choose three.)

- A. They increase the size of collision domains.
- B. They allow logical grouping of users by function.
- C. They can enhance network security.
- D. They increase the size of broadcast domains while decreasing the number of collision domains.
- E. They increase the number of broadcast domains while decreasing the size of the broadcast domains.
- F. They simplify switch administration.

**Answer:** B C E

Explanation

Explanation

When using VLAN the number and size of collision domains remain the same -> VLANs allow to group users by function, not by location or geography -> .

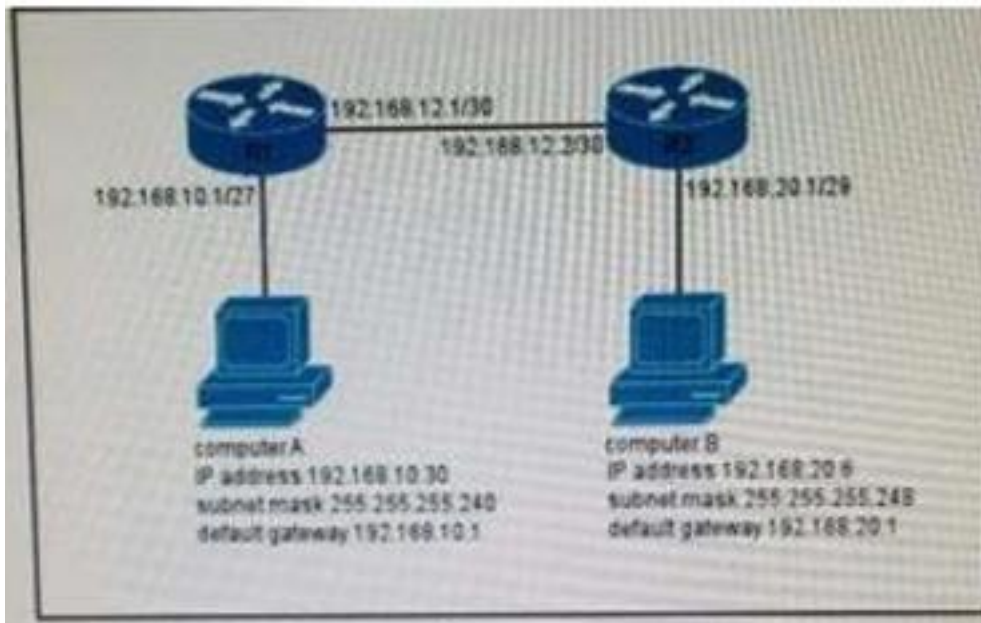
VLANs help minimize the incorrect configuration of VLANs so it enhances the security of the network -> .

VLAN increases the size of broadcast domains but does not decrease the number of collision domains

-> VLANs increase the number of broadcast domains while decreasing the size of the broadcast domains which increase the utilization of the links. It is also a big advantage of VLAN -> .

VLANs are useful but they are more complex and need more administration ->

**NO.331** Refer to the exhibit, you determine that Computer A cannot ping Computer Which reason for the problem is most likely true?



you determine that Computer A cannot ping Computer B. Which reason for the problem is most likely true?

- A. The Subnet mask for Computer A is incorrect.
- B. The default gateway address for Computer A is incorrect.
- C. The subnet mask for computer B is incorrect.
- D. The default gateway address for computer B is incorrect.

**Answer:** A

Explanation

255.255.255.224 = /27

**NO.332** Which two technologies can combine multiple physical switches into one logical switch? (Choose two.)

- A. StackWise
- B. VSS
- C. VRRP
- D. GLBP
- E. HSRP

**Answer:** A B

**NO.333** Which command should you enter to configure a single port to bypass the spanning-tree Forward and Delay timers?

- A. spanning-tree portfast
- B. spanning-tree portfast default
- C. spanning-tree portfast bpduguard default
- D. spanning-tree portfast bpduguard default

**Answer:** B

**NO.334** Which option must occur before a workstation can exchange HTTP packets with a web server?

- A. An ICMP connection must be established between the workstation and the web server.
- B. A UDP connection must be established between the workstation and its default gateway.
- C. A TCP connection must be established between the workstation and its default gateway.
- D. A UDP connection must be established between the workstation and the web server.
- E. An ICMP connection must be established between the workstation and its default gateway.
- F. A TCP connection must be established between the workstation and the web server.

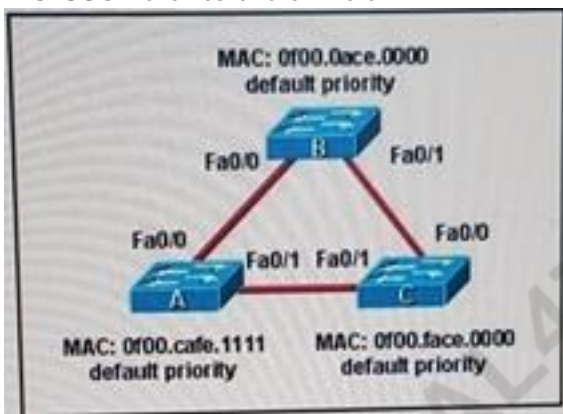
**Answer:** F

**NO.335** Which two operational modes are supported on the members of a StackWise switch stack? (Choose two)

- A. power-sharing
- B. passive
- C. redundant
- D. standby
- E. active

**Answer:** B E

**NO.336** Refer to the exhibit.



Which three ports will be STP designated if all the links are operating at the same bandwidth? (Choose three.)

- A. Switch A - Fa0/0
- B. Switch A - Fa0/1
- C. Switch B - Fa0/0
- D. Switch B - Fa0/1
- E. Switch C - Fa0/0
- F. Switch C - Fa0/1

**Answer:** B C D

**NO.337** Which circumstance is a common cause of late collisions?

- A. Over loaded hardware queues
- B. Duplex mismatch
- C. Native vlan mismatch
- D. Software misconfiguration

**Answer:** B

**NO.338** Which statement about DHCP snooping is true?

- A. it blocks traffic from DHCP servers on untrusted interfaces.
- B. it can be configured on switches and routers.
- C. it allows packets from untrusted ports if their source MAC address is found in the binding table.
- D. it uses DHCPDiscover packets to identify DHCP servers.

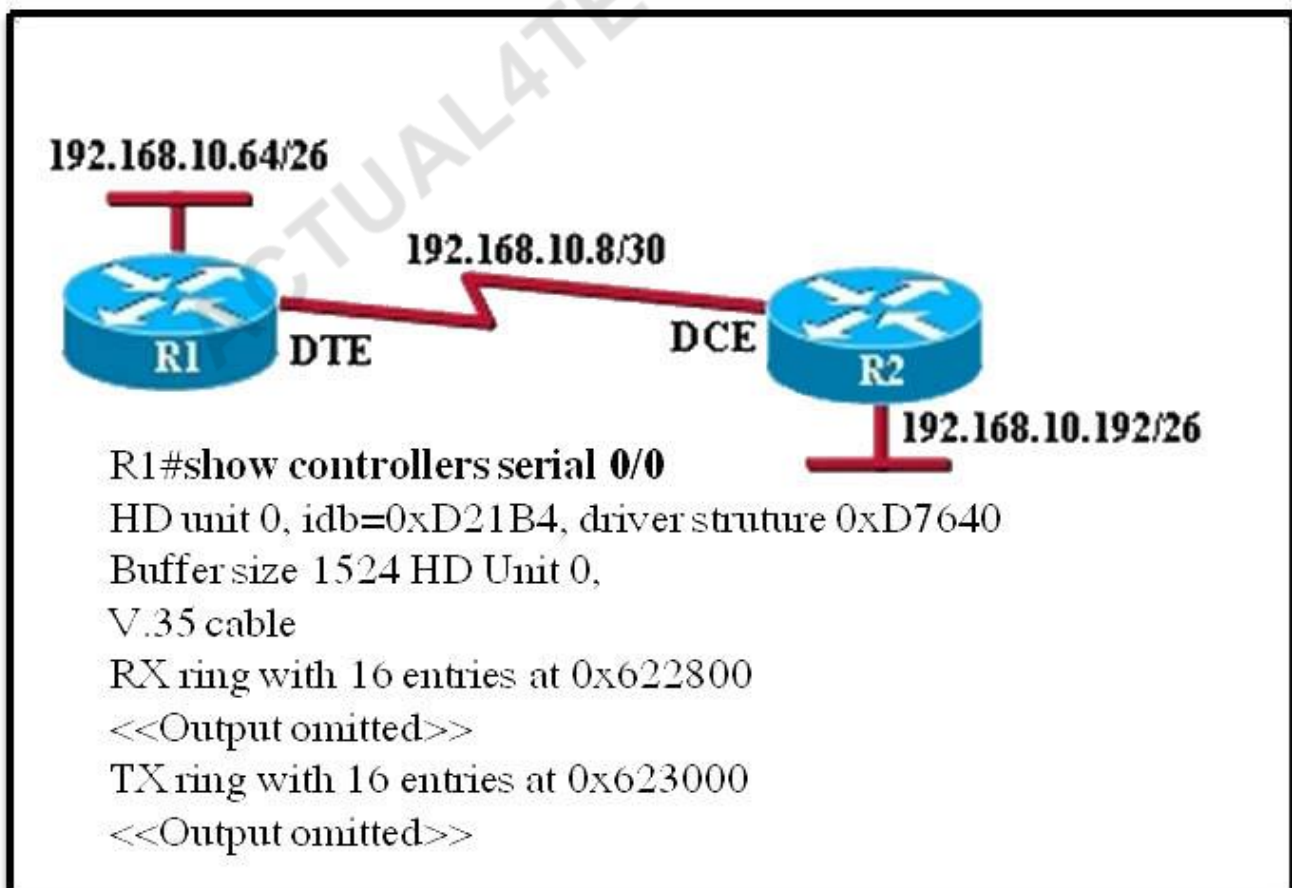
**Answer:** A

**NO.339** Which two conditions must be met before two devices can establish a BGP neighbor relationship? (Choose two)

- A. Cisco Discovery Protocol must be enabled on both devices.
- B. a Local AS number must be assigned on each device.
- C. The AS number of the neighbor must be configured on each device.
- D. The two devices must be connected by a Layer 2 device.
- E. An IGP must be running between the two devices.

**Answer:** B C

**NO.340** Refer to the exhibit.



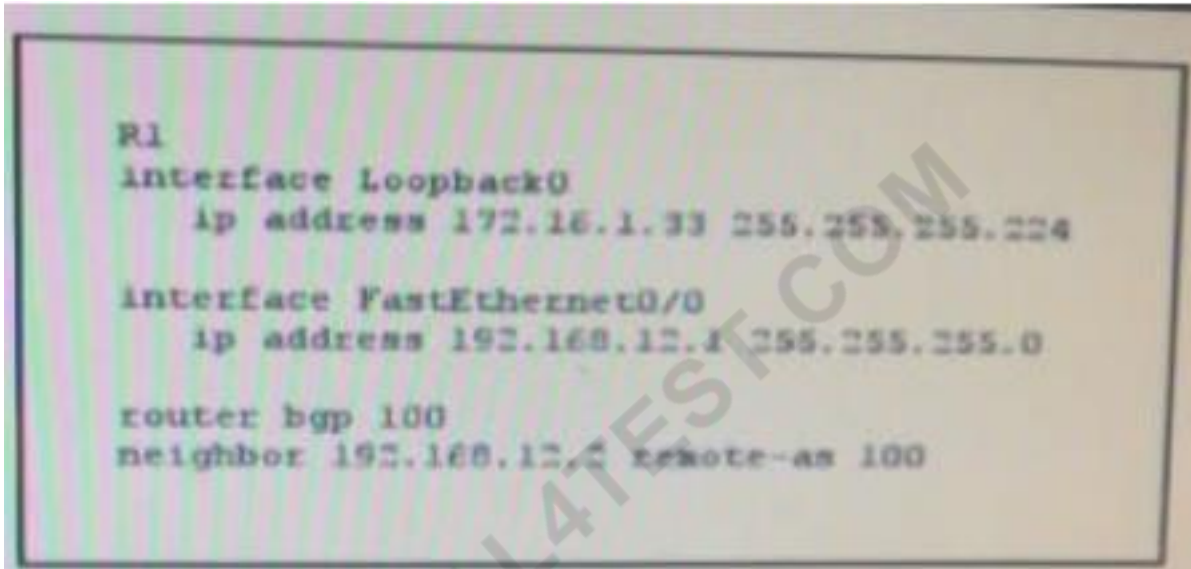
An administrator cannot connect from R1 to R2. To troubleshoot this problem, the administrator has entered the command shown in the exhibit. Based on the output shown, what could be the problem?

- A. The serial interface is configured for the wrong frame size.

- B. The serial interface does not have a cable attached.
- C. The serial interface has the wrong type of cable attached.
- D. The serial interface has a full buffer.
- E. The serial interface is configured for half duplex.

**Answer:** C

**NO.341** Refer to the exhibit,



which command do you enter so that R1 advertises the loopback0 interface to the BGP peers?

- A. network 172.16.1.32 mask 255.255.255.224
- B. network 172.16.1.0 0.0.0.0.255
- C. network 172.16.1.32 255.255.255.224
- D. network 172.16.1.33 mask 255.255.255.224
- E. network 172.16.1.32 mask 0.0.0.31
- F. network 172.16.1.32 0.0.0.31

**Answer:** A

**NO.342** Which two statements about LLDP are True? (Choose Two)

- A. it enables systems to learn about one another over the data-link layer
- B. it uses mandatory TLVs to discover the neighboring devices
- C. it is implemented in accordance with the 802.11a specification
- D. it functions at layer 2 and layer 3
- E. it is a cisco-proprietary technology

**Answer:** A C

**NO.343** Which Type of ipv6 unicast ip address is reachable across the internet ?

- A. Unique Local
- B. Compatible
- C. Link Local
- D. Global

**Answer:** D



**NO.344** You configure a DHCP server on VLAN 10 to service clients on VLAN 10 and VLAN 20, clients on VLAN

10 are given ip address assignments, but client on VLAN 20 fail to receive IP addresses. Which action must you take to correct the problem?

- A.** Configure the default gateway in the DHCP server configuration
- B.** Configure the ip helper-address command in the DHCP server configuration
- C.** Configure a separate DHCP server on VLAN 20
- D.** Configure the DNS name option in the DHCP server configuration

**Answer:** B

**NO.345** Scenario:

You work for a company that provides managed network services, and of your real estate clients running a small office is experiencing network issues, Troubleshoot the network issues.

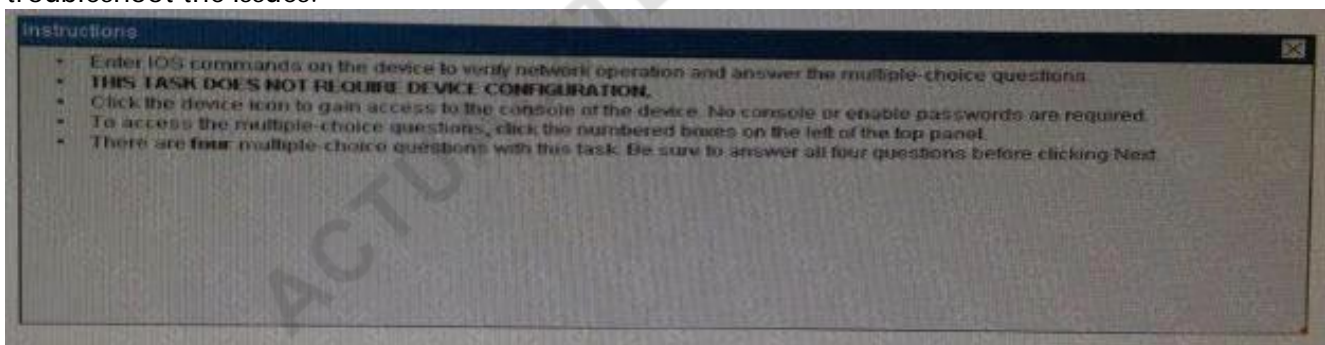
Router R1 connects the main office to internet, and routers R2 and R3 are internal routers NAT is enabled on Router R1.

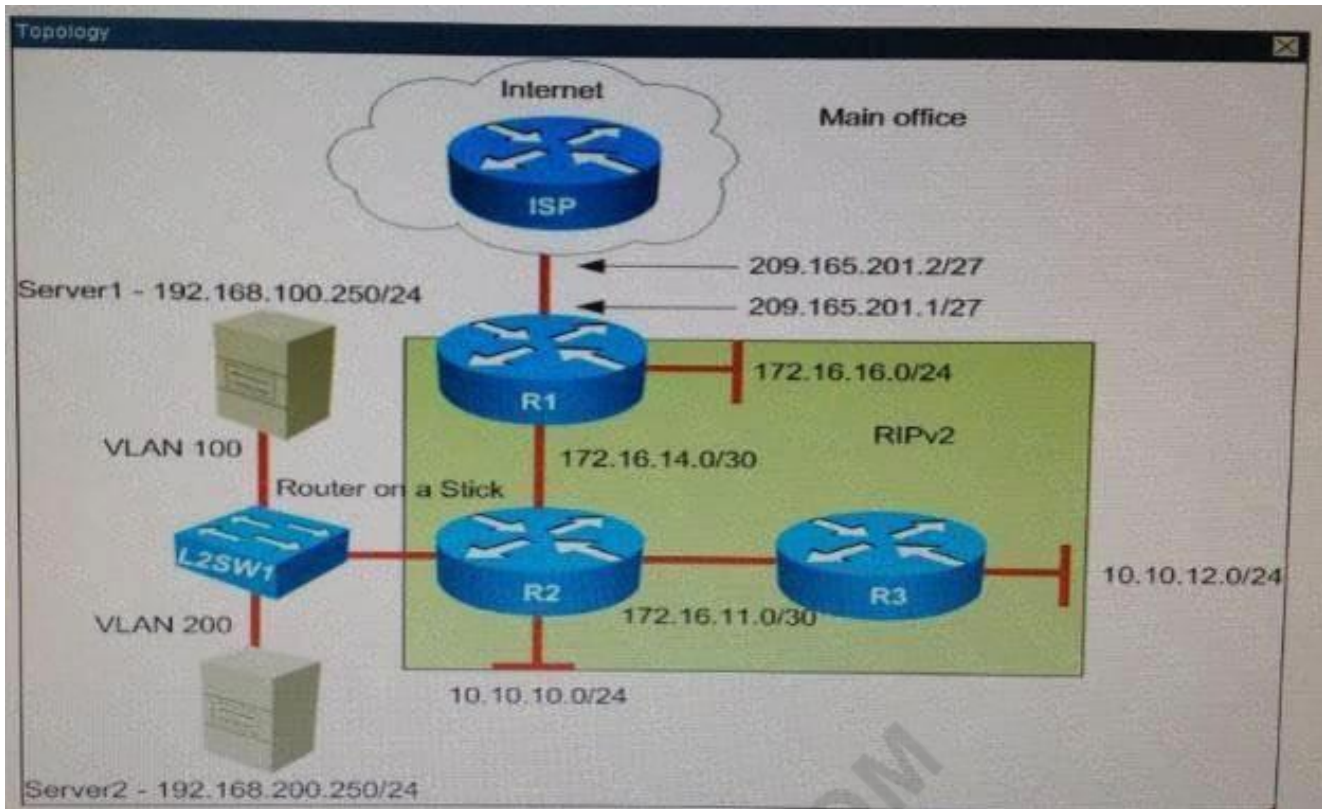
The routing protocol that is enable between routers R1, R2, and R3 is RIPv2.

R1 sends default route into RIPv2 for internal routers to forward internet traffic to R1.

Server1 and Server2 are placed in VLAN 100 and 200 respectively, and dare still running router on stick configuration with router R2.

You have console access on R1, R2, R3, and L2SW1 devices. Use only show commands to troubleshoot the issues.





R1

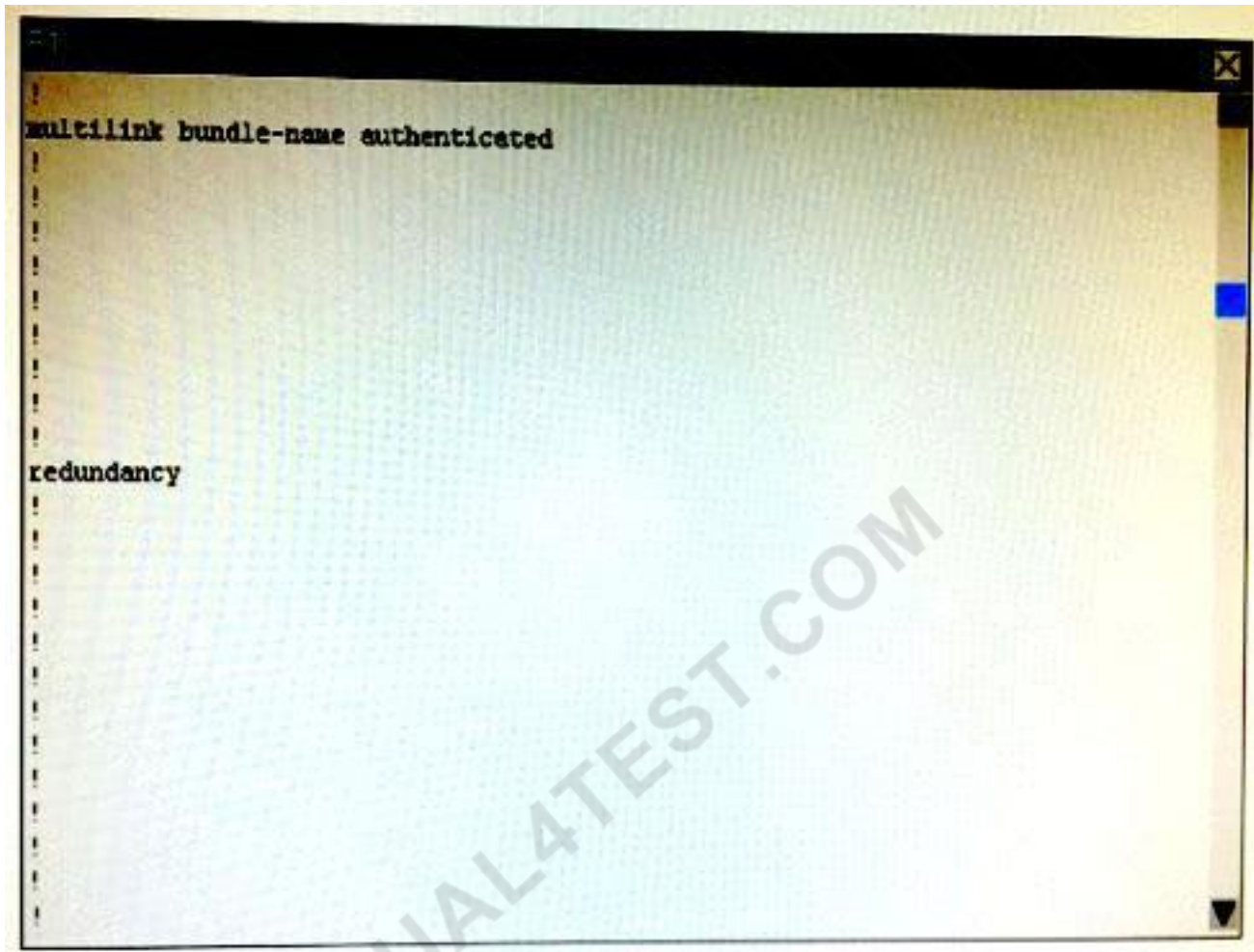
```

R1#show r
R1#show run
R1#show running-config
Building configuration...

Current configuration : 1438 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
  
```

```
!
!  
!  
!  
!  
  
!  
!  
!  
!  
!  
  
ip cef  
no ipv6 cef  
!  
multilink bundle-name authenticated  
!  
!  
!
```





```
!
interface Ethernet0/0
  description ***Link to ISP***
  ip address 209.165.201.1 255.255.255.224
  ip nat outside
  ip virtual-reassembly in
!
interface Ethernet0/1
  description ***Link to LAN***
  ip address 172.16.16.1 255.255.255.0
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/2
  description ***Link to R2***
  ip address 172.16.14.1 255.255.255.252
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/3
  no ip address
  shutdown
!
router rip
  version 2
```



```
router rip
version 2
network 172.16.0.0
default-information originate
no auto-summary
!
ip forward-protocol nd
!
no ip http server
no ip http secure-server
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 10.10.10.0 255.255.255.0 172.16.14.2 200
!
ip access-list standard LOCAL
permit 10.0.0.0 0.255.255.255
permit 172.16.0.0 0.0.255.255
permit 192.168.0.0 0.0.255.255
!
!
!
control-plane
!
```

```
line con 0
logging synchronous
line aux 0
line vty 0 4
login
transport input all
!
!
end
R1#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4100 (bia aabb.cc00.4100)
  Description: ***Link to ISP***
  Internet address is 209.165.201.1/27
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:53, output 00:00:07, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
```

```

Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  40 packets input, 11786 bytes, 0 no buffer
Received 39 broadcasts (0 IP multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
191 packets output, 20271 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
4 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4110 (bia aabb.cc00.4110)
  Description: ***Link to LAN***
  Internet address is 172.16.16.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00

```

```

Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
245 packets output, 30725 bytes, 0 underruns
0 output errors, 0 collisions, 4 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4120 (bia aabb.cc00.4120)
  Description: ***Link to R2***
  Internet address is 172.16.14.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,

```



```

Internet address is 172.16.14.1/30
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:16, output 00:00:07, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  98 packets input, 20097 bytes, 0 no buffer
  Received 97 broadcasts (54 IP multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
  247 packets output, 25359 bytes, 0 underruns
  0 output errors, 0 collisions, 1 interface resets
  4 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier
  0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down

```

```

  0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
Interface is FastEthernet0/3, address is eabb.cc00.4130 (bia eabb.cc00.4130)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
  Received 0 broadcasts (0 IP multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier

```

```
0 late collision, 0 deferred
0 no carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
VLAN is up, line protocol is up
Hardware is NVI
Interface is unnumbered. Using address of Ethernet0/0 (209.165.201.1)
MTU 1514 bytes, BW 56 Kbit/sec, DLY 5000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation UNKNOWN, loopback not set
Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    0 packets output, 0 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 unknown protocol drops
    0 output buffer failures, 0 output buffers swapped out
R1#
R1#show ip interface brief
```



# Interface Brief

Interface	IP-Address	OK?	Method	Status	Prot
Ethernet0/0	209.165.201.1	YES	NVRAM	up	up
Ethernet0/1	172.16.16.1	YES	NVRAM	up	up
Ethernet0/2	172.16.14.1	YES	NVRAM	up	up
Ethernet0/3	unassigned	YES	NVRAM	administratively down	down
WVIO	209.165.201.1	YES	unset	up	up

RI#

RI#

RI#show ip route

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP  
 D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area  
 N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2  
 E1 - OSPF external type 1, E2 - OSPF external type 2  
 i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2  
 ia - IS-IS inter area, \* - candidate default, U - per-user static route  
 o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP  
 + - replicated route, % - next hop override

Gateway of last resort is not set

10.0.0.0/24 is subnetted, 1 subnets

R 10.10.10.0 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2



E1 - OSPF external type 1, E2 - OSPF external type 2  
 E1 - OSPF external type 1, E2 - OSPF external type 2  
 I - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2  
 ia - IS-IS inter area, \* - candidate default, U - per-user static route  
 o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP  
 + - replicated route, % - next hop override

Gateway of last resort is not set

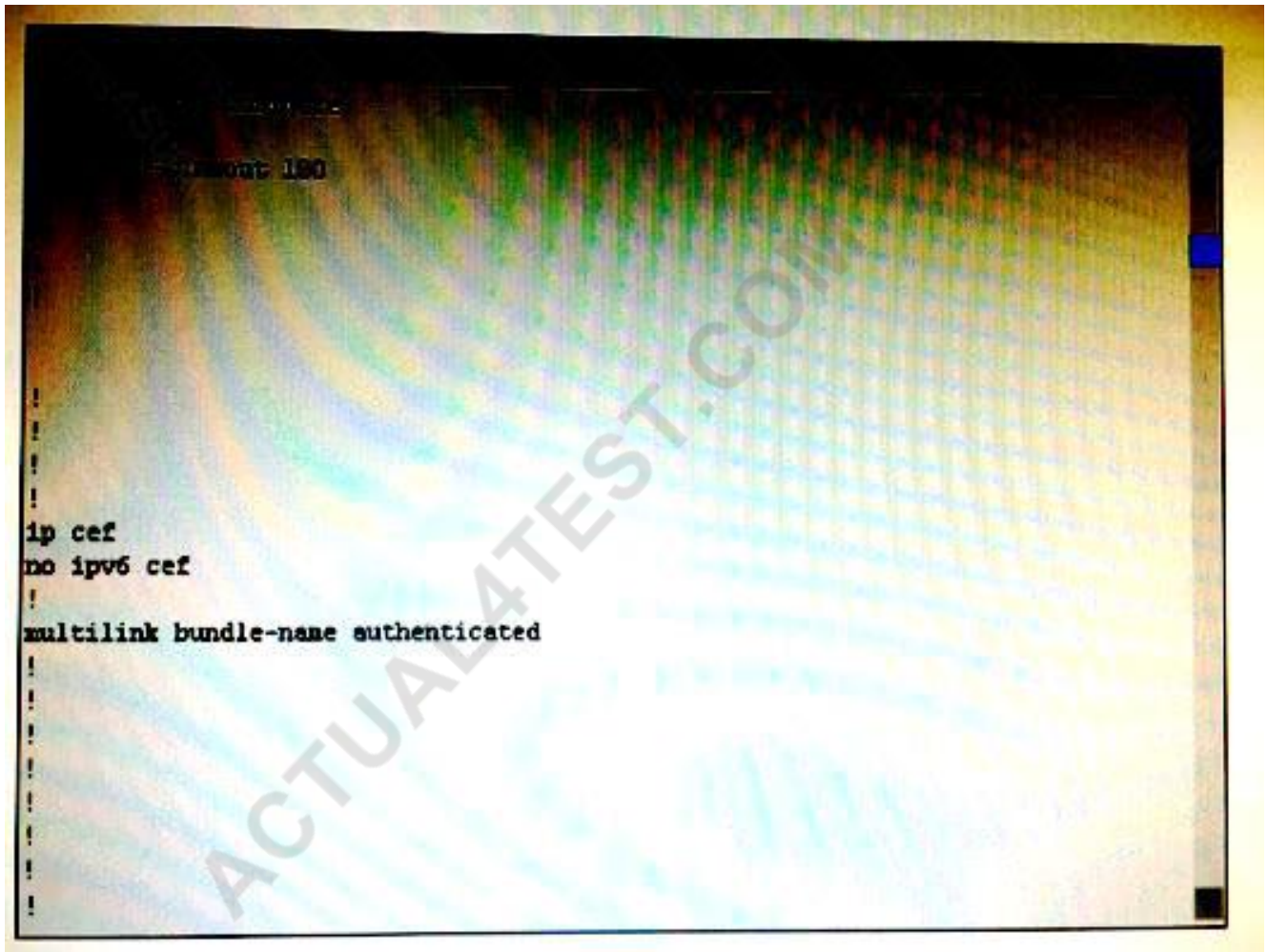
```

10.0.0.0/24 is subnetted, 1 subnets
R    10.10.10.0 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
R    172.16.11.0/30 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
C    172.16.14.0/30 is directly connected, Ethernet0/2
L    172.16.14.1/32 is directly connected, Ethernet0/2
C    172.16.16.0/24 is directly connected, Ethernet0/1
L    172.16.16.1/32 is directly connected, Ethernet0/1
R    192.168.1.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R    192.168.100.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R    192.168.200.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
209.165.201.0/24 is variably subnetted, 2 subnets, 2 masks
C    209.165.201.0/27 is directly connected, Ethernet0/0
L    209.165.201.1/32 is directly connected, Ethernet0/0
  
```

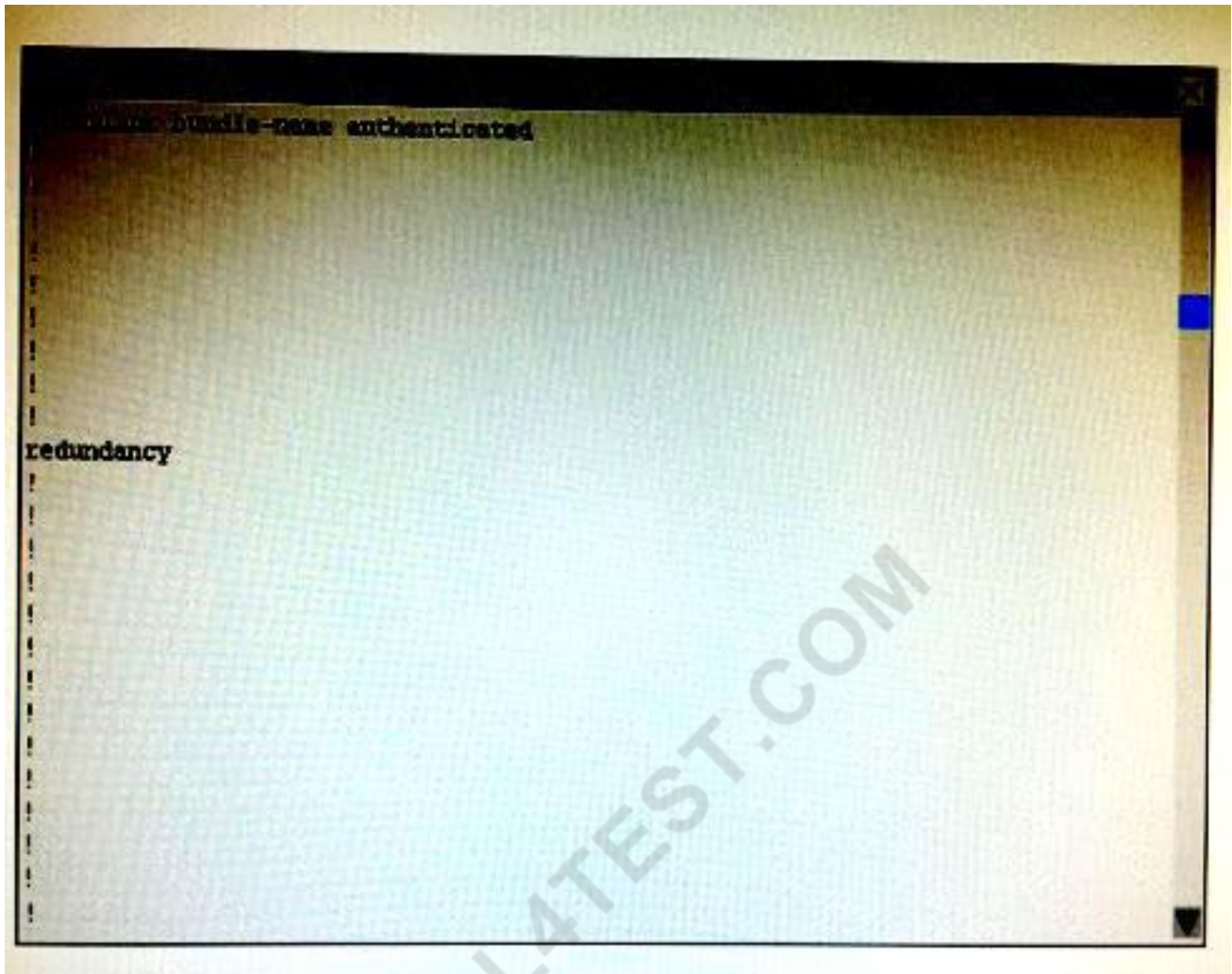
R1#

R1#

```
!
! configuration : 1503 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
```







```
interface Ethernet0/0
description ***Link to R3***
ip address 172.16.11.1 255.255.255.252

interface Ethernet0/1
no ip address
!
interface Ethernet0/1.1
description ***Link to Mangement Segment***
encapsulation dot1Q 1 native
ip address 192.168.1.1 255.255.255.0
!
interface Ethernet0/1.100
description ***Link to Server1 Segment***
encapsulation dot1Q 200
ip address 192.168.100.1 255.255.255.0
!
interface Ethernet0/1.200
description ***Link to Server2 Segment***
encapsulation dot1Q 100
ip address 192.168.200.1 255.255.255.0
!
interface Ethernet0/2
description ***Link to R1***
```



```
interface Ethernet0/2
description ***Link to R1***
ip address 172.16.14.2 255.255.255.252
!
interface Ethernet0/3
description ***Link to LAN***
ip address 10.10.10.1 255.255.255.0
!
router rip
version 2
network 10.0.0.0
network 172.16.0.0
network 192.168.1.0
network 192.168.100.0
network 192.168.200.0
no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
```

```
control-plane
```

```
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
```

```
end
```

```
R2#show interfaces
```

```
Ethernet0/0 is up, line protocol is up
```

```
Hardware is AmdP2, address is aabb.cc00.4200 (bia aabb.cc00.4200)
```

```
Description: ***Link to P3***
```

```
Internet address is 172.16.11.1/30
```

```
MTU 1500 bytes, BU 10000 Kbit/sec, DLY 1000 usec,
```

```
reliability 255/255, txload 1/255, rxload 1/255
```

```

Serial Interfaces
Serial0/0 is up, line protocol is up
Hardware is Am2P2, address is eabb.cc00.4200 (bia eabb.cc00.4200)
Description: ***Link to R3***
Internet address is 172.16.11.1/30
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:32, output 00:00:08, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  50 packets input, 15683 bytes, 0 no buffer
    Received 50 broadcasts (0 IP multicasts)
      0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
  343 packets output, 42566 bytes, 0 underruns
    0 output errors, 0 collisions, 1 interface resets
    2 unknown protocol drops
```



```
2 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
Hardware is Am286, address is aabb.cc00.4210 (bia aabb.cc00.4210)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:00, output 00:00:08, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 1000 bits/sec, 2 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  4632 packets input, 308536 bytes, 0 no buffer
  Received 4421 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
  512 packets output, 73148 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
```

```
0 output drops, 73165 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/1.1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Mangement Segment***
  Internet address is 192.168.1.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 1.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
  Last clearing of "show interface" counters never
Ethernet0/1.100 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Server1 Segment***
  Internet address is 192.168.100.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 200.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
```



```
Keepalive set (10 sec)
Last clearing of "show interface" counters never
Ethernet0/1.100 is up, line protocol is up
Hardware is AndP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
Description: ***Link to Server1 Segment***
Internet address is 192.168.100.1/24
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation 802.1Q Virtual LAN, Vlan ID 200.
ARP type: ARPA, ARP Timeout 04:00:00
Keepalive set (10 sec)
Last clearing of "show interface" counters never
Ethernet0/1.200 is up, line protocol is up
Hardware is AndP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
Description: ***Link to Server2 Segment***
Internet address is 192.168.200.1/24
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation 802.1Q Virtual LAN, Vlan ID 100.
ARP type: ARPA, ARP Timeout 04:00:00
Keepalive set (10 sec)
Last clearing of "show interface" counters never
Ethernet0/2 is up, line protocol is up
Hardware is AndP2, address is aabb.cc00.4220 (bia aabb.cc00.4220)
Description: ***Link to R1***
```

```

Type: ARP, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:02, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    128 packets input, 21994 bytes, 0 no buffer
Received 127 broadcasts (77 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
   345 packets output, 39952 bytes, 0 underruns
    0 output errors, 0 collisions, 1 interface resets
    0 unknown protocol drops
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
    0 output buffer failures, 0 output buffers swapped out

```



```

0 input buffer failures, 0 output buffers swapped out
Ethernet is up, line protocol is up
Hardware is Am79C96, address is aabb.cc00.4230 (bia aabb.cc00.4230)
Description: ***Link to LAN***
Internet address is 10.10.10.1/24
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
    344 packets output, 42752 bytes, 0 underruns
    0 output errors, 0 collisions, 6 interface resets
    0 unknown protocol drops

```

```

0 input errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 discards, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out

```

```
R2#
```

```
R2#
```

```
R2#show ip interface brief
```

Interface	IP-Address	OK?	Method	Status	Prot
ocol					
Ethernet0/0	172.16.11.1	YES	NVRAM	up	up
Ethernet0/1	unassigned	YES	NVRAM	up	up
Ethernet0/1.1	192.168.1.1	YES	NVRAM	up	up
Ethernet0/1.100	192.168.100.1	YES	NVRAM	up	up
Ethernet0/1.200	192.168.200.1	YES	NVRAM	up	up
Ethernet0/2	172.16.14.2	YES	NVRAM	up	up
Ethernet0/3	10.10.10.1	YES	NVRAM	up	up

```
R2#
```

```
R2#show ip route
```

```

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route

```



= local, C - connected, S - static, R - RIP, M - mobile, B - BGP  
 E - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area  
 N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2  
 E1 - OSPF external type 1, E2 - OSPF external type 2  
 i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2  
 ia - IS-IS inter area, \* - candidate default, U - per-user static route  
 o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP  
 + - replicated route, % - next hop override

Gateway of last resort is 172.16.14.1 to network 0.0.0.0

```

R*  0.0.0.0/0 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
    10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C    10.10.10.0/24 is directly connected, Ethernet0/3
L    10.10.10.1/32 is directly connected, Ethernet0/3
    172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
C    172.16.11.0/30 is directly connected, Ethernet0/0
L    172.16.11.1/32 is directly connected, Ethernet0/0
C    172.16.14.0/30 is directly connected, Ethernet0/2
L    172.16.14.2/32 is directly connected, Ethernet0/2
R    172.16.16.0/24 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
    192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.1.0/24 is directly connected, Ethernet0/1.1
  
```



```

R2# show ip route is 172.16.14.1 to network 0.0.0.0
0.0.0.0/0 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
    10.10.10.0/24 is directly connected, Ethernet0/3
    10.10.10.1/32 is directly connected, Ethernet0/3
172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
    172.16.11.0/30 is directly connected, Ethernet0/0
    172.16.11.1/32 is directly connected, Ethernet0/0
    172.16.14.0/30 is directly connected, Ethernet0/2
    172.16.14.2/32 is directly connected, Ethernet0/2
    172.16.16.0/24 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
    192.168.1.0/24 is directly connected, Ethernet0/1.1
    192.168.1.1/32 is directly connected, Ethernet0/1.1
192.168.100.0/24 is variably subnetted, 2 subnets, 2 masks
    192.168.100.0/24 is directly connected, Ethernet0/1.100
    192.168.100.1/32 is directly connected, Ethernet0/1.100
192.168.200.0/24 is variably subnetted, 2 subnets, 2 masks
    192.168.200.0/24 is directly connected, Ethernet0/1.200
    192.168.200.1/32 is directly connected, Ethernet0/1.200
R2#

```

```
show running-config
show configuration...

Current configuration : 913 bytes

version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mai polling-interval 60
no mai auto-configure
```

```
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
```



```
interface Ethernet0/0
description ***Link to LAN***
ip address 10.10.12.1 255.255.255.0
!
interface Ethernet0/1
description ***Link to R2***
ip address 172.16.11.2 255.255.255.252
!
interface Ethernet0/2
no ip address
shutdown
!
interface Ethernet0/3
no ip address
shutdown
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
```

```
control-plane
```

```
line con 0
logging synchronous
line aux 0
line vty 0 4
login
transport input all
```

```
end
```

```
R3#show interfaces
```

```
Ethernet0/0 is up, line protocol is up
Hardware is AmdP2, address is aabb.cc00.4300 (bia aabb.cc00.4300)
Description: ***Link to LAN***
Internet address is 10.10.12.1/24
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
reliability 255/255, txload 1/255, rxload 1/255
```

```
R3
```

```
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
666 packets output, 71699 bytes, 0 underruns
0 output errors, 0 collisions, 11 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
Hardware is AmdP2, address is aabb.cc00.4310 (bia aabb.cc00.4310)
Description: ***Link to R2***
```



```
R3
Hardware is AndP2, address is aabb.cc00.4310 (bia aabb.cc00.4310)
Description: ***Link to R2***
Internet address is 172.16.11.2/30
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:21, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  316 packets input, 74089 bytes, 0 no buffer
    Received 316 broadcasts (200 IP multicasts)
      0 runts, 0 giants, 0 throttles
      0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
      0 input packets with dribble condition detected
  669 packets output, 71888 bytes, 0 underruns
      0 output errors, 0 collisions, 1 interface resets
      0 unknown protocol drops
      0 babbles, 0 late collision, 0 deferred
      0 lost carrier, 0 no carrier
```

```
R3
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is administratively down, line protocol is down
Hardware is AmdP2, address is aabb.cc00.4320 (bia aabb.cc00.4320)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes): Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts (0 IP multicasts)
  0 runs, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 unknown protocol drops
```

```
R3
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
Hardware is AndP2, address is aabb.cc00.4330 (bia aabb.cc00.4330)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
    0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
    0 packets output, 0 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
```



```

R3
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
R3#
R3#
R3#show ip interface brief
Interface                IP-Address      OK? Method Status      Prot
ocol
Ethernet0/0              10.10.12.1      YES NVRAM  up          up
Ethernet0/1              172.16.11.2     YES NVRAM  up          up
Ethernet0/2              unassigned      YES NVRAM  administratively down down
Ethernet0/3              unassigned      YES NVRAM  administratively down down
R3#
R3#
R3#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route

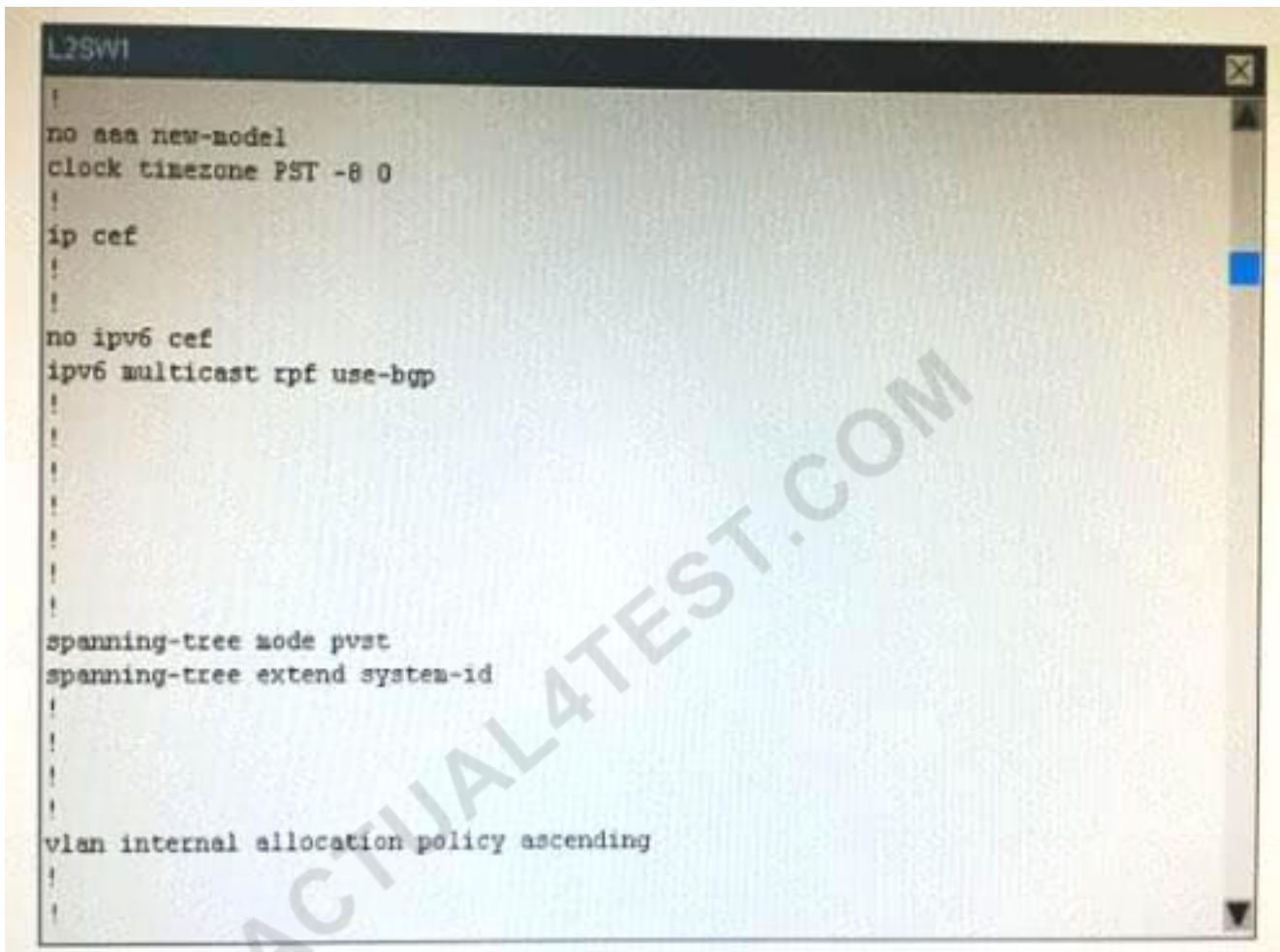
```

```
R3
Ethernet0/2          unassigned      YES NVRAM  administratively down down
Ethernet0/3          unassigned      YES NVRAM  administratively down down
R3#
R3#
R3#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       + - replicated route, % - next hop override

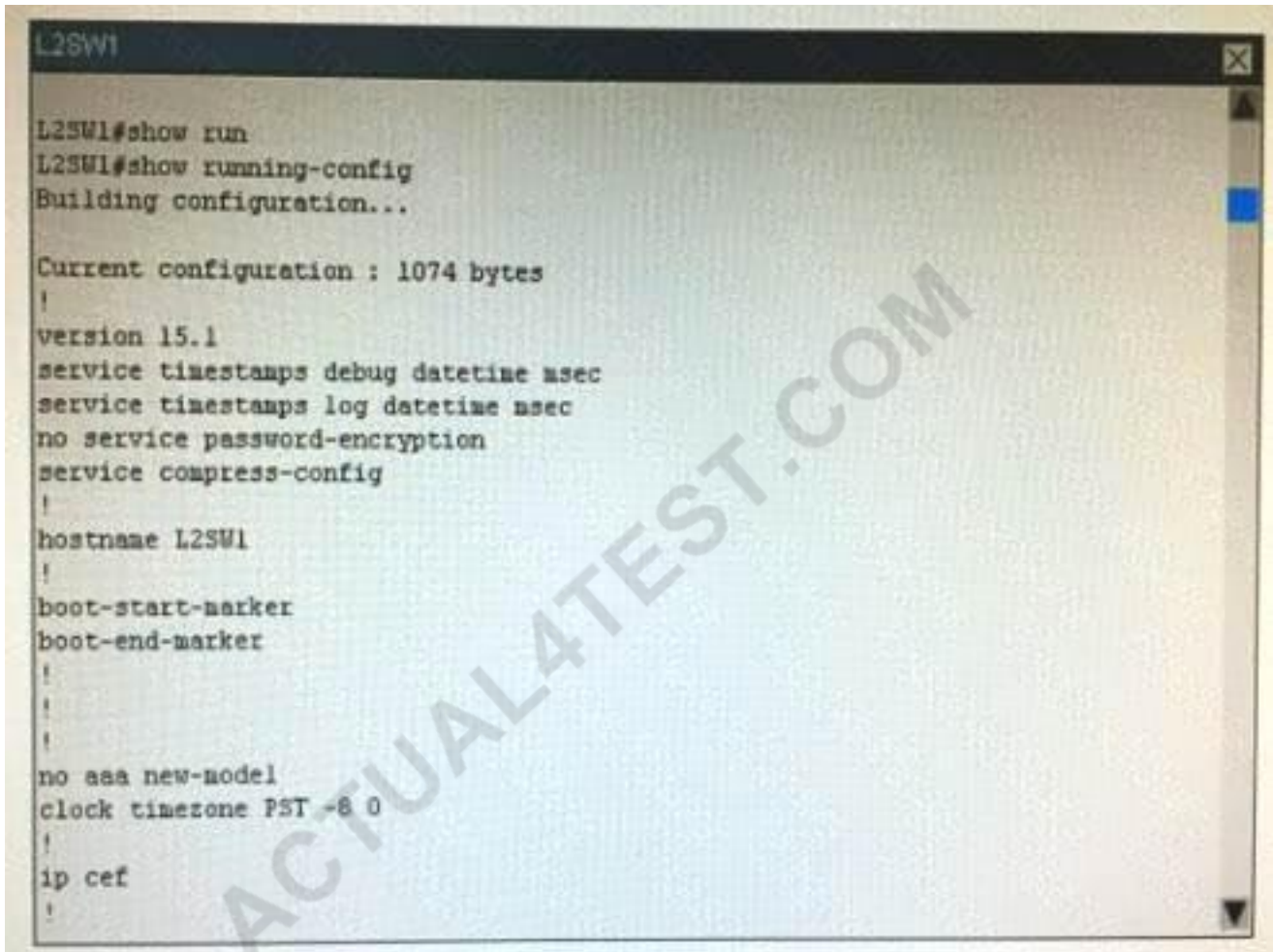
Gateway of last resort is not set

    10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.10.12.0/24 is directly connected, Ethernet0/0
L       10.10.12.1/32 is directly connected, Ethernet0/0
    172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.16.11.0/30 is directly connected, Ethernet0/1
L       172.16.11.2/32 is directly connected, Ethernet0/1
R3#
R3#
R3#
```





```
L2SW1
!
no aaa new-model
clock timezone PST -8 0
!
ip cef
!
!
no ipv6 cef
ipv6 multicast rpf use-bgp
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
!
!
vlan internal allocation policy ascending
!
!
```



```
L2SW1
L2SW1#show run
L2SW1#show running-config
Building configuration...

Current configuration : 1074 bytes
!
version 15.1
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
service compress-config
!
hostname L2SW1
!
boot-start-marker
boot-end-marker
!
!
no aaa new-model
clock timezone PST -8 0
!
ip cef
!
```

```
L2SW1
interface Vlan1
  ip address 192.168.1.254 255.255.255.0
  !
ip default-gateway 192.168.1.1
!
no ip http server
!
!
!
!
!
control-plane
!
!
line con 0
  logging synchronous
line aux 0
line vty 0 4
  login
!
end
L2SW1#
L2SW1#
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
```

```
L2SW1
!
interface Ethernet0/0
  description ***Link to R2***
  switchport trunk encapsulation dot1q
  switchport mode trunk
  duplex auto
!
interface Ethernet0/1
  description ***Link to Server1 segment***
  switchport access vlan 100
  switchport mode access
  duplex auto
!
interface Ethernet0/2
  description ***Link to Server2 Segment***
  switchport access vlan 200
  switchport mode access
  duplex auto
!
interface Ethernet0/3
  duplex auto
!
interface Vlan1
  ip address 192.168.1.254 255.255.255.0
!
```

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```

L2SW1
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4500 (bia aabb.cc00.4500)
  Description: ***Link to R2***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:07, output 00:00:00, output hang never
  Last clearing of "show interface" counters never
  Input queue: 12/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/0 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 1000 bits/sec, 2 packets/sec
    1447 packets input, 208877 bytes, 0 no buffer
    Received 139 broadcasts (0 multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
    13457 packets output, 919293 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets

```

```

L2SW1
    13457 packets output, 919293 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 unknown protocol drops
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
    0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4510 (bia aabb.cc00.4510)
  Description: ***Link to Server1 segment***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:07, output 00:00:01, output hang never
  Last clearing of "show interface" counters never
  Input queue: 5/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/0 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    755 packets input, 80219 bytes, 0 no buffer
    Received 123 broadcasts (0 multicasts)

```



```
L2SW1
755 packets input, 80219 bytes, 0 no buffer
Received 123 broadcasts (0 multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
3867 packets output, 268544 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 babble, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up (connected)
Hardware is AndP2, address is aabb.cc00.4520 (bia aabb.cc00.4520)
Description: ***Link to Server2 Segment***
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Auto-duplex, Auto-speed, media type is unknown
input flow-control is off, output flow-control is unsupported
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:07, output 00:00:01, output hang never
Last clearing of "show interface" counters never
Input queue: 5/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
```

```
L2SW1
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  758 packets input, 81010 bytes, 0 no buffer
Received 125 broadcasts (0 multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
3867 packets output, 268544 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier
  0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up (connected)
  Hardware is AndP2, address is aabb.cc00.4530 (bia aabb.cc00.4530)
  MTU 1500 bytes, BU 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input never, output never, output hang never
```

```
L2SW1
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
  Received 0 broadcasts (0 multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
 3566 packets output, 252186 bytes, 0 underruns
  0 output errors, 0 collisions, 55 interface resets
  0 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier
  0 output buffer failures, 0 output buffers swapped out
Vlan1 is up, line protocol is up
  Hardware is Ethernet SVI, address is aabb.cc80.4500 (bia aabb.cc80.4500)
  Internet address is 192.168.1.254/24
  MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive not supported
```

```
L2SW1
Keepalive not supported
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:12, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  235 packets input, 42480 bytes, 0 no buffer
    Received 235 broadcasts (0 IP multicasts)
      0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    11 packets output, 830 bytes, 0 underruns
      0 output errors, 0 interface resets
    0 unknown protocol drops
    0 output buffer failures, 0 output buffers swapped out
L2SW1#
L2SW1#
L2SW1#show ip interface brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
Ethernet0/0	unassigned	YES	unset	up	up
Ethernet0/1	unassigned	YES	unset	up	up
Ethernet0/2	unassigned	YES	unset	up	up
Ethernet0/3	unassigned	YES	unset	up	up



```

L2SW1
0 output buffer failures, 0 output buffers swapped out
L2SW1#
L2SW1#
L2SW1#show ip interface brief
Interface                IP-Address      OK? Method Status      Protocol
Ethernet0/0              unassigned      YES unset  up          up
Ethernet0/1              unassigned      YES unset  up          up
Ethernet0/2              unassigned      YES unset  up          up
Ethernet0/3              unassigned      YES unset  up          up
Vlan1                    192.168.1.254   YES NVRAM  up          up
L2SW1#
L2SW1#
L2SW1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       + - replicated route, % - next hop override

Gateway of last resort is not set

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks

```

```

L2SW1
Ethernet0/0              unassigned      YES unset  up          up
Ethernet0/1              unassigned      YES unset  up          up
Ethernet0/2              unassigned      YES unset  up          up
Ethernet0/3              unassigned      YES unset  up          up
Vlan1                    192.168.1.254   YES NVRAM  up          up
L2SW1#
L2SW1#
L2SW1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       + - replicated route, % - next hop override

Gateway of last resort is not set

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.1.0/24 is directly connected, Vlan1
L       192.168.1.254/32 is directly connected, Vlan1
L2SW1#
L2SW1#
L2SW1#

```



Server1 and Server2 are unable to communicate with the rest of the network. Your initial check with system administrators shows that IP address settings are correctly configured on the server side. What could be an issue?

- A. The VLAN encapsulation is misconfigured on the router subinterfaces.
- B. The IP address is misconfigured on the primary router interface.
- C. The Router is missing subinterface configuration.
- D. The Trunk is not configured on the L2SW1 switch.

**Answer:** A

Explanation

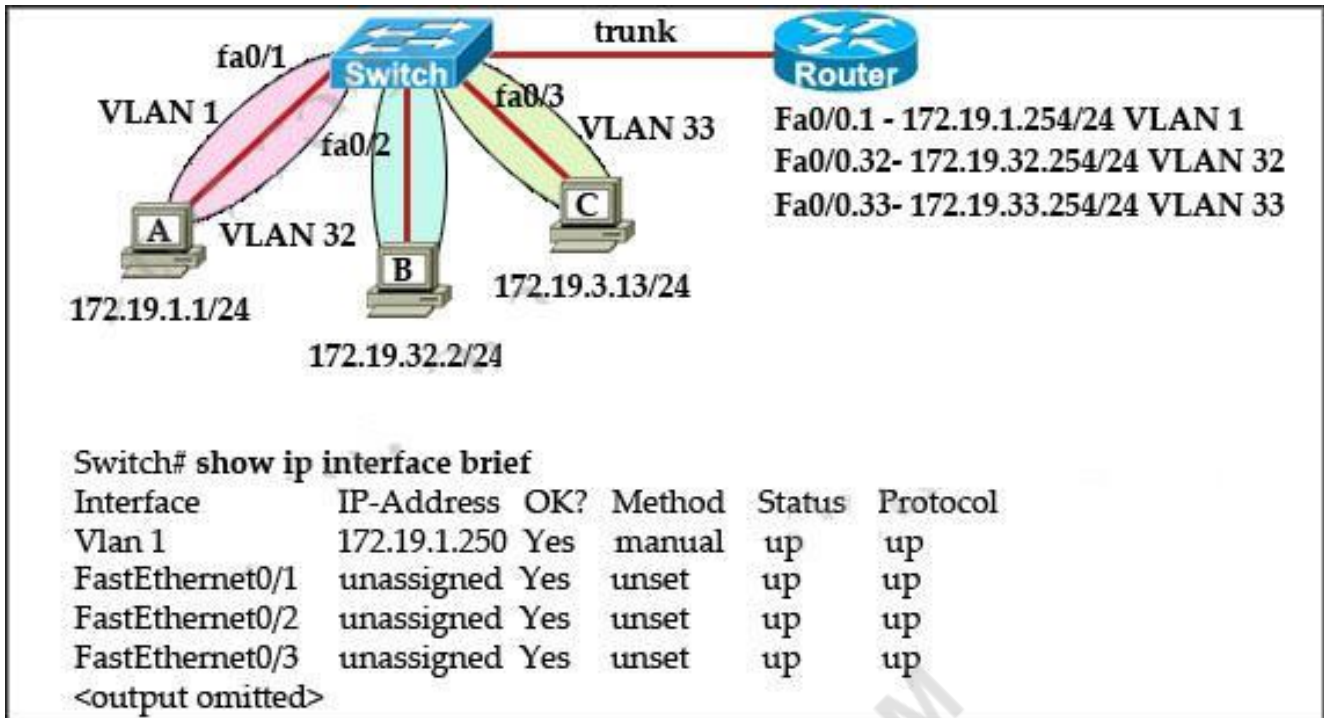
```
R2
!
interface Ethernet0/1.100
description ***Link to Server1 Segment***
encapsulation dot1Q 200
ip address 192.168.100.1 255.255.255.0
!
interface Ethernet0/1.200
description ***Link to Server2 Segment***
encapsulation dot1Q 100
ip address 192.168.200.1 255.255.255.0
!
```

**NO.346** Which command must you enter to switch from privileged EXEC mode to user EXEC mode on a Cisco device?

- A. configure terminal
- B. disable
- C. enable
- D. logout

**Answer:** C

**NO.347** Refer to the exhibit.



The network administrator normally establishes a Telnet session with the switch from host A. However, host A is unavailable. The administrator's attempt to telnet to the switch from host B fails, but pings to the other two hosts are successful. What is the issue?

- A. Host B and the switch need to be in the same subnet.
- B. The switch interface connected to the router is down.
- C. Host B needs to be assigned an IP address in VLAN 1.
- D. The switch needs an appropriate default gateway assigned.
- E. The switch interfaces need the appropriate IP addresses assigned.

**Answer:** D

Explanation

Ping was successful from host B to other hosts because of inter-vlan routing configured on router. But to manage switch via telnet the VLAN32 on the switch needs to be configured interface vlan32 along with IP address and its appropriate default-gateway address.

Since VLAN1 interface is already configured on switch Host A was able to telnet switch.

**NO.348** What type of MAC address is aged automatically by the switch?

- A. Dynamic
- B. Manual
- C. Automatic
- D. Static

**Answer:** A

Reference:

<http://www.cisco.com/c/en/us/td/docs/switches/datacenter/nexus5000/sw/configuration/guide/cli/CLIConfigurationGuide/MACAddress.htm>

**NO.349** Scenario:

You are a junior network engineer for a financial company, and the main office network is

experiencing network issues. Troubleshoot the network issues.

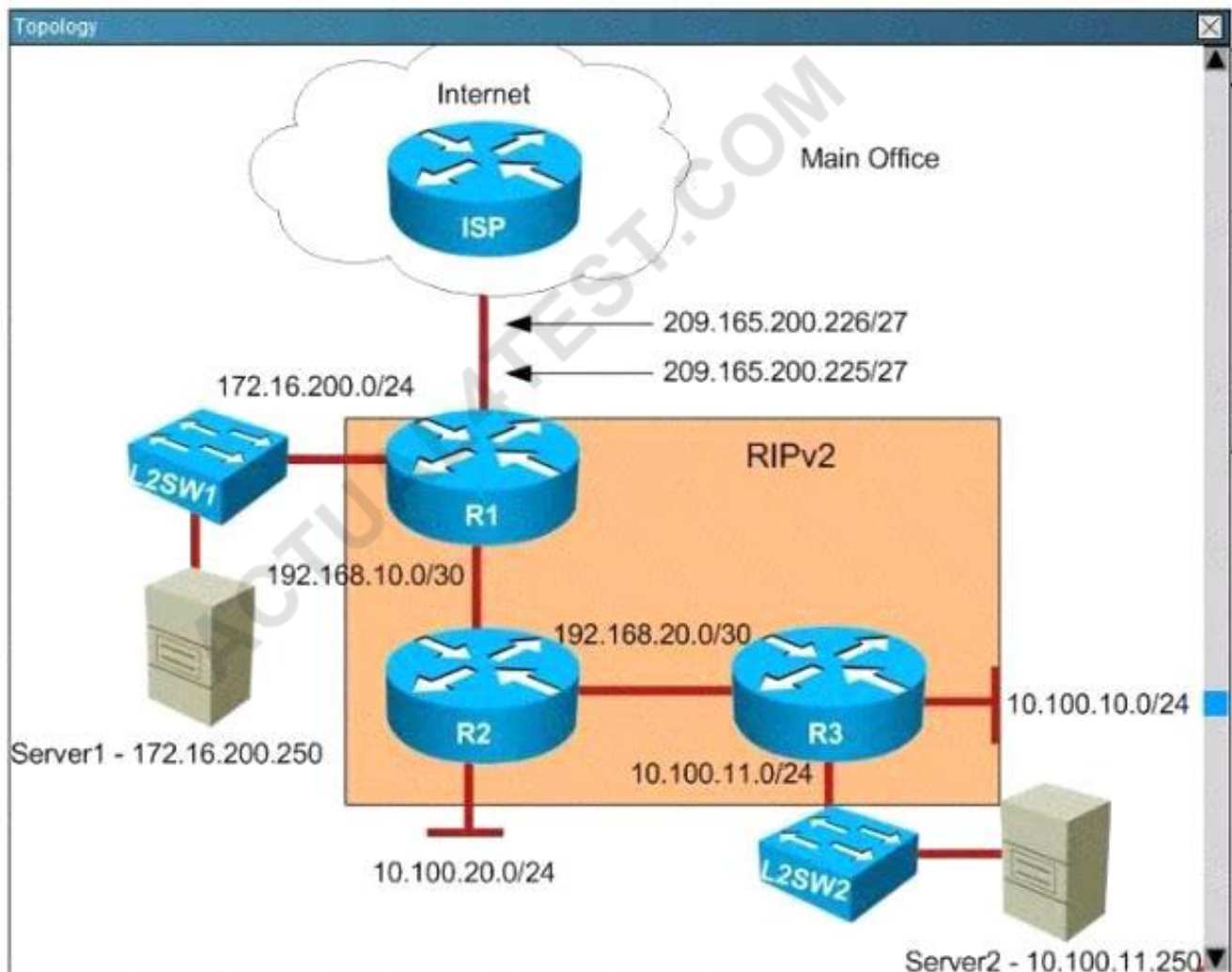
Router R1 connects the main office to the internet, and routers R2 and R3 are internal routers.

NAT is enabled on router R1.

The routing protocol that is enabled between routers R1, R2 and R3 is RIPv2.

R1 sends the default route into RIPv2 for the internal routers to forward internet traffic to R1.

You have console access on R1, R2 and R3 devices. Use only show commands to troubleshoot the issues.



```

R1
Current configuration : 1651 bytes
!
! No configuration change since last restart
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
--- More (105) ---

```

```
R1
ip cef
no ipv6 cef
multilink bundle-name authenticated
redundancy
--- More (79) ---
```

```

R1
interface Ethernet0/0
description ***Link to ISP***
ip address 209.165.200.225 255.255.255.224
ip nat outside
ip virtual-reassembly in
!
interface Ethernet0/1
description ***Link to Server1 segment***
ip address 172.16.200.1 255.255.255.0
ip nat inside
ip virtual-reassembly in
!
interface Ethernet0/2
description ***Link to R2***
ip address 192.168.10.1 255.255.255.252
ip access-group R2LANBLOCK in
ip nat inside
ip virtual-reassembly in
!
interface Ethernet0/3
no ip address
shutdown
!
router rip
version 2

R1
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 0.0.0.0 0.0.0.0 209.165.200.226
!
ip access-list standard R2LANBLOCK
deny 10.100.20.0 0.0.0.255
permit any
!
ip access-list extended LOCAL
permit ip host 127.0.0.1 any
!
!
!
control-plane
!
!
!
!
!
!
line con 0
logging synchronous
line aux 0
--- More (7) ---

```



```
R1
ip access-list extended LOCAL
 permit ip host 127.0.0.1 any
!
!
!
control-plane
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
!
ntp server 209.165.200.226
!
end
R1#

R2
Building configuration...

Current configuration : 1243 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
--- More (92) ---
```





R3

```

!
interface Loopback0
 ip address 192.168.250.3 255.255.255.255
!
interface Ethernet0/0
 description ***Link to LAN***
 ip address 10.100.10.1 255.255.255.0
!
interface Ethernet0/1
 description ***Link to R2***
 ip address dhcp
!
interface Ethernet0/2
 description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0

```

R3

```

description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0
 network 192.168.250.0
 no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
control-plane
!

```

```
R3
network 192.168.250.0
no auto-summary
!
ip forward-protocol nd
!
no ip http server
no ip http secure-server
!
!
control-plane
!
!
!
!
line con 0
logging synchronous
line aux 0
line vty 0 4
--- More (5) ---
R3
no ip http server
no ip http secure-server
!
!
control-plane
!
!
!
!
line con 0
logging synchronous
line aux 0
line vty 0 4
login
transport input all
!
end
R3#
```

Examine the DHCP configuration between R2 and R3; R2 is configured as the DHCP server and R3 as



the client. What is the reason R3 is not receiving the IP address via DHCP?

- A.** On R2. The network statement in the DHCP pool configuration is incorrectly configured.
- B.** On R3. DHCP is not enabled on the interface that is connected to R2.
- C.** On R2, the interface that is connected to R3 is in shutdown condition.
- D.** On R3, the interface that is connected to R2 is in shutdown condition.

**Answer:** B

Explanation

Please check the below:

Explanation/show commands:

```
R2
no mmi pvc
mmi snmp-timeout 180
!
!
ip dhcp excluded-address
192.168.20.1
!
ip dhcp pool DHCPASSIGNR3
network 192.168.20.0 255.255.255.252
!
ip cef
no ipv6 cef
!
multilink bundle-name
authenticated
!
```

```
R3
!
!
interface Loopback0
ip address 192.168.250.3 255.255.255.255
!
interface Ethernet0/0
description ***Link to LAN***
ip address 10.100.10.1 255.255.255.0
!
interface Ethernet0/1
description ***Link to R2***
no ip address
!
interface Ethernet0/2
description ***Link to Server2 Segment***
ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
no ip address
```

**NO.350** Which three values can be included in the routing table of a router? (Choose three)

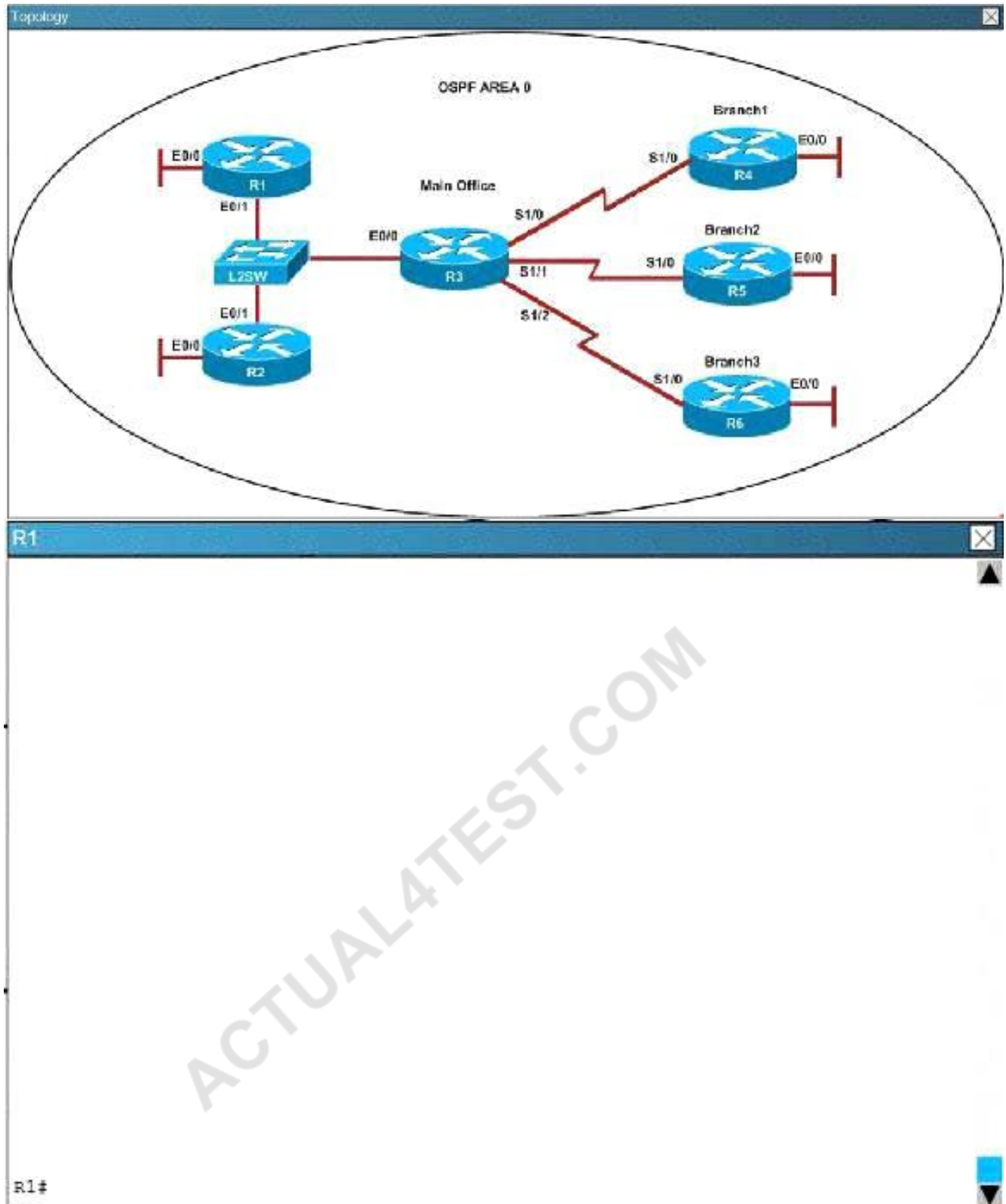
- A.** classful and classless destination addresses
- B.** source interfaces
- C.** Routgoing interfaces
- D.** source IP addresses
- E.** next hop IP address
- F.** destination IP addresses

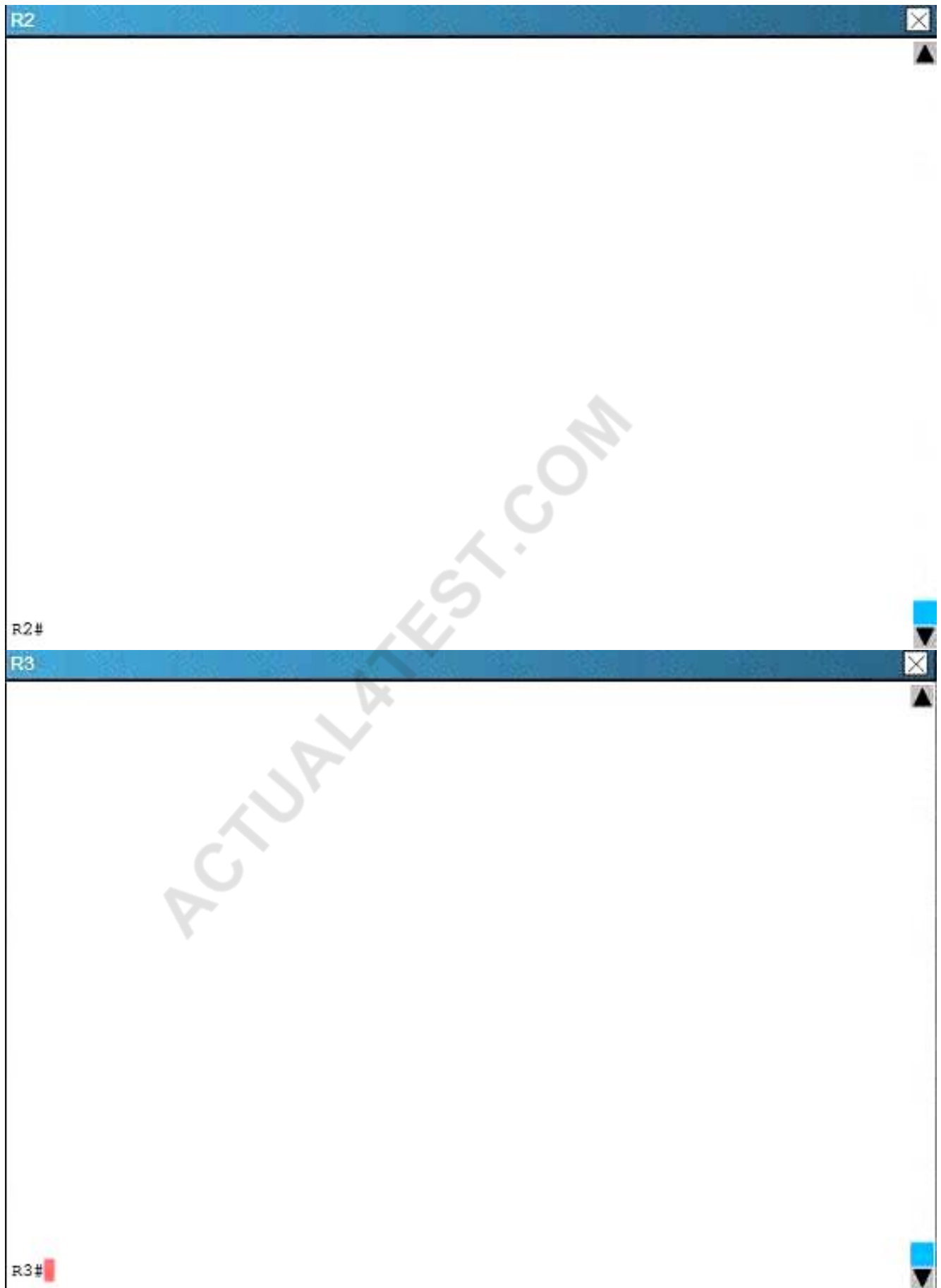
**Answer:** C D F

**NO.351** Scenario:

Refer to the topology. Your company has decided to connect the main office with three other remote branch offices using point-to-point serial links.

You are required to troubleshoot and resolve OSPF neighbor adjacency issues between the main office and the routers located in the remote branch offices.





R4



R4#



R5



R5#



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R6



R6#



L2SW



L2SW#



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



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

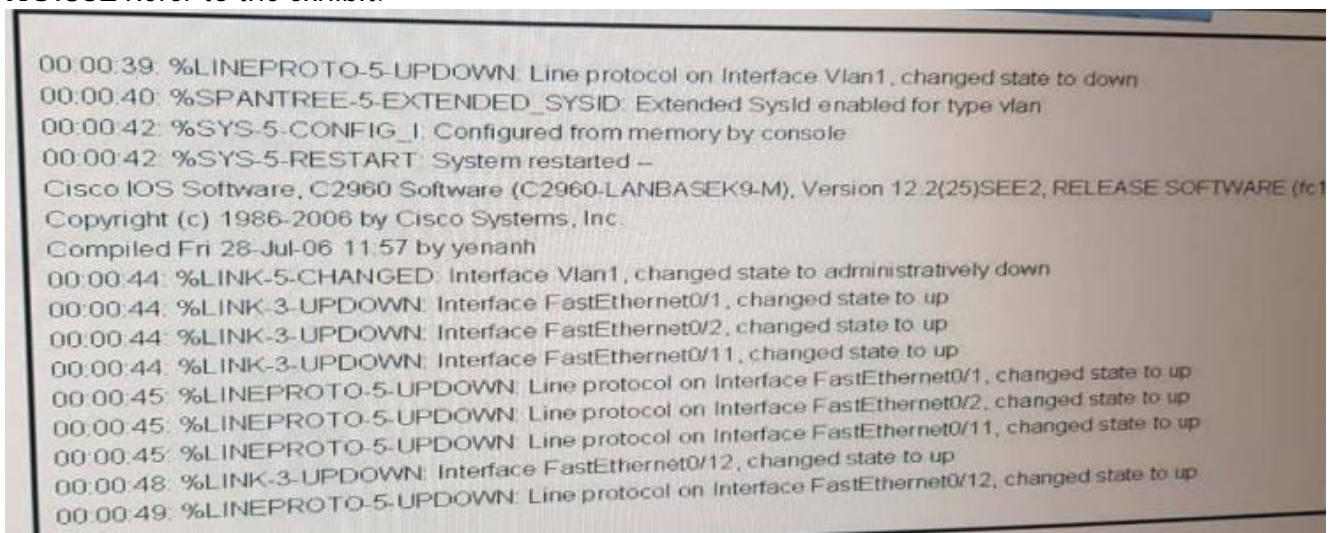
**Answer: B**

Explanation

Looking at the configuration of R1, we see that R1 is configured with a hello interval of 25 on interface Ethernet 0/1 while R2 is left with the default of 10 (not configured).

R1	R2
<pre> ! ! ! ! ! interface Loopback0   description ***Loopback***   ip address 192.168.1.1 255.255.255.255   ip ospf 1 area 0 ! interface Ethernet0/0   description ***Connected to R1-LAN***   ip address 10.10.110.1 255.255.255.0   ip ospf 1 area 0 ! interface Ethernet0/1   description ***Connected to L2SW***   ip address 10.10.230.1 255.255.255.0   ip ospf hello-interval 25   ip ospf 1 area 0 ! interface Ethernet0/2   no ip address   shutdown </pre> <p>--- More (35) ---</p>	<pre> ! ! ! ! ! ! ! interface Loopback0   description ***Loopback***   ip address 192.168.2.2 255.255.255.255   ip ospf 2 area 0 ! interface Ethernet0/0   description ***Connected to R2-LAN***   ip address 10.10.120.1 255.255.255.0   ip ospf 2 area 0 ! interface Ethernet0/1   description ***Connected to L2SW***   ip address 10.10.230.2 255.255.255.0   ip ospf 2 area 0 ! interface Ethernet0/2   no ip address   shutdown </pre> <p>--- More (35) ---</p>

**NO.352** Refer to the exhibit.



Which of these statements correctly describes the state of the switch once the boot process has been completed?

- A. More VLANs will need to be created for this switch.
- B. As FastEthernet0/12 will be the last to come up, it will be blocked by STP.
- C. The switch will need a different IOS code in order to support VLANs and STP.
- D. Remote access management of this switch will not be possible without configuration change.

**Answer:** D

**NO.353** In which CLI configuration mode can you configure the hostname of a device?

- A. line mode
- B. interface mode
- C. global mode
- D. router mode

**Answer:** C

**NO.354** What are three advantages of vlans ?

- A. They provide a method of conserving ip addresses in large networks
- B. They provide a low latency internetworking alternative to routed networks
- C. they utilize packet filtering to enhance network security
- D. They establish broadcast domains in switched networks
- E. They allow access to network services based on department not physical location
- F. They can simplify adding moving or changing hosts on the network

**Answer:** D E F

**NO.355** Which value is used to build the CAM table?

- A. destination MAC address
- B. source IP address
- C. source MAC address
- D. destination IP address

**Answer:** A

**NO.356** You are performing the initial configuration on a new Cisco device. Drag the task from the left onto the required or optional category on the right.

Required Tasks	
configure the enable secret password	
configure the hostname	
configure the console idle timeout	
configure the VTY lines	
configure a default route	
verify network connectivity	

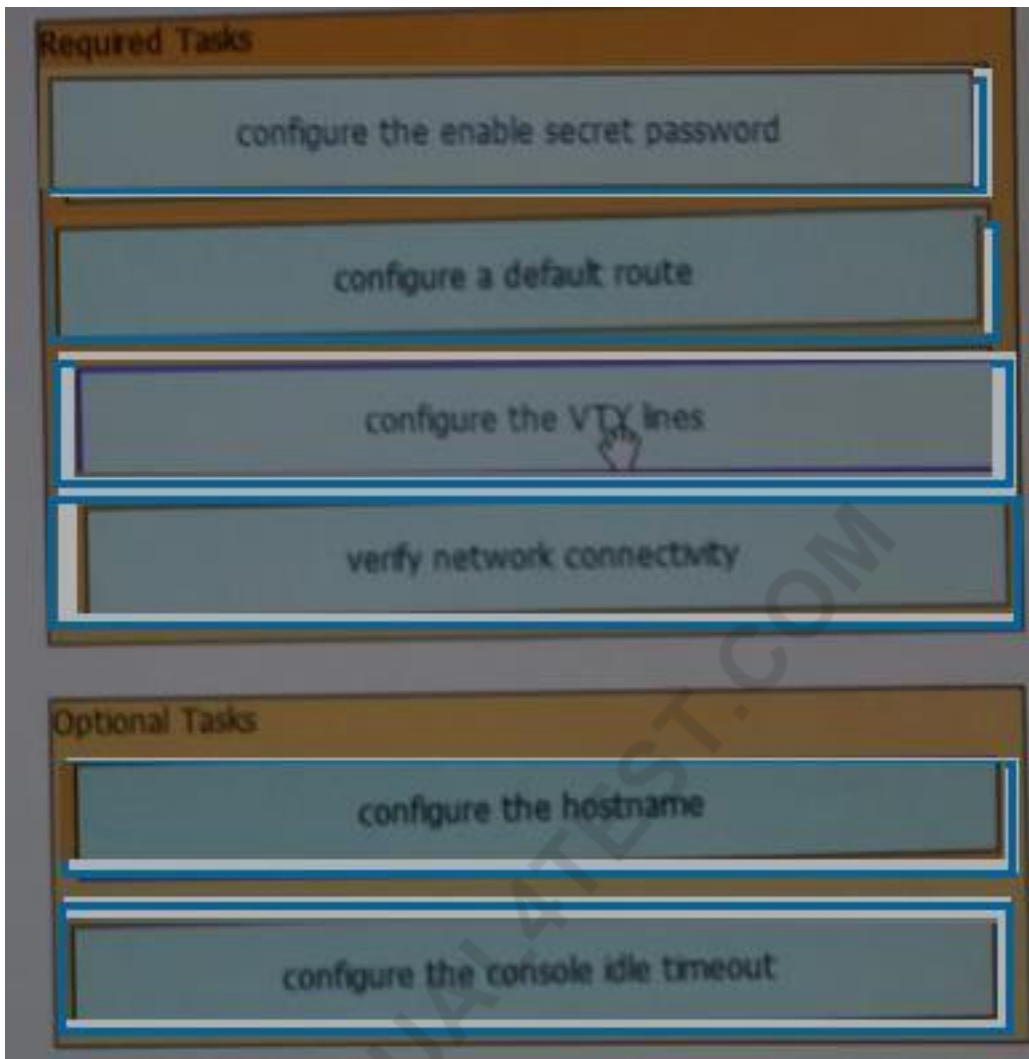
Optional Tasks	

**Answer:**

Required Tasks	
configure the enable secret password	
configure the hostname	
configure the console idle timeout	
configure the VTY lines	
configure a default route	
verify network connectivity	

Optional Tasks	
configure the hostname	
configure the console idle timeout	

Explanation



[https://www.cisco.com/c/en/us/td/docs/routers/access/1900/software/configuration/guide/Software\\_Configuration.html](https://www.cisco.com/c/en/us/td/docs/routers/access/1900/software/configuration/guide/Software_Configuration.html)

**NO.357** Which command can you enter in a network switch configuration so that learned mac addresses are saved in configuration as they connect ?

- A. Switch(config-if)#Switch port-security
- B. Switch(config-if)#Switch port-security Mac-address sticky
- C. Switch(config-if)#Switch port-security maximum 10
- D. Switch(config-if)#Switch mode access

**Answer:** B

**NO.358** Which two benefits of implementing a full mesh wan topology are true? (Choose two)

- A. redundancy
- B. reduced jitter
- C. increased latency
- D. improved scalability
- E. reliability

**Answer:** A E

**NO.359** Which two statements about IPv6 address 2002:ab10:beef::/48 are true?(choose two)

- A. The embedded IPv4 address can be globally routed.
- B. It is used for an ISATAP tunnel
- C. The embedded IPv4 address is an RFC 1918 address
- D. The MAC address 20:02:b0:10:be:ef is embedded into the IPv6 address
- E. It is used for a 6to4 tunnel

**Answer:** A E

**NO.360** What are three characteristics of the TCP protocol? (Choose three.)

- A. It uses a single SYN-ACK message to establish a connection.
- B. The connection is established before data is transmitted.
- C. It ensures that all data is transmitted and received by the remote device.
- D. It supports significantly higher transmission speeds than UDP.
- E. It requires applications to determine when data packets must be retransmitted.
- F. It uses separate SYN and ACK messages to establish a connection.

**Answer:** B C F

**NO.361** Which two facts must you take into account when you deploy pppoe? (Choose two)

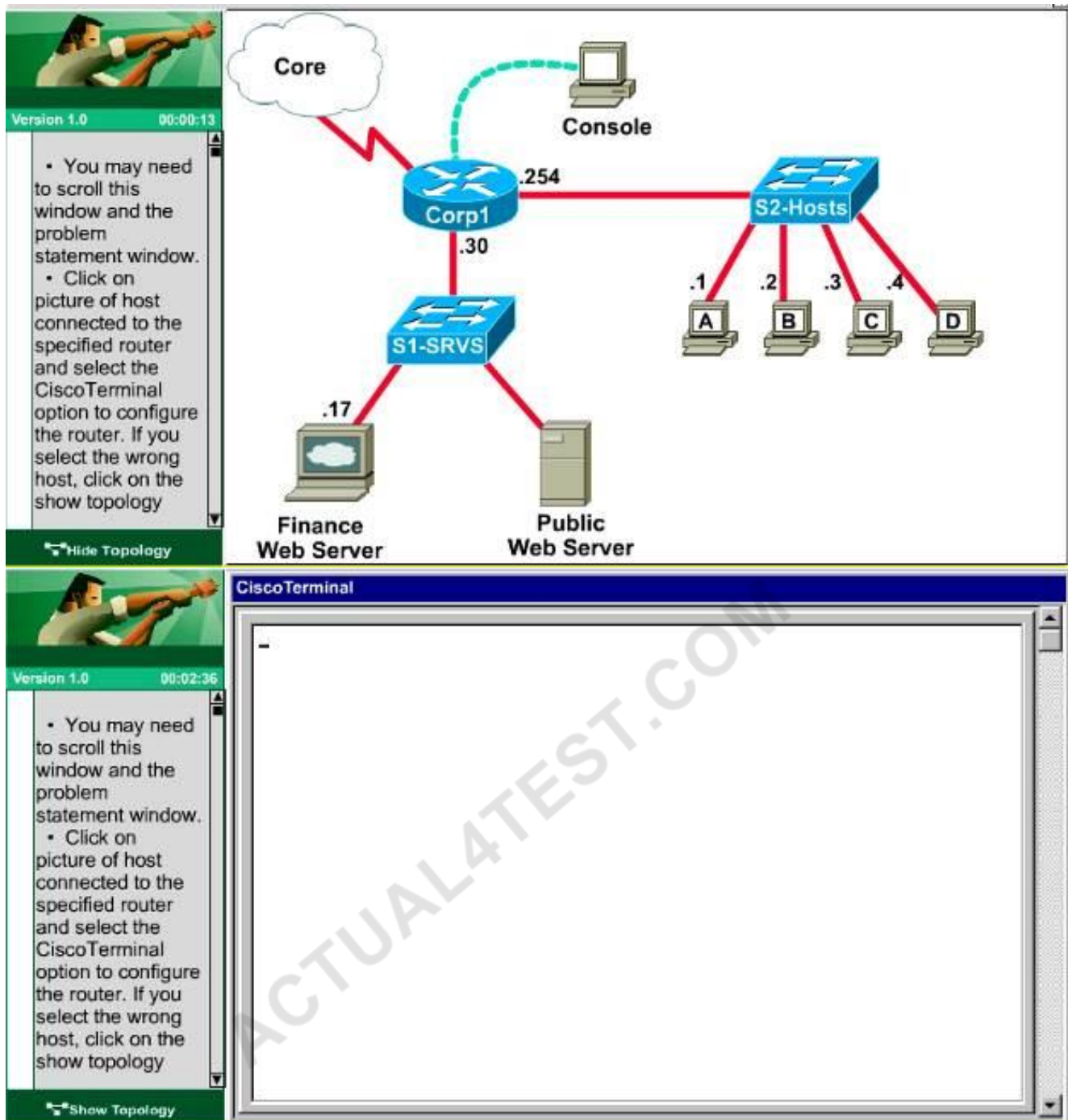
- A. An individual pvc can support one pppoe client?
- B. DDR is not supported
- C. DDR idle timers must be configured to support VPDN logging
- D. You must manually configure ip addresses on the pppoe interface
- E. Pppoe supports a maximum of 10 clients per customer premises equipment

**Answer:** C D

**NO.362** A corporation wants to add security to its network. The requirements are:

- \* Host C should be able to use a web browser (HTTP) to access the Finance Web Server.
  - \* Other types of access from host C to the Finance Web Server should be blocked.
  - \* All access from hosts in the Core or local LAN to the Finance Web Server should be blocked.
  - \* All hosts in the Core and on local LAN should be able to access the Public Web Server.
- You have been tasked to create and apply a to a single outbound interface. This access list can contain no more than three 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 198.18.209.65.
  - \* The computers in the Hosts LAN have been assigned addresses of 192.168.78.1 - 192.168.78.254.
  - \* host A 192.168.78.1
  - \* host B 192.168.78.2
  - \* host C 192.168.78.3
  - \* host D 192.168.78.4
  - \* The Finance Web Server has been assigned an address of 172.22.146.17.
  - \* The Public Web Server in the Server LAN has been assigned an address of 172.22.146.18.





**Version 1.0** 00:03:33

- You may need to scroll this window and the problem statement window.
- Click on picture of host connected to the specified router and select the CiscoTerminal option to configure the router. If you select the wrong host, click on the show topology

Show Topology

CiscoTerminal

```

Corpl con0 is now available

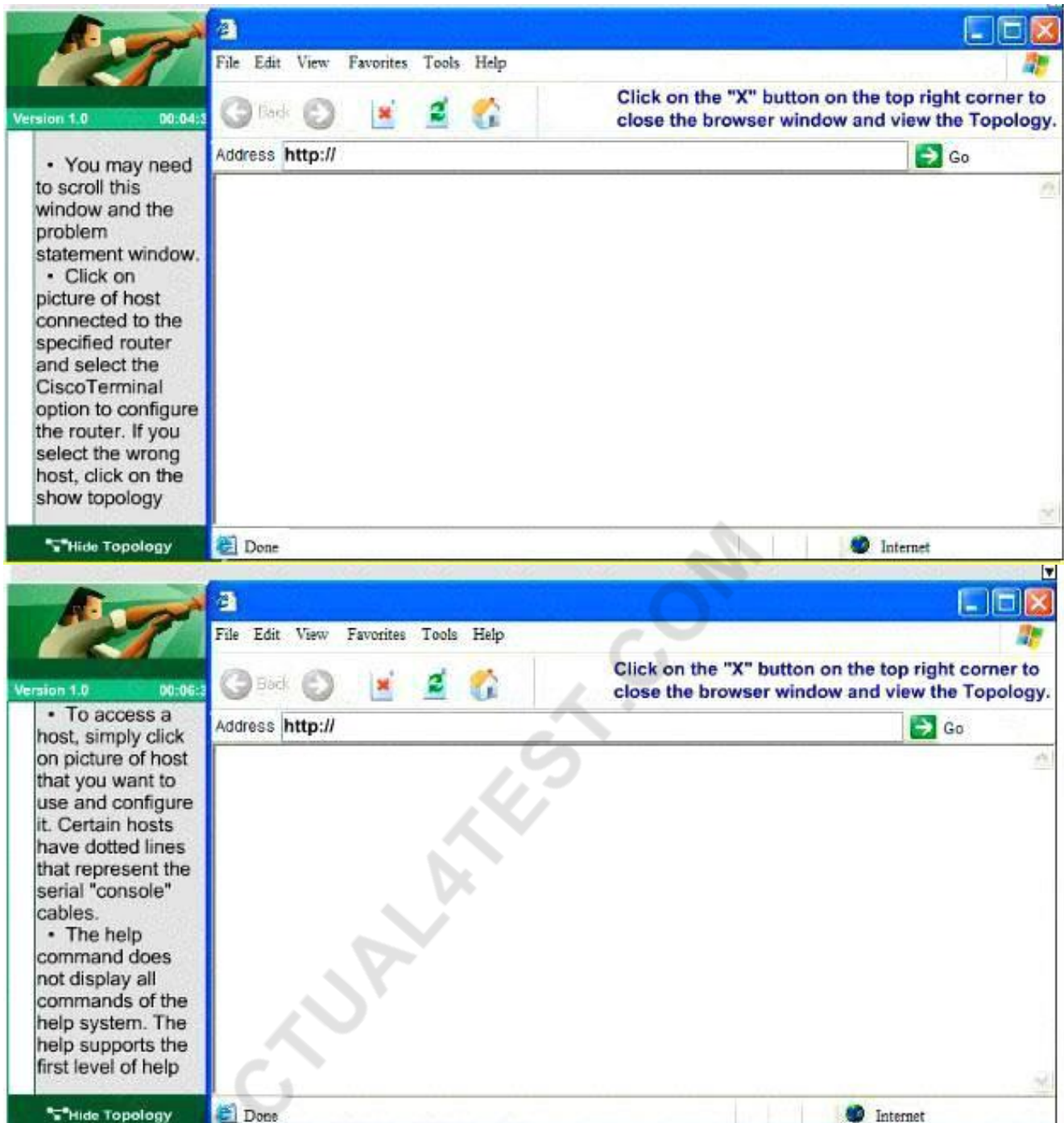
Press RETURN to get started.

```

**Version 1.0** 00:08:11

- To access a host, simply click on picture of host that you want to use and configure it. Certain hosts have dotted lines that represent the serial "console" cables.
- The help command does not display all commands of the help system. The help supports the first level of help

Hide Topology



Please see below explanation part for details answer steps:

### Answer:

Explanation

We should create an access-list and apply it to the interface that is connected to the Server LAN because it can filter out traffic from both S2 and Core networks. To see which interface this is, use the "show ip int brief" command:

```
Corpl#show ip int brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
Fastethernet0/0	192.168.125.254	YES	manual	up	up
Fastethernet0/1	172.22.109.30	YES	manual	up	up
Serial0/0	192.168.94.65	YES	manual	up	up

Corpl#

From this, we know that the servers are located on the fa0/1 interface, so we will place our

numbered access list here in the outbound direction.

Corp1#configure terminal

Our access-list needs to allow host C - 192.168.125.3 to the Finance Web Server 172.22.109.17 via HTTP (port 80), so our first line is this:

Corp1(config)#access-list 100 permit tcp host 192.168.125.3 host 172.22.109.17 eq 80 Then, our next two instructions are these:

\* Other types of access from host C to the Finance Web Server should be blocked.

\* All access from hosts in the Core or local LAN to the Finance Web Server should be blocked.

This can be accomplished with one command (which we need to do as our ACL needs to be no more than 3 lines long), blocking all other access to the finance web server:

Corp1(config)#access-list 100 deny ip any host 172.22.109.17

Our last instruction is to allow all hosts in the Core and on the local LAN access to the Public Web Server (172.22.109.18) Corp1(config)#access-list 100 permit ip host 172.22.109.18 any Finally, apply this access-list to Fa0/1 interface (outbound direction) Corp1(config)#interface fa0/1 Corp1(config-if)#ip access-group 100 out Notice: We have to apply the access-list to Fa0/1 interface (not Fa0/0 interface) so that the access-list can filter traffic coming from both the LAN and the Core networks. To verify, just click on host C to open its web browser. In the address box type http://172.22.109.17 to check if you are allowed to access Finance Web Server or not. If your configuration is correct then you can access it.

Click on other hosts (A, B and D) and check to make sure you can't access Finance Web Server from these hosts. Then, repeat to make sure they can reach the public server at 172.22.109.18. Finally, save the configuration Corp1(config-if)#end Corp1#copy running-config startup-config

**NO.363** Which two statements about wireless LAN controllers are true? (Choose two)

- A. They can manage mobility policies at a systemwide level
- B. They rely on external firewalls for WLAN security.
- C. They can simplify the management and deployment of wireless LANs.
- D. They are ideal for small wireless networks.
- E. They must be configured through a GUI over HTTP or HTTPS.

**Answer:** A C

**NO.364** Refer to the exhibit. Which two statements about the interface that generated the output are true? (Choose two.)

Port Security	: Enabled
Port Status	: Secure-up
Violation Mode	: Protect
Aging Time	: 5 mins
Aging Type	: Inactivity
SecureStatic Address Aging	: Disabled
Maximum MAC Addresses	: 3
Total MAC Addresses	: 3
Configured MAC Addresses	: 1
Sticky MAC Addresses	: 2
Last Source Address:Vlan	: 0001.0fAA.33BB:1
Security Violation Count	: 0

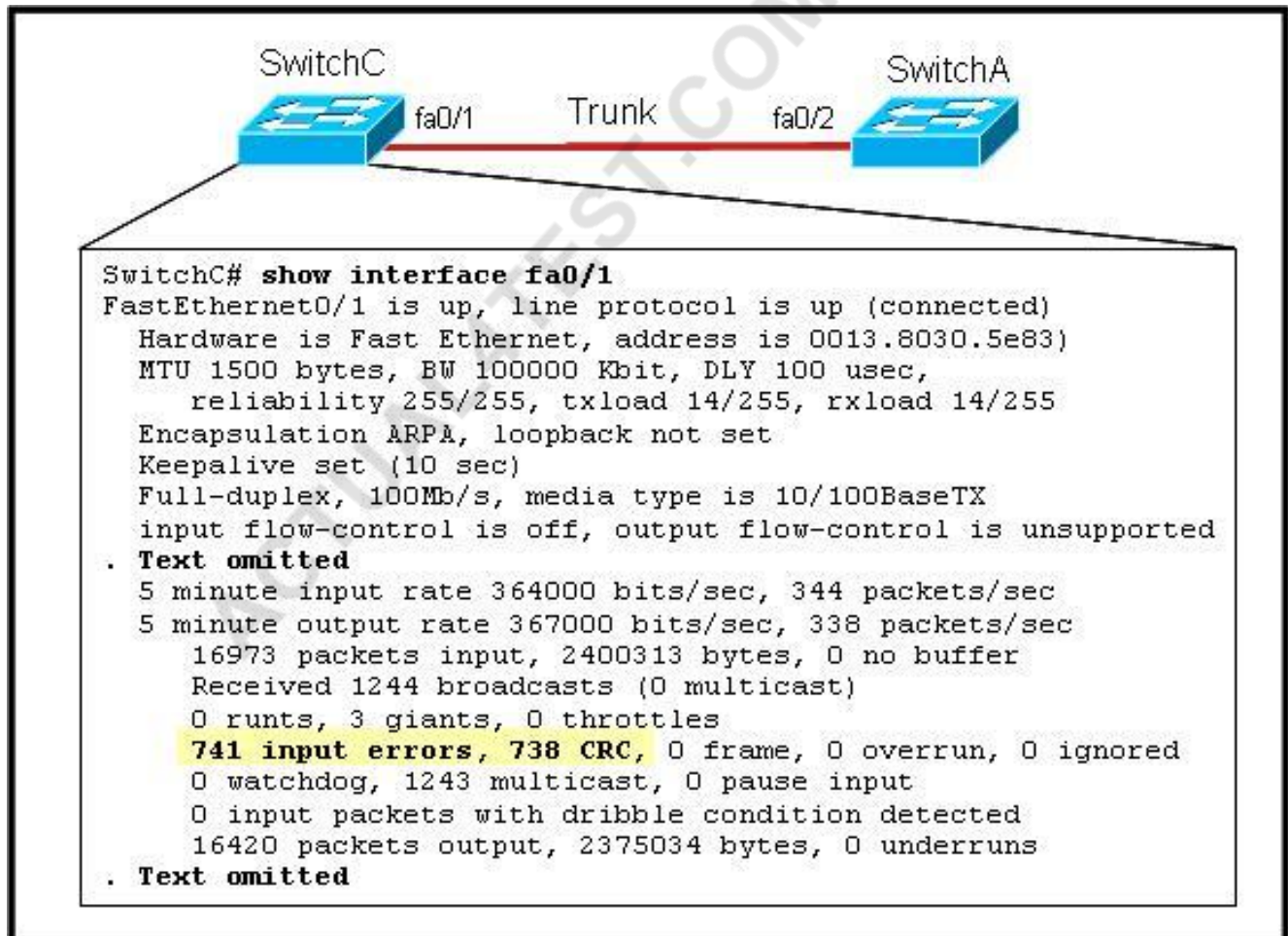
- A. Learned MAC addresses are deleted after five minutes of inactivity.



- B. It has dynamically learned two secure MAC addresses.
- C. The security violation counter increments if packets arrive from a new unknown source address.
- D. The interface is error-disabled if packets arrive from a new unknown source address.
- E. It has dynamically learned three secure MAC addresses

**Answer:** A C

**NO.365** Refer to the exhibit.



Given this output for SwitchC, what should the network administrator's next action be?

- A. Check the trunk encapsulation mode for SwitchC's fa0/1 port.
- B. Check the duplex mode for SwitchC's fa0/1 port.
- C. Check the duplex mode for SwitchA's fa0/2 port.
- D. Check the trunk encapsulation mode for SwitchA's fa0/2 port.

**Answer:** C

Explanation

Here we can see that this port is configured for full duplex, so the next step would be to check the duplex setting of the port on the other switch. A mismatched trunk encapsulation would not result in input errors and CRC errors.

**NO.366** Which command can you enter to configure an IPv6 floating static route?

- A. router(config)#ipv6 route FE80:0202::/32 serial 0/1 1
- B. router (config)#ipv6 route ::/0 serial 0/1



- C. router(config)#ipv6 route static resolve default
- D. router(config)#ipv6 route FE80:0202::/32 serial 0/1 201

**Answer:** D

**NO.367** When an interface is configured with PortFast BPDU guard, how does interface respond when it receives a BPDU?

- A. It goes into an errdisable state.
- B. It goes into a down/down state.
- C. It becomes the root bridge for the configured VLAN.
- D. It continues operating normally.

**Answer:** A

**NO.368** Which two tools do you use to troubleshoot DNS issues? (Choose two)

- A. RFP tool
- B. ping
- C. Feature Navigator
- D. Embedded Event Manager
- E. traceroute

**Answer:** D E

**NO.369** Which two statements about RIPv2 are true? (Choose two )

- A. It must be manually enabled after RIP is configured as the routing protocol
- B. It uses multicast address 224.0.0.2 to share routing information between peers
- C. its default administrative distances 120
- D. It is a link-state routing protocol
- E. It is an EGP routing protocol

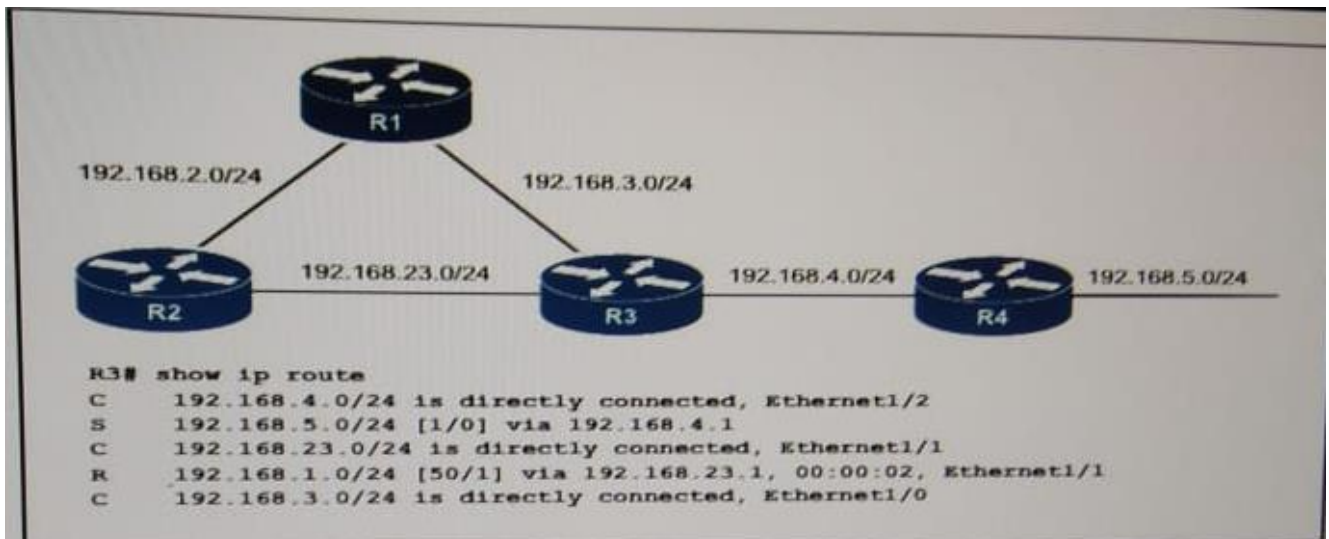
**Answer:** A C

**NO.370** What command can you enter to configure the switch as an authoritative ntp server with site id : 15122473?

- A. Switch(config)#ntp master 3
- B. Switch(config)#ntp peer IP 193.168.2.2
- C. Switch(config)#ntp server IP 193.168.22
- D. Switch(config)#ntp source IP 193.168.2.2

**Answer:** A

**NO.371** Refer to the exhibit.



If all routers on this network run RIPv2, which configuration should you apply router R3 to produce this routing table

**A.** router rip

network 192.168.3.0

network 192.168.4.0

network 192.168.23.0

Passive-interface default.

**B.** router rip

Version 2

network 192.168.3.0

network 192.168.4.0

network 192.168.23.0

Distance 70

Passive-interface default

**C.** router

network 192.168.3.0

network 192.168.4.0

network 192.168.23.0

passive-interface default

**D.** router rip

Version 2

network 192.168.3.0

network 192.168.4.0

network 192.168.23.0

distance 70

passive-interface default

**E.** router rip

. version2

network 192.168.3.0

network 192.168.4.0

network 192.168.23.0

Distance 50

**Answer:** D

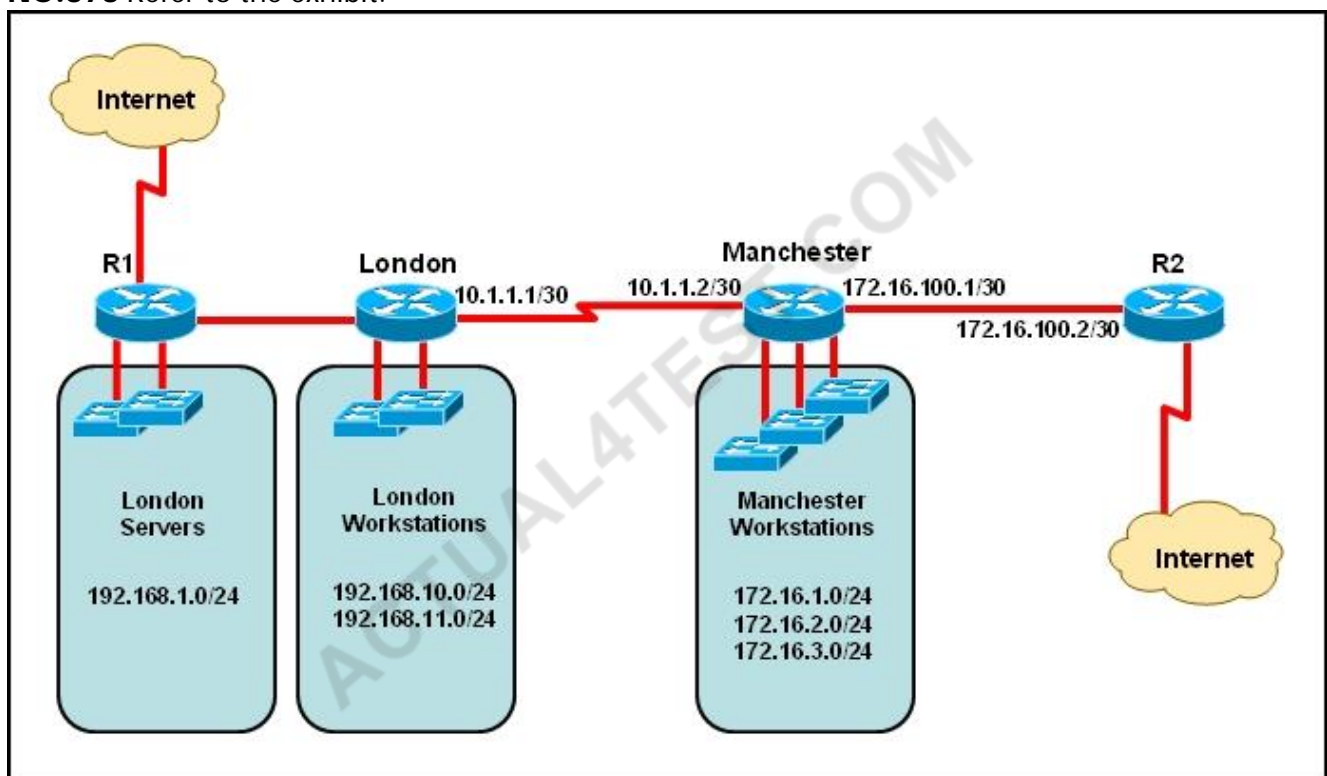
**NO.372** What are types of IPv6 static routes? (Choose Three )

- A. Recursive Static routes
- B. Directly connected static routes
- C. Fully specified static routes
- D. Dynamically specified static routes
- E. injected static routes
- F. Redistributed static routes

**Answer:** A B C

- \* Static Routes
- \* Directly Attached Static Routes
- \* Recursive Static Routes
- \* Fully Specified Static Routes
- \* Floating Static Routes

**NO.373** Refer to the exhibit.



The network administrator must establish a route by which London workstations can forward traffic to the Manchester workstations. What is the simplest way to accomplish this?

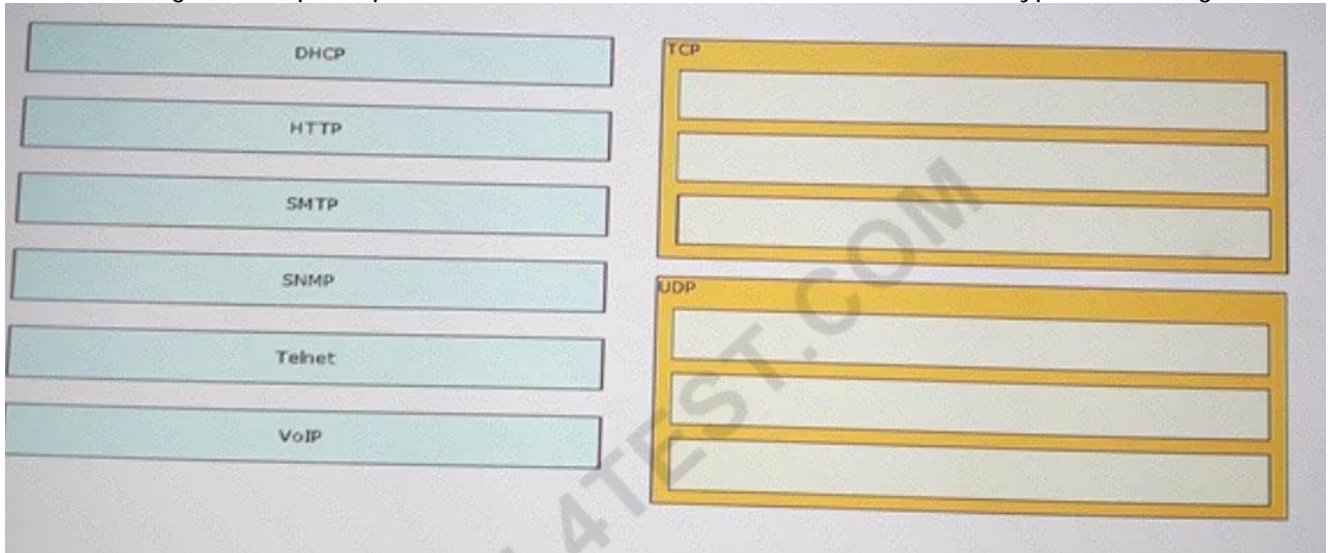
- A. Configure a dynamic routing protocol on London to advertise all routes to Manchester.
- B. Configure a dynamic routing protocol on London to advertise summarized routes to Manchester.
- C. Configure a dynamic routing protocol on Manchester to advertise a default route to the London router.
- D. Configure a static default route on London with a next hop of 10.1.1.1.
- E. Configure a static route on London to direct all traffic destined for 172.16.0.0/22 to 10.1.1.2.
- F. Configure Manchester to advertise a static default route to London.

**Answer:** E

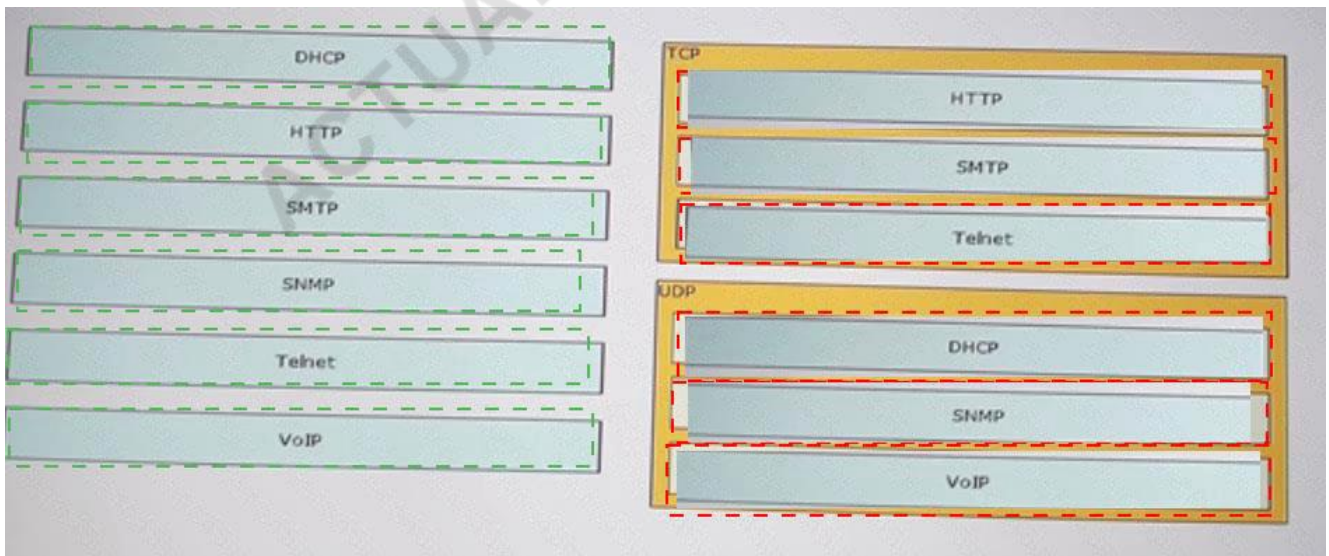
Explanation

This static route will allow for communication to the Manchester workstations and it is better to use this more specific route than a default route as traffic destined to the Internet will then not go out the London Internet connection.

**NO.374** Drag and Drop the protocols from the left onto the correct IP traffic types on the right.



**Answer:**



Explanation

TCP

HTTP

SMTP

Telnet

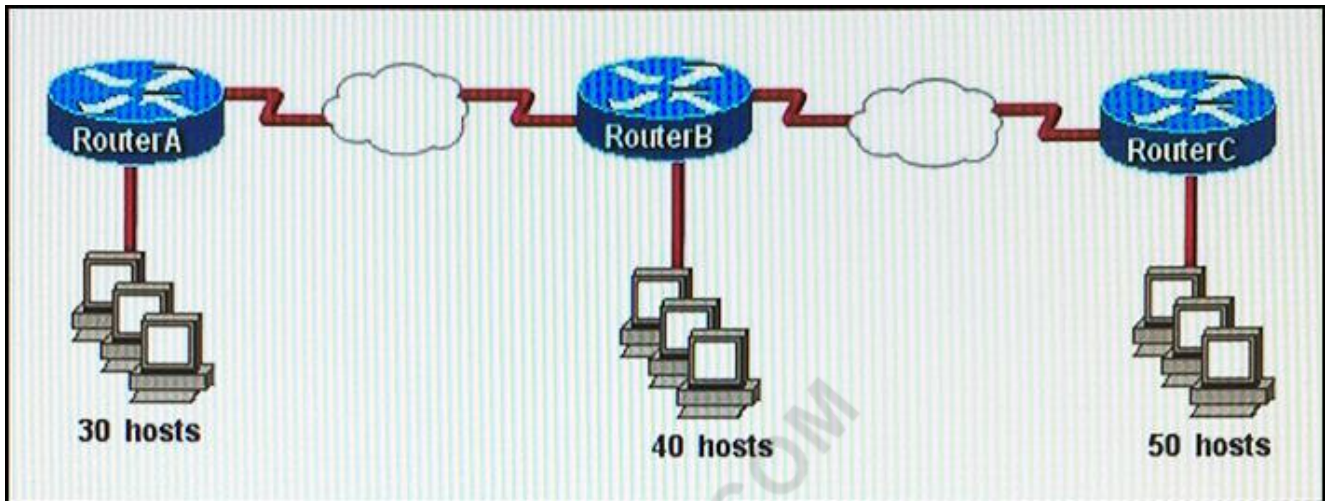
UDP

DHCP

SNMP

VOIP

**NO.375**



Refer to the exhibit. The enterprise has decided to use the network address 172.16.0.0. The network administrator needs to design a classful addressing scheme to accommodate the three subnets, with 30, 40, and 50 hosts, as shown. Which subnet mask would accommodate this network?

- A. 255.255.255.224
- B. 255.255.255.240
- C. 255.255.255.252
- D. 255.255.255.248
- E. 255.255.255.192

**Answer:** E

**NO.376** Which three are valid modes for a switch port used as a VLAN trunk? (Choose three.)

- A. transparent
- B. auto
- C. on
- D. desirable
- E. blocking
- F. forwarding

**Answer:** B C D

Explanation

These are the different types of trunk modes:

- \* ON: This mode puts the port into permanent trunk mode and negotiates to convert the link into a trunk link. The port becomes a trunk port even if the adjacent port does not agree to the change.
- \* OFF: This mode puts the port into permanent non-trunk mode and negotiates to convert the link into a non-trunk link. The port becomes a non-trunk port even if the adjacent port does not agree to the change.
- \* Desirable: This mode causes the port to actively attempt to convert the link into a trunk link. The port becomes a trunk port if the adjacent port is set to on, desirable, or auto mode.
- \* Auto: This mode enables the port to convert the link into a trunk link. The port becomes a trunk port if the adjacent port is set to on or desirable mode. This is the default mode for Fast and Gigabit Ethernet ports.
- \* Nonegotiate: This mode puts the port into permanent trunk mode, but does not allow the port to generate Dynamic Trunking Protocol (DTP) frames. The adjacent port must be configured manually as



a trunk port to establish a trunk link.

**NO.377** A BPDU guard is configured on an interface that has PortFast Enable. Which state does the interface enter when it receives a BPDU?

- A. Blocking.
- B. Shutdown.
- C. Listening.
- D. errdisable.


**Answer:** D

**NO.378** which WAN topology provides a direct connection from each site to all other sites on the network ?

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

**Answer:** B

**NO.379**



Sw12#show vlan brief

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

Sw12#

Refer to the exhibit. A technician has configured the FastEthernet0/1 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. Hosts will not be able to communicate between the two switches.
- B. The hosts in all VLANs on the two switches will be able to communicate with each other.
- C. Only the hosts in VLAN10 and VLAN 15 on the two switches will be able to communicate with each other.
- D. Only the hosts in VLAN 1 on the two switches will be able to communicate with each other.

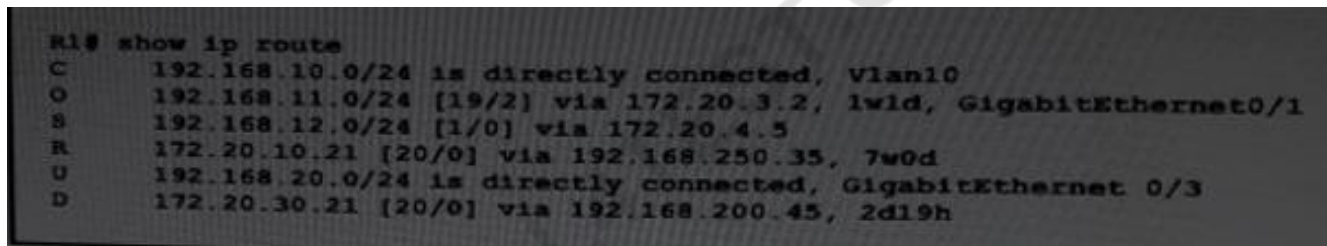
**Answer:** A

**NO.380** Between which two states does a port transition when PortFast is enabled? (Choose two)

- A. blocking
- B. forwarding
- C. active
- D. listening
- E. learning

**Answer:** A B

**NO.381** Refer to the exhibit.



```

R1# show ip route
C    192.168.10.0/24 is directly connected, Vlan10
O    192.168.11.0/24 [19/2] via 172.20.3.2, 1w1d, GigabitEthernet0/1
S    192.168.12.0/24 [1/0] via 172.20.4.5
R    172.20.10.21 [20/0] via 192.168.250.35, 7w0d
U    192.168.20.0/24 is directly connected, GigabitEthernet 0/3
D    172.20.30.21 [20/0] via 192.168.200.45, 2d19h
  
```

Which two route codes indicate routes that use a Distance Vector Protocol? (Choose two)

- A. C
- B. D
- C. O
- D. R
- E. S

**Answer:** B D

**NO.382** Under which two circumstances is a switch port that is configured with PortFast BPDU guard error-disabled?

(Choose two.)

- A. when a single IP address is configured on the switch
- B. when the switch receives a request for an IP address from an individual PC
- C. when a connected server has more than one VLAN configured on its NIC
- D. when the switch receives a BPDU from a connected switch
- E. when a wireless access point running in bridge mode is connected to a switch

**Answer:** C E

**NO.383** Which task must you perform to enable an IOS device to use DNS services?

- A. Configure manual bindings

- B. Configure a name server
- C. Configure the relay agent information option.
- D. Configure a relay agent information reforwarding policy

**Answer:** B

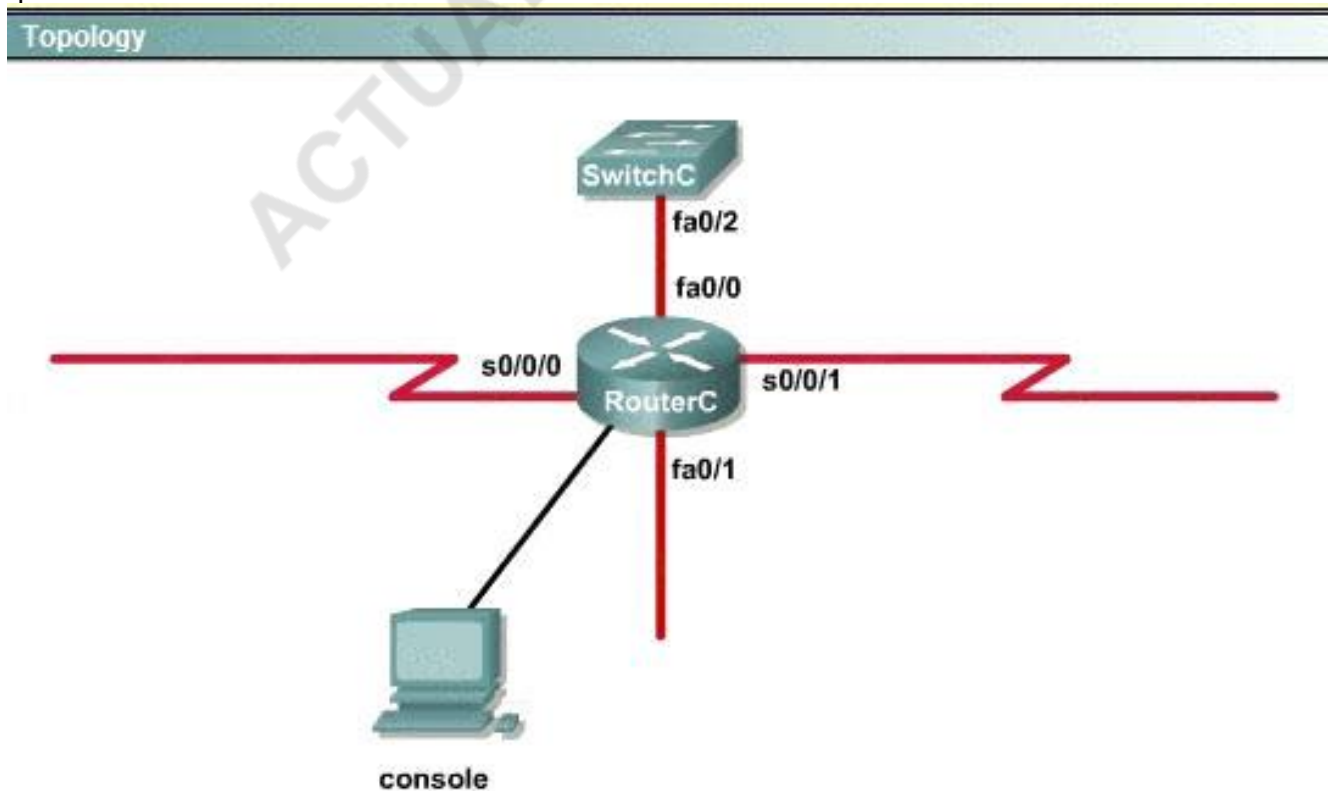
Explanation

[https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipaddr\\_dns/configuration/15-mt/dns-15-mt-book/dns-config-d](https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipaddr_dns/configuration/15-mt/dns-15-mt-book/dns-config-d)

**NO.384** An administrator is trying to ping and telnet from SwitchC to RouterC with the results shown below.

```
SwitchC>
SwitchC> ping 10.4.4.3
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.4.4.3, timeout is 2 seconds:
U.U.U
Success rate is 0 percent (0/5)
SwitchC>
SwitchC> telnet 10.4.4.3
Trying 10.4.4.3 ...
% Destination unreachable; gateway or host down
SwitchC>
```

Click the console connected to RouterC and issue the appropriate commands to answer the questions.



RouterC



Press RETURN to get started!  
RouterC>



ACTUAL4TEST.COM

<output omitted>

```
interface Loopback1
 ip address 172.16.4.1.255.255.255.0
!
interface Loopback2
 ip address 10.145.145.1 255.255.255.0
 ipv6 address 2001:410:2:3::/64 eui-64
!
interface FastEthernet0/0
 ip address 10.4.4.3.255.255.255.0
 ip access-group 106 in
 duplex auto
 speed auto
!
interface FastEthernet0/1
 no ip address
 shutdown
 duplex auto
 speed auto
!
interface Serial0/0/0
 bandwidth 64
 no ip address
 ip access-group 102 out
 encapsulation frame-relay
 ip ospf authentication
 ip ospf authentication
 ip ospf authentication-key san-fran
!
interface Serial0/0/0.1 point-to-point
 ip address 10.140.3.2 255.255.255.0
 ip authentication mode eigrp 100 md5
 ip authentication key-chain eigrp 100 icndchain
 frame-relay interface-dlci 120
!
interface Serial0/0/1
 bandwidth 64
 ip address 10.45.45.1 255.255.255.0
 ip access-group 102 in
 ip authentication mode eigrp 100 md5
 ip authentication key-chain eigrp 100 icndchain
 ip ospf authentication
 ip ospf authentication-key san-fran
 ipv6 address 2001:410:2:10::/64 eui-64
!
```



```
router eigrp 100
  network 10.0.0.0
  network 172.16.0.0
  network 192.168.2.0
  not auto-summary
!
router ospf 100
  log-adjacency-changes
  network 10.4.4.3 0.0.0.0 area 0
  network 10.45.45.1 0.0.0.0 area 0
  network 10.140.3.2 0.0.0.0 area 0
  network 192.168.2.62 0.0.0.0 area 0
!
router rip
  version 2
  network 10.0.0.0
  network 172.16.0.0
!
ip default-gateway 10.1.1.2
!
!
ip http server
no ip http secure-server
!
```

```
access-list 102 permit tcp any any eq ftp
access-list 102 permit tcp any any eq ftp-data
access-list 102 deny tcp any any eq telnet
access-list 102 deny icmp any any echo-reply
access-list 102 permit ip any any

access-list 104 permit tcp any any eq ftp
access-list 104 permit tcp any any eq ftp-data
access-list 104 deny tcp any any eq telnet
access-list 104 permit icmp any any echo
access-list 104 deny icmp any any echo-reply
access-list 104 permit ip any any

access-list 106 permit tcp any any eq ftp
access-list 106 permit tcp any any ftp-data
access-list 106 deny tcp any any eq telnet
access-list 106 permit icmp any any echo-reply
access-list 110 permit udp any any eq domain
access-list 110 permit udp any eq domain any
access-list 110 permit tcp any any eq domain
access-list 110 permit tcp any eq domain any
access-list 110 permit tcp any any

access-list 114 permit ip 10.4.4.0.0.0.0.255 any

access-list 115 permit ip 0.0.0.0 255.255.255.0 any

access-list 122 deny tcp any any
access-list 122 deny imp any any echo-reply
access-list 122 permit ip any any
!
```

<output omitted>

Which will fix the issue and allow ONLY ping to work while keeping telnet disabled?

- A. Correctly assign an IP address to interface fa0/1.
- B. Change the ip access-group command on fa0/0 from "in" to "out".

- C. Remove access-group 106 in from interface fa0/0 and add access-group 115 in.
- D. Remove access-group 102 out from interface s0/0/0 and add access-group 114 in
- E. Remove access-group 106 in from interface fa0/0 and add access-group 104 in.

**Answer:** E

Explanation

Let's have a look at the access list 104:

```
access-list 104 permit tcp any any eq ftp
access-list 104 permit tcp any any eq ftp-data
access-list 104 deny tcp any any eq telnet
access-list 104 permit icmp any any echo
access-list 104 permit icmp any any echo-reply
access-list 104 permit ip any any
```

The question does not ask about ftp traffic so we don't care about the two first lines. The 3rd line denies all telnet traffic and the 4th line allows icmp traffic to be sent (ping). Remember that the access list 104 is applied on the inbound direction so the 5th line "access-list 104 deny icmp any any echo-reply" will not affect our icmp traffic because the "echo-reply" message will be sent over the outbound direction.

**NO.385** Which impact of the passive-interface serial0/0 command is true when configuring RIPv2?

- A. The interface begins transmitting RIPv1 and RIPv2 routes
- B. The interface stops sending outbound routing updates.
- C. The interface begins ignoring inbound routing updates
- D. The interface begins accepting RIPv1 and RIPv2 routes

**Answer:** B

**NO.386** In an Ethernet network, under what two scenarios can devices transmit? (Choose two.)

- A. when they receive a special token
- B. when there is a carrier
- C. when they detect no other devices are sending
- D. when the medium is idle
- E. when the server grants access

**Answer:** C D

Explanation

Ethernet network is a shared environment so all devices have the right to access to the medium. If more than one device transmits simultaneously, the signals collide and cannot reach the destination. If a device detects another device is sending, it will wait for a specified amount of time before attempting to transmit.

When there is no traffic detected, a device will transmit its message. While this transmission is occurring, the device continues to listen for traffic or collisions on the LAN. After the message is sent, the device returns to its default listening mode.

**NO.387** Which three statements about IPv6 prefixes are true? (Choose three.)

- A. FF00::/8 is used for IPv6 multicast.

- B. FE80::/10 is used for link-local unicast.
- C. FC00::/7 is used in private networks.
- D. 2001::1/127 is used for loopback addresses.
- E. FE80::/8 is used for link-local unicast.
- F. FEC0::/10 is used for IPv6 broadcast.

**Answer:** A B C

**NO.388** Which port security mode can assist with troubleshooting by keeping count of violations?

- A. access.
- B. protect.
- C. restrict.
- D. shutdown.

**Answer:** C

**NO.389** Which two options will help to solve the problem of a network that is suffering a broadcast storm? (Choose two.)

- A. a Layer 3 switch
- B. a hub
- C. a bridge
- D. an access point
- E. a router

**Answer:** A E

**NO.390** Which three statements about link-state routing are true? (Choose three)

- A. Updates are sent to a broadcast address.
- B. Updates are sent to a multicast address by default.
- C. Routes are updated when a change in topology occurs.
- D. It uses split horizon.
- E. OSPF is a link-state protocol.
- F. RIP is a link-state protocol.

**Answer:** B C E

**NO.391** Which two VLANs are reserved for system use only? (Choose two.)

- A. 2
- B. 4095
- C. 1001
- D. 4096
- E. 1
- F. 0

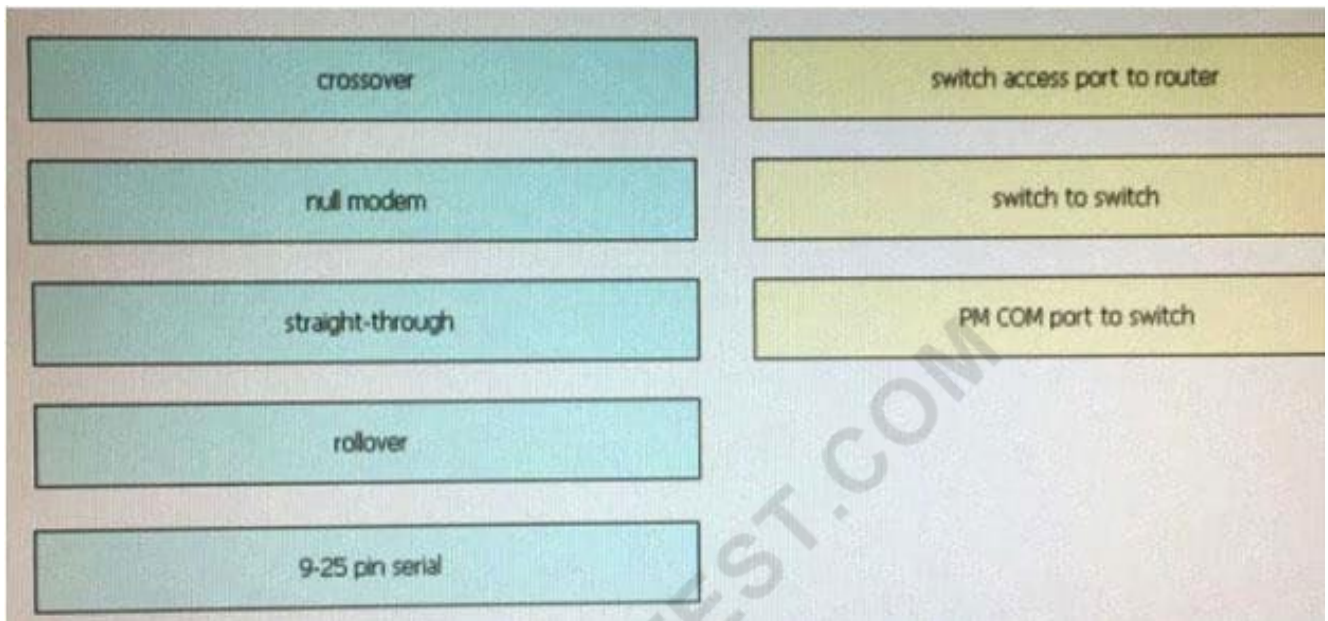
**Answer:** B F

Explanation

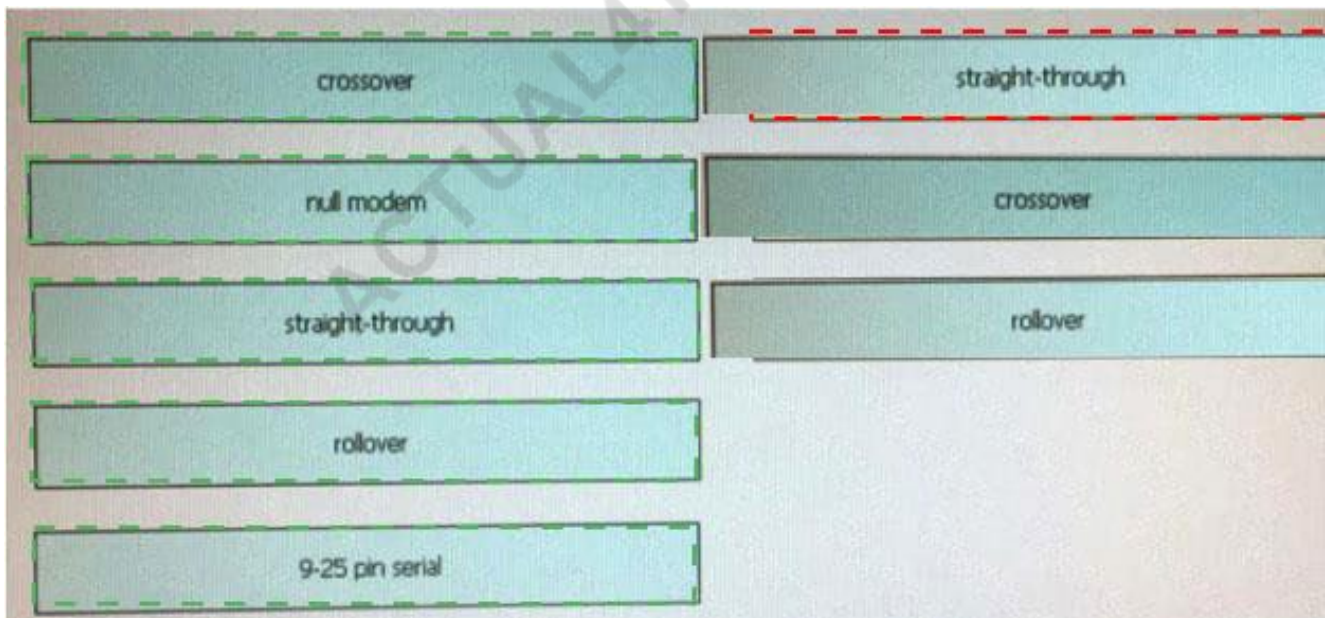
VLANs	Range	Usage	Propagated by VTP
0, 4095	Reserved	For system use only. You cannot see or use these VLANs.	N/A
1	Normal	Cisco default. You can use this VLAN but you cannot delete it.	Yes
2-1001	Normal	Used for Ethernet VLANs; you can create, use, and delete these VLANs.	Yes
1002-1005	Normal	Cisco defaults for FDDI and Token Ring. You cannot delete VLANs 1002-1005.	Yes
1006-4094	Extended	For Ethernet VLANs only. When configuring extended-range VLANs, note the following: <ul style="list-style-type: none"> <li>Layer 3 ports and some software features require internal VLANs. Internal VLANs are allocated from 1006 and up. You cannot use a VLAN that has been allocated for such use. To display the VLANs used internally, enter the <b>show vlan internal usage</b> command.</li> <li>Switches running Catalyst product family software do not support configuration of VLANs 1006-1024. If you configure VLANs 1006-1024, ensure that the VLANs do not extend to any switches running Catalyst product family software.</li> <li>You must enable the extended system ID to use extended range VLANs. See the "Enabling the Extended System ID" section.</li> </ul>	No

**NO.392** DRAG DROP

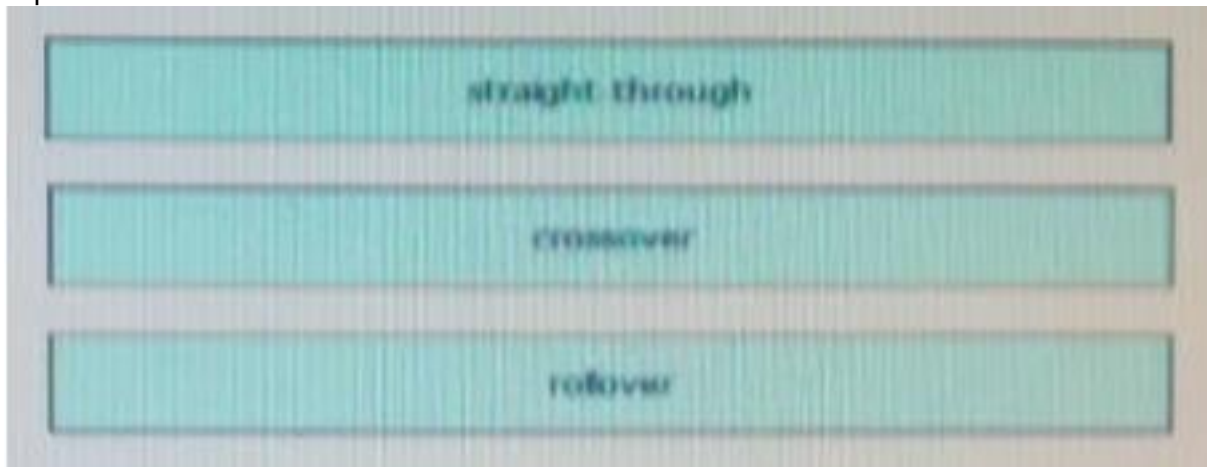




**Answer:**



**Explanation**



**NO.393** Refer to the Exhibit.

```
R1#show ip route | b Gateway
```

```
Gateway of last resort is 10.111.34.105 to network 0.0.0.0
```

```

B*    0.0.0.0/0 [20/0] via 10.111.34.105, 2w6d
      10.0.0.0/8 is variably subnetted, 9 subnets, 3 masks
C      10.43.76.0/25 is directly connected, GigabitEthernet0/0
L      10.43.76.125/32 is directly connected, GigabitEthernet0/0
C      10.48.151.196/30 is directly connected, FastEthernet0/2/0
L      10.48.151.197/32 is directly connected, FastEthernet0/2/0
C      10.111.34.104/30 is directly connected, Serial0/0/0
L      10.111.34.106/32 is directly connected, Serial0/0/0
D      10.111.34.108/30
      [90/2181120] via 10.48.151.198, 2w6d, FastEthernet0/2/0
C      10.111.248.26/32 is directly connected, Loopback0
D      10.111.248.27/32
      [90/156160] via 10.48.151.198, 2w6d, FastEthernet0/2/0

```

Which two facts about the routing table are true? (Choose two)

- A. Nine different networks are within the 10.0.0.0/8 range.
- B. The router uses interface GigabitEthernet0/0 to reach host address 10.111.35.106
- C. Three different networks are within the 10.0.0.0/8 range.
- D. The router uses interface Serial0/0/0/0 to reach network 192.168.1.0/24
- E. The router uses interface Serial 0/0/0 to reach host address 10.43.76.123

**Answer:** A D

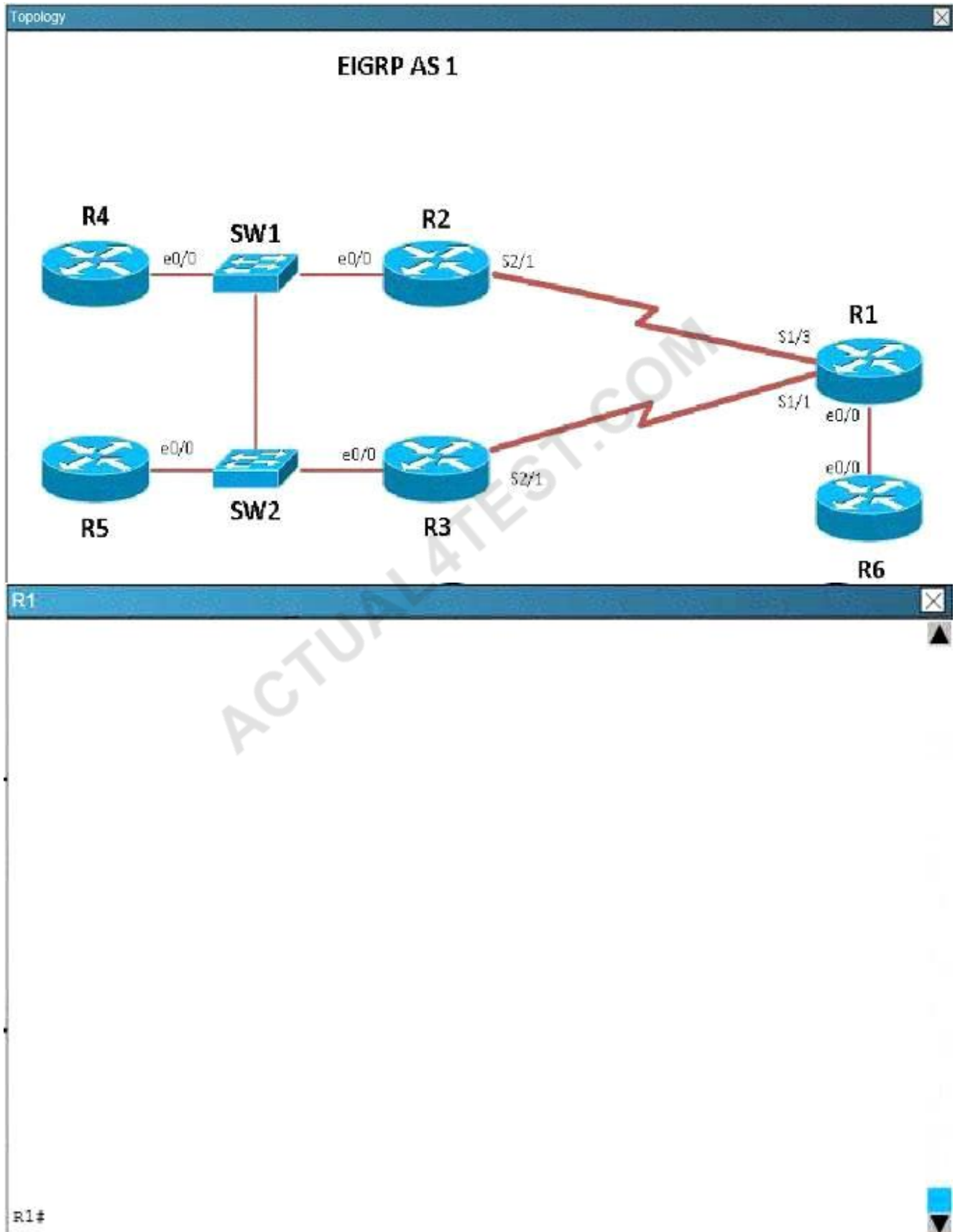
### NO.394 Scenario

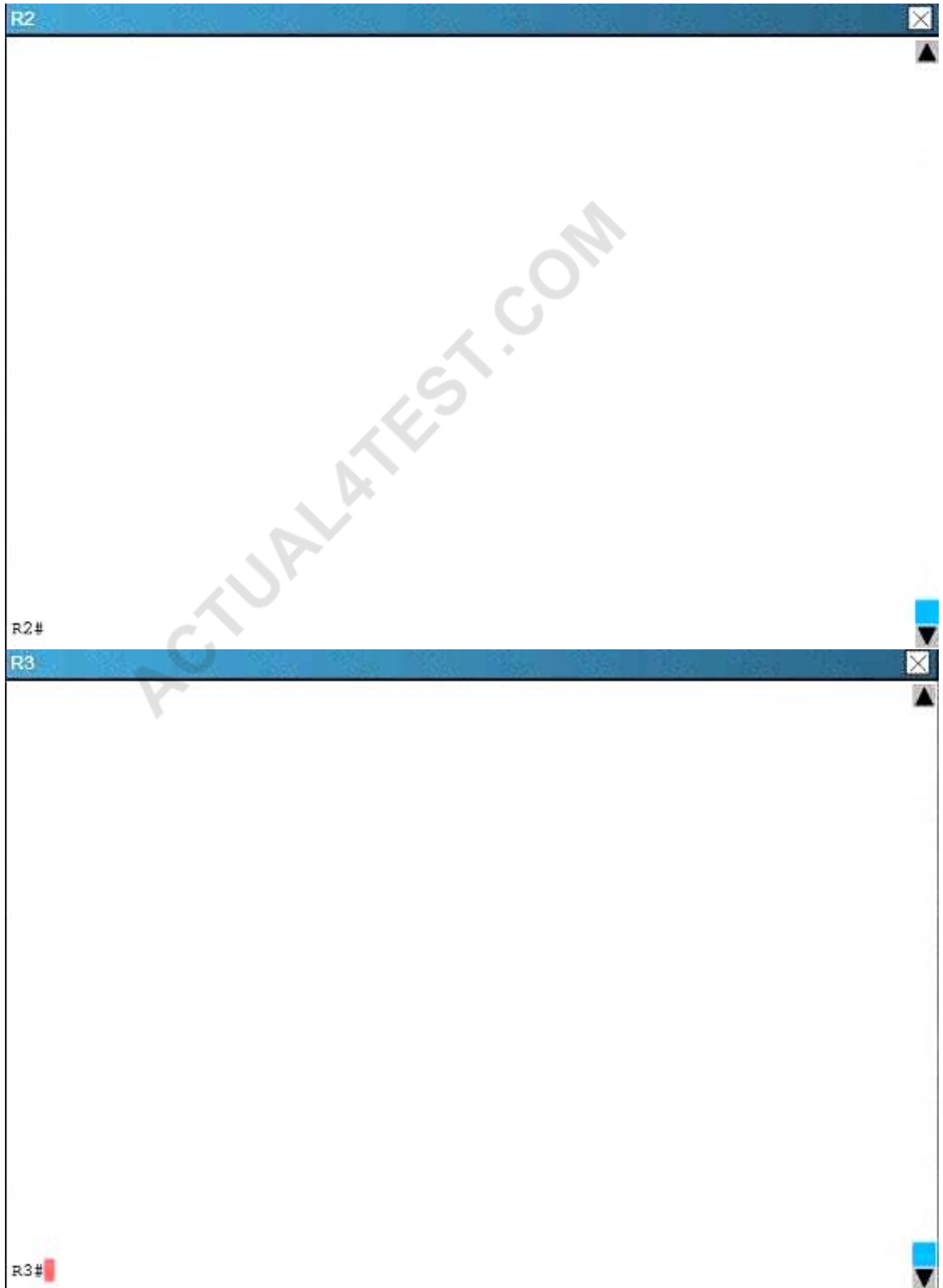
Refer to the topology. Your company has connected the routers R1, R2, and R3 with serial links. R2 and R3 are connected to the switches SW1 and SW2, respectively. SW1 and SW2 are also connected to the routers R4 and R5.

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.





R4



R4#



R5



R5#





R6



R6#

SW1



SW1#



SW2



SW2#



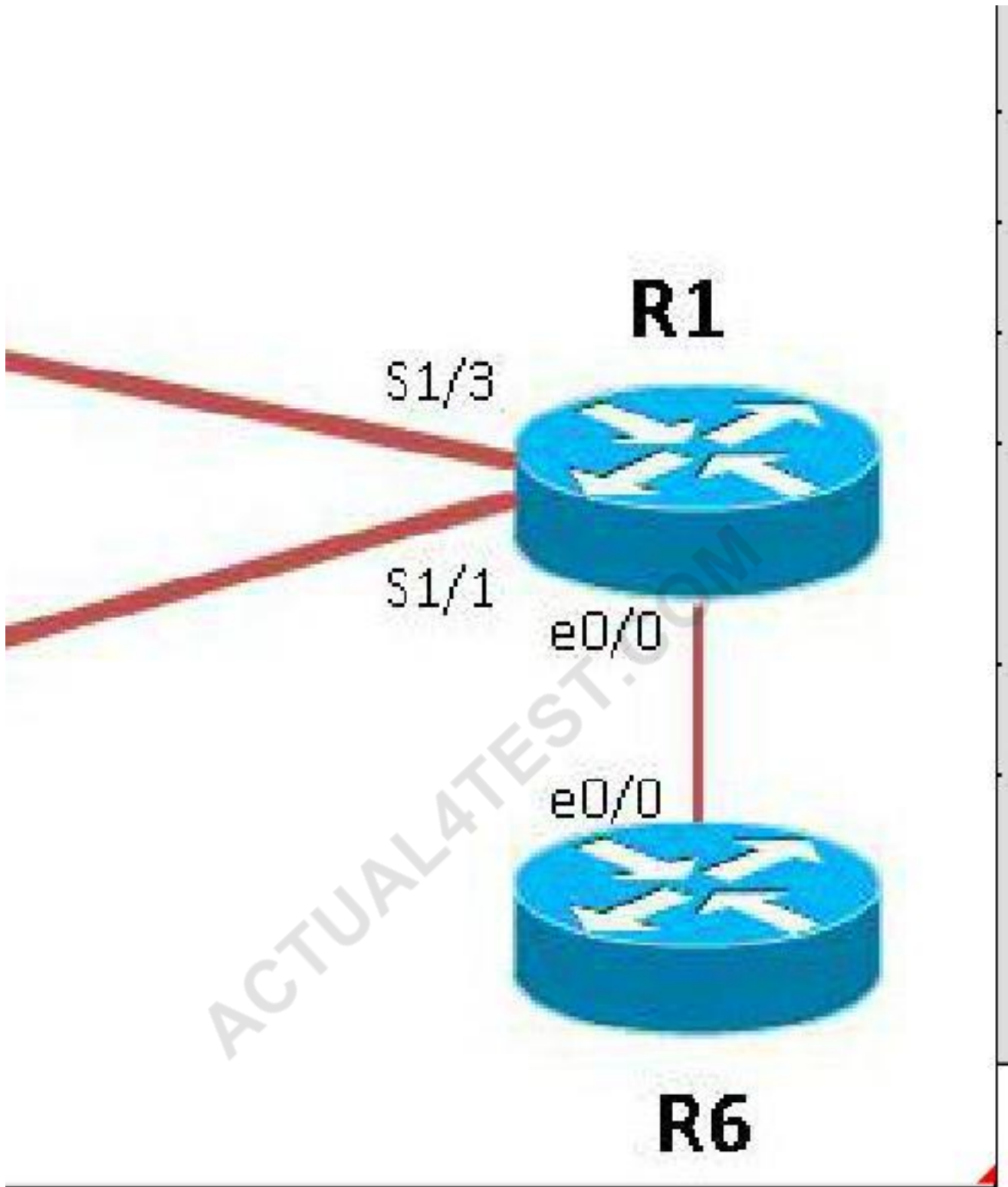
Router R6 does not form an EIGRP neighbor relationship correctly with router R1. What is the cause for this misconfiguration?

- 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:

R1				R6			
Interface	IP-Address	OK?	Method	Status			
ocol				R6#			
Ethernet0/0	192.168.16.1	YES	NVRAM	up	R6#		
Ethernet0/1	unassigned	YES	NVRAM	adn	R6#		
Ethernet0/2	unassigned	YES	NVRAM	adn	R6#show ip int brief		
Ethernet0/3	unassigned	YES	NVRAM	adn	Interface	IP-Address	OK? Method Status
					ocol		Prot
					Ethernet0/0	192.168.16.6	YES NVRAM up up
					Ethernet0/1	unassigned	YES NVRAM administratively down down
					Ethernet0/2	unassigned	YES NVRAM administratively down down
					Ethernet0/3	unassigned	YES NVRAM administratively down down
					Serial1/0	unassigned	YES NVRAM administratively down down
					Serial1/1	unassigned	YES NVRAM up down
					Serial1/2	unassigned	YES NVRAM administratively down down
					Serial1/3	unassigned	YES NVRAM administratively down down
					Loopback0	10.6.6.6	YES NVRAM up up
R1#				R6#			

But when we look at the EIGRP configuration, the "network 192.168.16.0" command is missing on R6.

R1		R6	
<pre> shutdown serial restart-delay 0 ! interface Serial2/1 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 </pre>		<pre> serial restart-delay 0 ! interface Serial1/1 no ip address serial restart-delay 0 ! interface Serial1/2 no ip address shutdown serial restart-delay 0 ! interface Serial1/3 no ip address shutdown serial restart-delay 0 ! router eigrp 1 network 10.6.6.6 0.0.0.0 ! ip forward-protocol nd ! no ip http server </pre>	
R1#		R6#	

**NO.395** Which effects of the terminal monitor command is true?

If need more dump or exam mail me : rahmansumon2@gmail.com / skype: rahmansumon1 Cisco-microsoft-oracle-vmware-ceh-chfi-ecsa-ciso-A+,N+,itil-prince2-more exam get low price

- A. It displays the configuration of the syslog server.
- B. It configuration the device to log messages to the console.
- C. it configures a syslog server
- D. It pulls the device into global configuration mode.

**Answer:** A

**NO.396** Which three are the possible trunking modes for a switch port? (Choose three.)

- A. forwarding
- B. desirable
- C. transparent
- D. Auto
- E. on
- F. off

**Answer:** B D E

**NO.397** Which configuration register value can you set on a cisco device so that it ignores the NVRAM when it boots ?

- A. 0x2120
- B. 0x2124
- C. 0x2102
- D. 0x2142

**Answer:** D

**NO.398** Which two actions must you take to correctly configure pppoe on a client?

- A. Define a dialer interface.
- B. Create a BBA group and link it to the dialer interface
- C. Create a dialer pool and bind it to the physical interface
- D. Create a dialer pool and bind it to the virtual template
- E. Define a virtual template interface

**Answer:** A C

**NO.399** Scenario:

You are a junior network engineer for a financial company, and the main office network is experiencing network issues. Troubleshoot the network issues.

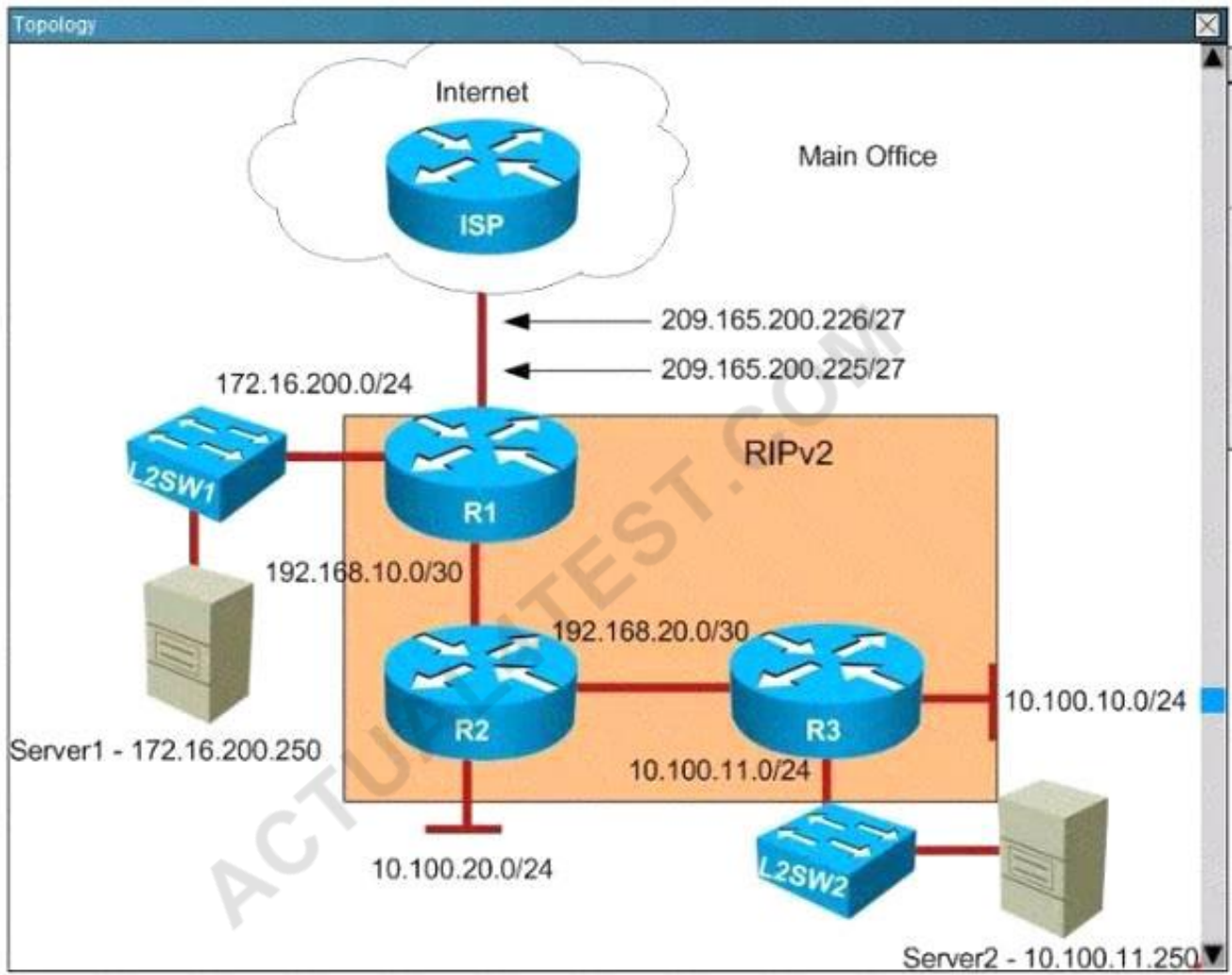
Router R1 connects the main office to the internet, and routers R2 and R3 are internal routers. NAT is enabled on router R1.

The routing protocol that is enabled between routers R1, R2 and R3 is RIPv2.

R1 sends the default route into RIPv2 for the internal routers to forward internet traffic to R1.

You have console access on R1, R2 and R3 devices. Use only show commands to troubleshoot the issues.





```
R1
Current configuration : 1651 bytes
!
! No configuration change since last restart
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
--- More (105) ---
```

```
R1
```

```
ip cef  
no ipv6 cef  
  
multilink bundle-name authenticated  
  
  
  
  
  
  
  
  
redundancy  
  
  
  
  
  
  
--- More (79) ---
```



```
R1
ip access-list extended LOCAL
 permit ip host 127.0.0.1 any
!
!
!
control-plane
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
!
ntp server 209.165.200.226
!
end
R1#

R2
Building configuration...

Current configuration : 1243 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
--- More (92) ---
```

**R2**

```
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
```

```
!
```

```
hostname R2
```

```
!
```

```
boot-start-marker
boot-end-marker
```

```
!
```

```
!
```

```
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
```

```
!
```

```
!
```

```
!
```

**R2**

```
!
```

```
!
```

```
ip dhcp excluded-address 192.168.20.1
```

```
!
```

```
ip dhcp pool DHCPASSIGNR3
 network 10.10.10.0 255.255.255.252
```

```
!
```

```
!
```

```
ip cef
no ipv6 cef
```

```
!
```

```
multilink bundle-name authenticated
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

R2#





R3

```

!
interface Loopback0
 ip address 192.168.250.3 255.255.255.255
!
interface Ethernet0/0
 description ***Link to LAN***
 ip address 10.100.10.1 255.255.255.0
!
interface Ethernet0/1
 description ***Link to R2***
 ip address dhcp
!
interface Ethernet0/2
 description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0

```

R3

```

description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0
 network 192.168.250.0
 no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
control-plane
!

```

```
R3
network 192.168.250.0
no auto-summary
!
ip forward-protocol nd
!
no ip http server
no ip http secure-server
!
!
control-plane
!
!
!
!
!
line con 0
logging synchronous
line aux 0
line vty 0 4
--- More (5) ---
R3
no ip http server
no ip http secure-server
!
!
!
control-plane
!
!
!
!
!
!
line con 0
logging synchronous
line aux 0
line vty 0 4
login
transport input all
!
!
end
R3#
```

R1 router clock is synchronized with ISP router R2 is supposed to receive NTP updates from R1. But

you observe that R2 clock is not synchronized with R1. What is the reason R2 is not receiving NTP updates from R1?

- A.** The IP address that is used in the NTP configuration on R2 router is incorrect.
- B.** The NTP server command not configured on R2 router.
- C.** R2 router Ethernet interface that is connected to R1 is placed in shutdown condition.
- D.** R1 router Ethernet interface that is connected to R2 is placed in shutdown condition.

**Answer:** A

Explanation

Check the below configuration for this

Explanation/show commands:

<pre> R2 deny 172.16.200.0 0.0.0.255 permit any ! ! ! control-plane ! ! ! ! ! ! ! ! line con 0 logging synchronous line aux 0 line vty 0 4 login transport input all ! ntp server 192.168.100.1 ! end R2# </pre>	<pre> R1 no ip address shutdown ! router rip version 2 network 172.16.0.0 network 192.168.10.0 network 192.168.250.0 default-information originate no auto-summary ! ip forward-protocol nd ! ! no ip http server no nat inside source list LOCAL interface Ethernet0 ip route 0.0.0.0 0.0.0.0 209.165.200.226 ! ip access-list standard LOCAL permit 10.0.0.0 0.255.255.255 permit 172.16.0.0 0.0.255.255 permit 192.168.0.0 0.0.255.255 ! ! </pre>
--	--

**NO.400** Which three commands are required to enable NTP authentication on a Cisco router?  
(Choose three)

- A.** ntp peer
- B.** ntp max-associations
- C.** ntp authenticate
- D.** ntp trusted-key
- E.** ntp authentication-key
- F.** ntp refclock

**Answer:** C D E

Explanation

<http://blog.ine.com/2007/12/28/how-does-ntp-authentication-work/>

**NO.401** Refer to the exhibit.



```

R1# show ip route
C    192.168.10.0/24 is directly connected, Vlan10
O    192.168.11.0/24 [110/2] via 172.20.3.2, 1w1d, GigabitEthernet0/1
S    192.168.12.0/24 [1/0] via 172.20.4.5
R    172.20.10.21 [120/2] via 192.168.250.33, 7w0d
B    172.20.20.21 [20/0] via 192.168.220.40, 7w9d
O    172.20.30.21 [110/2] via 192.168.200.43, 2d19h

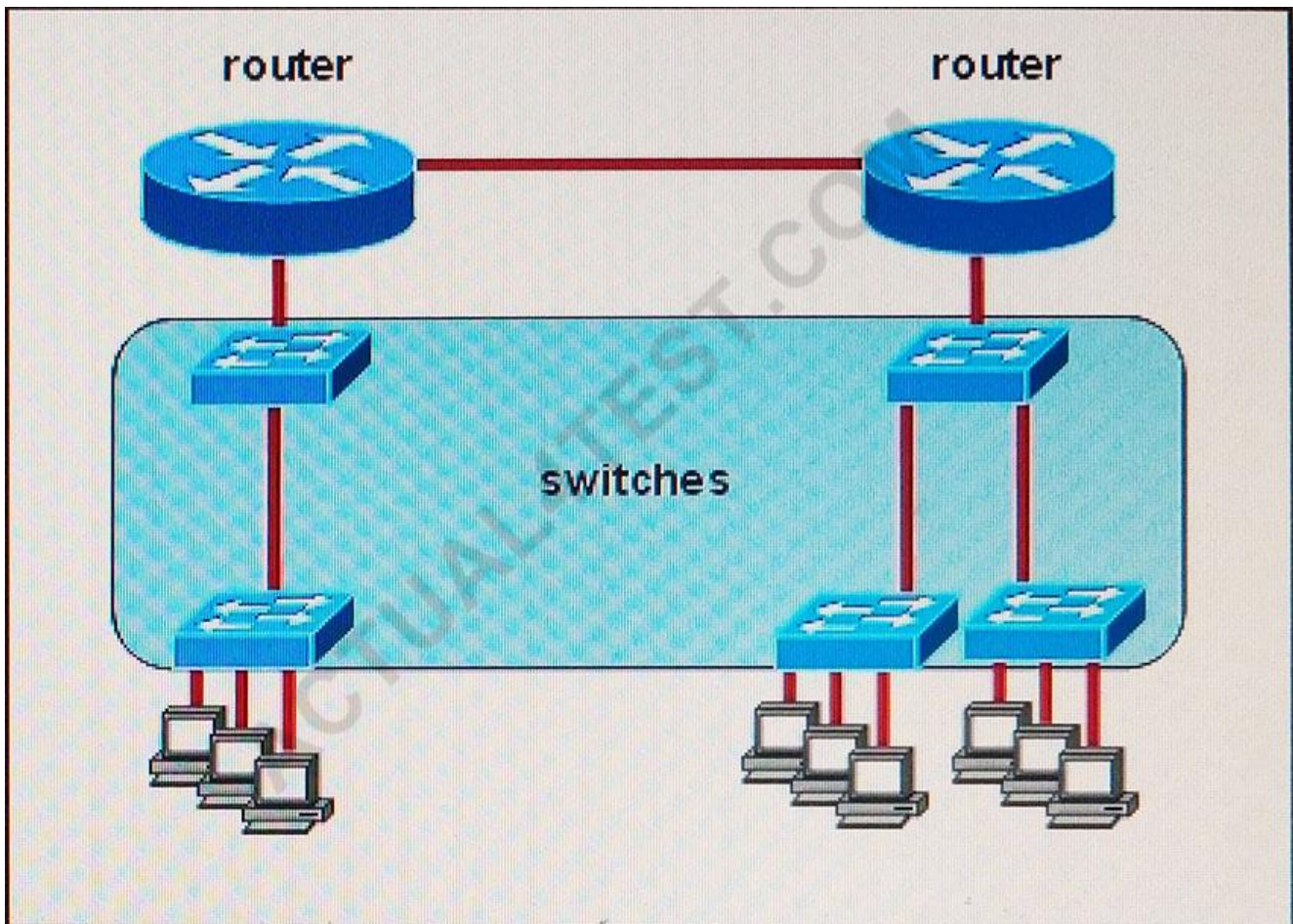
```

Which two routes originate from R1? (Choose two)

- A. 172.20.20.21
- B. 192.168.10.0/24
- C. 192.168.12.0/24
- D. 192.168.11.0/24
- E. 172.20.10.21

**Answer:** A D

**NO.402** Refer to the exhibit.



All devices attached to the network are shown. Which number of collision domains are present in this network?

- A. 9
- B. 3
- C. 6
- D. 2



E. 15

**Answer:** E

**NO.403** Which two pieces of information about a Cisco device can Cisco Discovery Protocol communicate? (Choose two.)

- A. the native VLAN
- B. the VTP domain
- C. the spanning tree protocol
- D. the spanning-tree priority
- E. the trunking protocol

**Answer:** B E

**NO.404** Which type of access list compares source and destination IP addresses?

- A. extended
- B. standard
- C. IP named
- D. reflexive

**Answer:** A

Explanation

Extended ACLs compare the source and destination addresses of the IP packets to the addresses configured in the ACL in order to control traffic. You can also make extended ACLs more granular and configured to filter traffic by criteria such as: Protocol Port numbers Differentiated services code point (DSCP) value Precedence value State of the synchronize sequence number (SYN) bit

**NO.405** Which two differences between distance -vector and link-state routing protocols are true?

- A. Only distance-vector routing protocol send full routing table updates.
- B. Only distance-vector routing protocol offer faster convergence than distance-vector protocol during network changes.
- C. Distance-vector routing protocols are less susceptible to loops than link-state protocols.
- D. Only link-state routing protocols use can the Bellman-Ford algorithm.

**Answer:** C

**NO.406** Which frame type allows STP to compute the spanning-tree topology ?

- A. RSTP
- B. LSP
- C. BPDU
- D. LSA

**Answer:** C

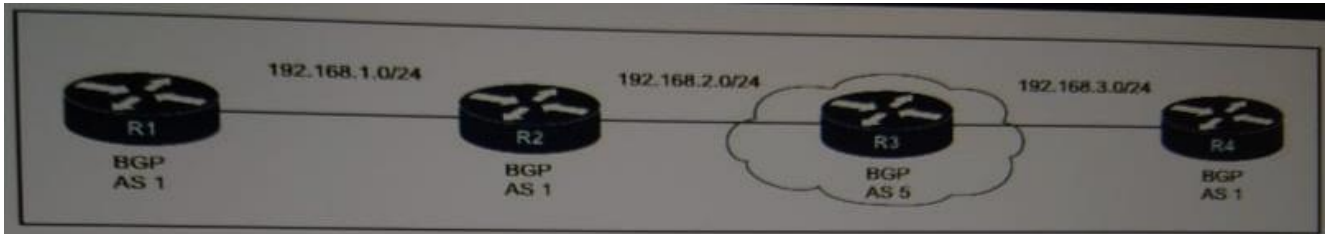
**NO.407** Which two statements about configuring an EtherChannel on a Cisco switch are true? (Choose two.)

- A. The interfaces configured in the EtherChannel must be on the same physical switch.
- B. The interfaces configured in the EtherChannel must operate at the same speed and duplex mode

- C. An EtherChannel can operate in Layer 2 mode only.
- D. The interfaces configured in the EtherChannel must be part of the same VLAN or trunk.
- E. The interfaces configured in the EtherChannel must have the same STP port path cost

**Answer:** B D

**NO.408** Refer to the exhibit.



Which BGP configuration do you need to apply to router R4 to allow traffic to flow normally on this network?

- A. router bgp 1  
no synchronization  
neighbor 192.168.1.1 remote-as 1  
neighbor 192.168.2.1 remote-as 1  
neighbor 192.168.3.1 remote-as 5  
no auto-summary
- B. router bgp 1  
No synchronization  
neighbor 192.168.1.1 remote-as 1  
neighbor 192.168.2.1 remote-as 1  
neighbor 192.168.2.1 ebgp-multihop 4  
neighbor 192.168.3.1 remote-as 5  
no auto-summary
- C. router bgp 1  
-multihop 4 no synchronization  
neighbor 192.168.1.1 remote-as 1  
neighbor 192.168.1.1 ebgp-multihop 4  
neighbor 192.168.2.1 remote-as 1  
neighbor 192.168.2.1 ebgp-multihop 4  
neighbor 192.168.3.1 remote-as 5  
neighbor 192.168.3.1 ebgp-multihop
- D. router bgp 1  
no synchronization  
neighbor 192.168.1.1 remote-as 1  
neighbor 192.168.1.1 ebgp-multihop 4  
neighbor 192.168.2.1 remote-as 1  
neighbor 192.168.2.1 ebgp-multihop 4  
neighbor 192.168.3.1 remote-as 5  
no auto-summary
- E. router bgp 1  
no synchronization

```
neighbor 192.168.1.1remote-as 1
neighbor 192.168.2.1remote-as 1
neighbor 192.168.3.1remote-as 5
```

**F.** router bgp 1

```
no synchronization
neighbor 192.168.1.1remote-as 1
neighbor 192.168.2.1remote-as 1
neighbor 192.168.2.1ebgp-multihop 4
neighbor 192.168.3.1remote-as 5
```

no auto-summary

```
neighbor 192.168.3.1ebgp-multihop 4
```

no auto-summary

**G.** router bpg 1

no synchronization

```
neighbor 192.168.1.1remote-as 1
neighbor 192.168.1.1ebgp-multihop 4
neighbor 192.168.2.1remove-as 1
neighbor 192.168.2.1ebgp-multihop 4
neighbor 192.168.3.1remote-as 5
```

**Answer:** D

**NO.409** What is the effect of configuring a server farm on a switch that operates in VLAN 20 using isolated ports?

- A.** Hosts in the server farm are unable to communicate with each other.
- B.** The primary VLAN and hosts are able to communicate with hosts on other VLANs
- C.** The primary VLAN and hosts are able to reach community ports.
- D.** The primary VLAN and hosts are able to communicate with each other

**Answer:** D

**NO.410** Which functionality does an SVI provide?

- A.** OSI Layer 2 connectivity to switches
- B.** remote switch administration
- C.** traffic routing for VLANs
- D.** OSI Layer 3 connectivity to switches

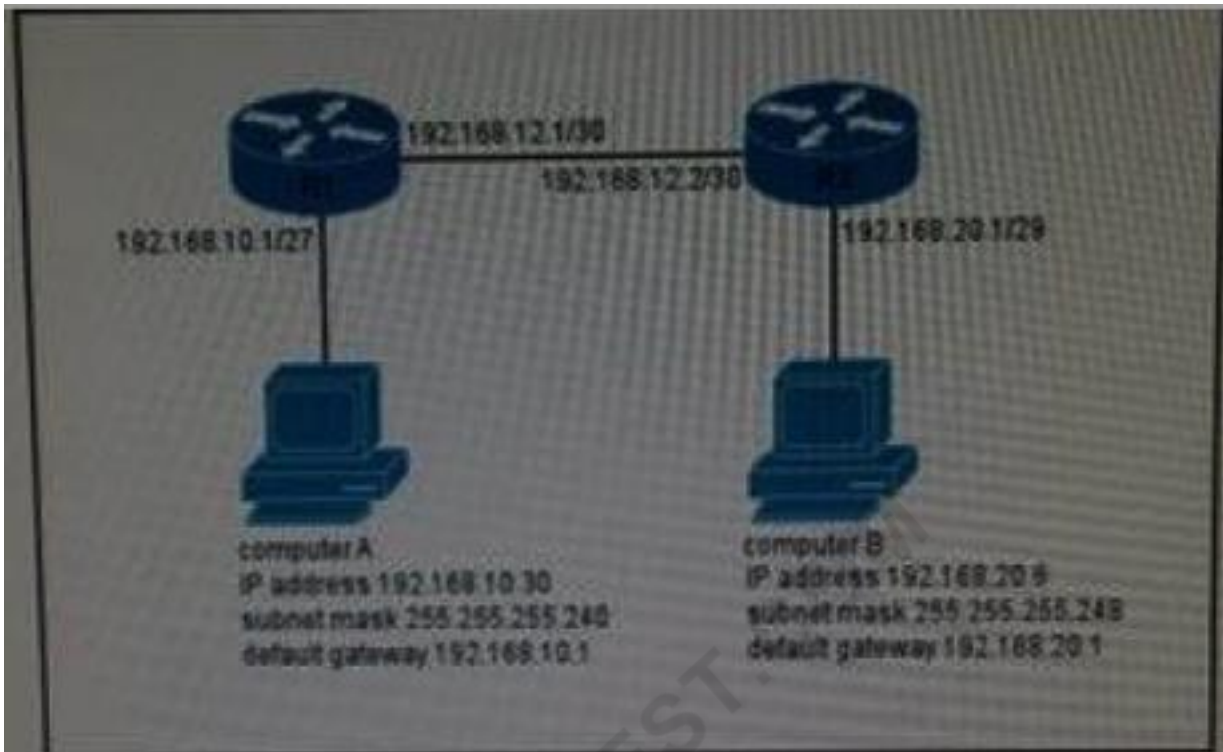
**Answer:** C

**NO.411** Which three describe the reasons large OSPF networks use a hierarchical design? (Choose Three)

- A.** to speed up convergence
- B.** to reduce routing overhead
- C.** to lower costs by replacing routers with distribution layer switches
- D.** to decrease latency by increasing bandwidth
- E.** to confine network instability to single areas of the network
- F.** to reduce the complexity of router configuration

**Answer:** A B E

**NO.412** Refer to the exhibit,



you determine that Computer A cannot ping Computer B. Which reason for the problem is most likely true?

- A. The Subnet mask for Computer A is incorrect
- B. The subnet mask for computer B is incorrect
- C. The default gateway address for Computer A is incorrect.
- D. The default gateway address for computer B is incorrect.

**Answer:** A

Explanation

Explanation/Reference:

255.255.255.224 = /27

**NO.413** Scenario:

You work for a company that provides managed network services, and one of your real estate clients running a small office is experiencing network issues. Troubleshoot the network issues.

Router R1 connects the main office to internet, and routers R2 and R3 are internal routers. NAT is enabled on Router R1.

The routing protocol that is enabled between routers R1, R2, and R3 is RIPv2.

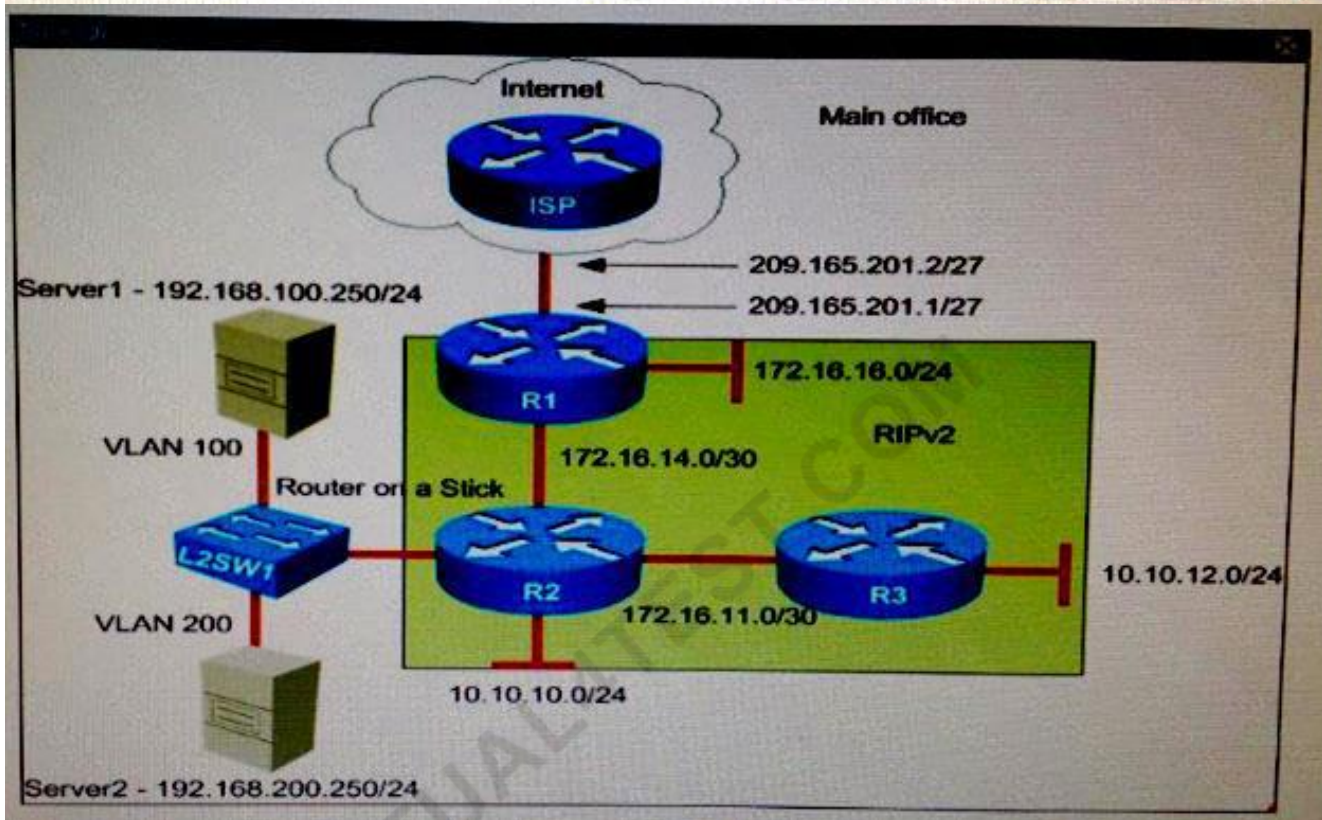
R1 sends default route into RIPv2 for internal routers to forward internet traffic to R1.

Server1 and Server2 are placed in VLAN 100 and 200 respectively, and are still running router on switch configuration with router R2.

You have console access on R1, R2, R3, and L2SW1 devices. Use only show commands to troubleshoot the issues.

**Instructions**

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





```

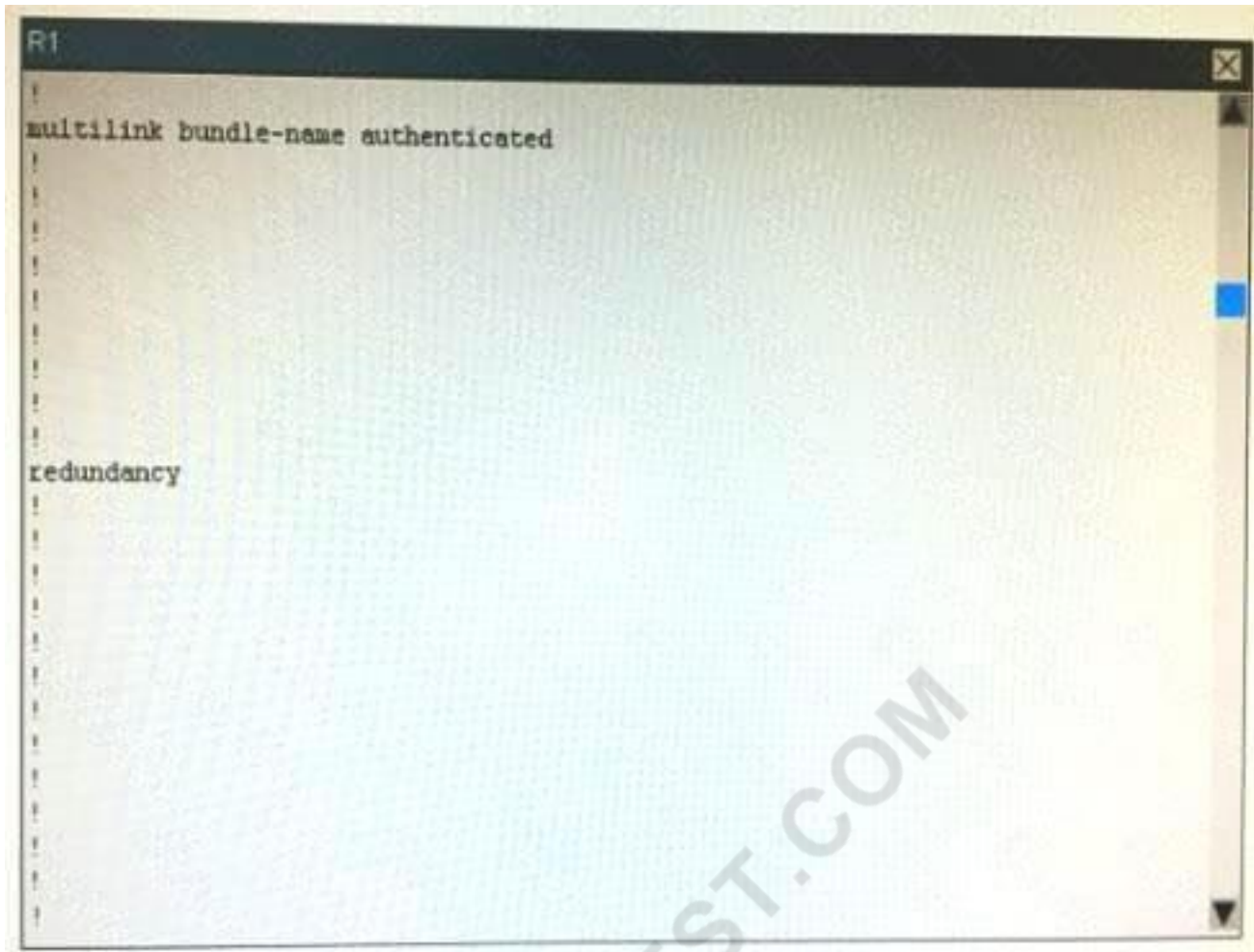
...loading-config
...configuration...

Current configuration : 1438 bytes

version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nmi polling-interval 60
no nmi auto-configure

```

```
R1
!
no aaa new-model
clock timezone PST -8 0
nmi polling-interval 60
no nmi auto-configure
no nmi pvc
nmi snmp-timeout 180
!
!
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
```



```
R1
!
interface Ethernet0/0
  description ***Link to ISP***
  ip address 209.165.201.1 255.255.255.224
  ip nat outside
  ip virtual-reassembly in
!
interface Ethernet0/1
  description ***Link to LAN***
  ip address 172.16.16.1 255.255.255.0
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/2
  description ***Link to R2***
  ip address 172.16.14.1 255.255.255.252
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/3
  no ip address
  shutdown
!
router rip
  version 2
```



```
R1
!
router rip
  version 2
  network 172.16.0.0
  default-information originate
  no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 10.10.10.0 255.255.255.0 172.16.14.2 200
!
ip access-list standard LOCAL
  permit 10.0.0.0 0.255.255.255
  permit 172.16.0.0 0.0.255.255
  permit 192.168.0.0 0.0.255.255
!
!
!
control-plane
!
```

```
R1
!
line con 0
  logging synchronous
line aux 0
line vty 0 4
  login
  transport input all
!
!
end
R1#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4100 (bia aabb.cc00.4100)
  Description: ***Link to ISP***
  Internet address is 209.165.201.1/27
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:53, output 00:00:07, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
```



```

R1
Input queue: 0/75/0/0 (size/max/drops/flushes): Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  40 packets input, 11786 bytes, 0 no buffer
Received 39 broadcasts (0 IP multicasts)
0 runs, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
191 packets output, 20271 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
4 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4110 (bia aabb.cc00.4110)
  Description: ***Link to LAN***
  Internet address is 172.16.16.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00

```

```

R1
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
last input never, output never, output hang never
last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes): Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
0 runs, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
245 packets output, 30725 bytes, 0 underruns
0 output errors, 0 collisions, 4 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4120 (bia aabb.cc00.4120)
  Description: ***Link to R2***
  Internet address is 172.16.14.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,

```

```

R1
Internet address is 172.16.14.1/30
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:16, output 00:00:07, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  98 packets input, 20097 bytes, 0 no buffer
Received 97 broadcasts (54 IP multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
247 packets output, 25359 bytes, 0 underruns
  0 output errors, 0 collisions, 1 interface resets
  4 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier
  0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down

```

```

R1
  0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
Hardware is Am287, address is aabb.cc00.4130 (bia aabb.cc00.4130)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier

```



```
R1
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out
NVIO is up, line protocol is up
Hardware is NVI
Interface is unnumbered. Using address of Ethernet0/0 (209.165.201.1)
MTU 1514 bytes, BW 56 Kbit/sec, DLY 5000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation UNKNOWN, loopback not set
Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes): Total output drops: 0
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
 0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
 0 runs, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 packets output, 0 bytes, 0 underruns
 0 output errors, 0 collisions, 0 interface resets
 0 unknown protocol drops
 0 output buffer failures, 0 output buffers swapped out
R1#
R1#show ip interface brief
```

```

R1
R1#
R1#show ip interface brief
Interface                               IP-Address      OK? Method Status      Prot
GigabitEthernet0/0                     209.165.201.1   YES NVRAM   up          up
GigabitEthernet0/1                     172.16.16.1     YES NVRAM   up          up
GigabitEthernet0/2                     172.16.14.1     YES NVRAM   up          up
GigabitEthernet0/3                     unassigned      YES NVRAM   administratively down down
Loopback0                              209.165.201.1   YES unset   up          up
R1#
R1#
R1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       + - replicated route, % - next hop override

Gateway of last resort is not set

10.0.0.0/24 is subnetted, 1 subnets
R    10.10.10.0 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2

```

```

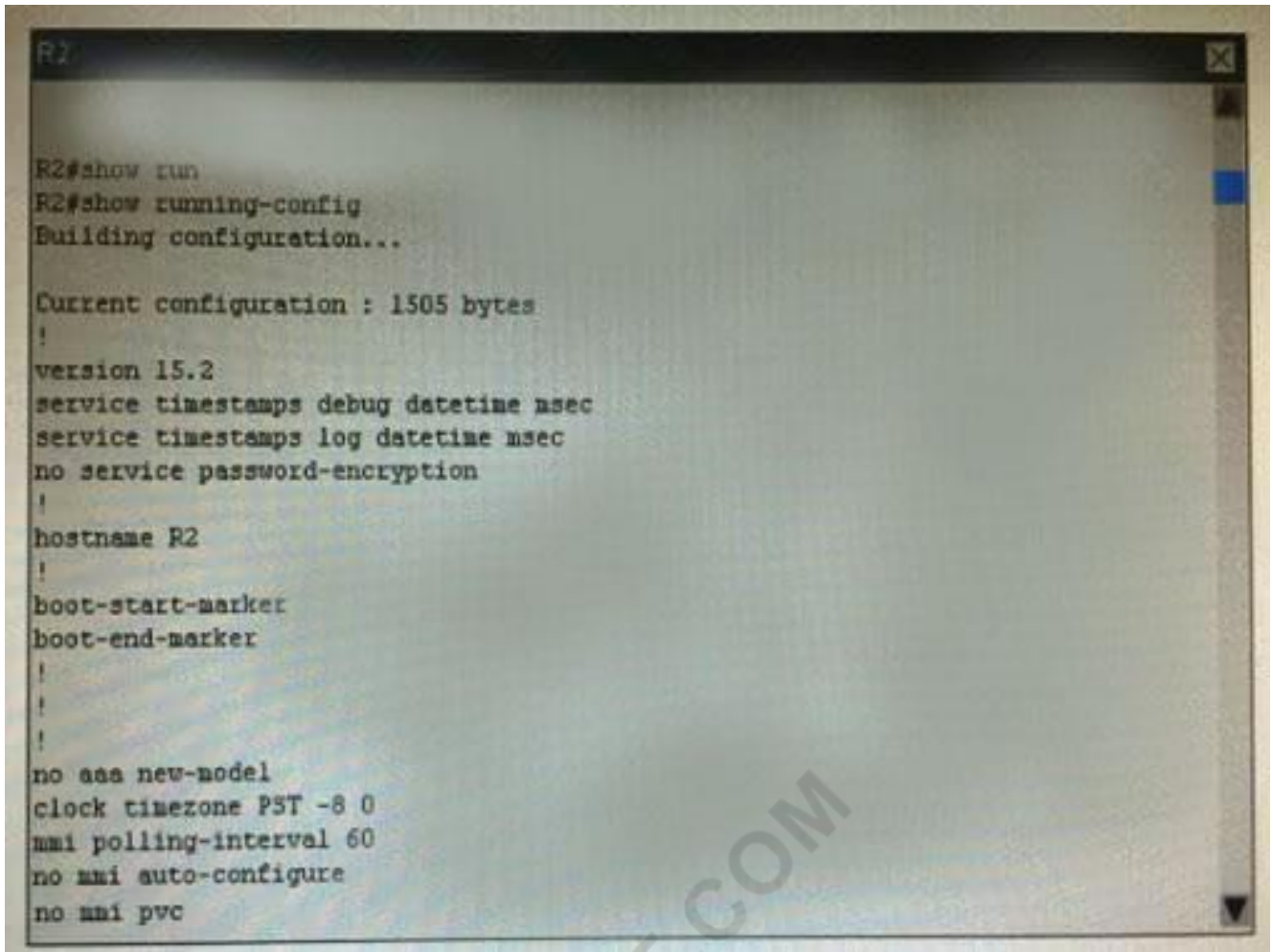
R1
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
+ - replicated route, % - next hop override

Gateway of last resort is not set

10.0.0.0/24 is subnetted, 1 subnets
R    10.10.10.0 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
R    172.16.11.0/30 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
C    172.16.14.0/30 is directly connected, Ethernet0/2
L    172.16.14.1/32 is directly connected, Ethernet0/2
C    172.16.16.0/24 is directly connected, Ethernet0/1
L    172.16.16.1/32 is directly connected, Ethernet0/1
R    192.168.1.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R    192.168.100.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R    192.168.200.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
209.165.201.0/24 is variably subnetted, 2 subnets, 2 masks
C    209.165.201.0/27 is directly connected, Ethernet0/0
L    209.165.201.1/32 is directly connected, Ethernet0/0
R1#
R1#

```

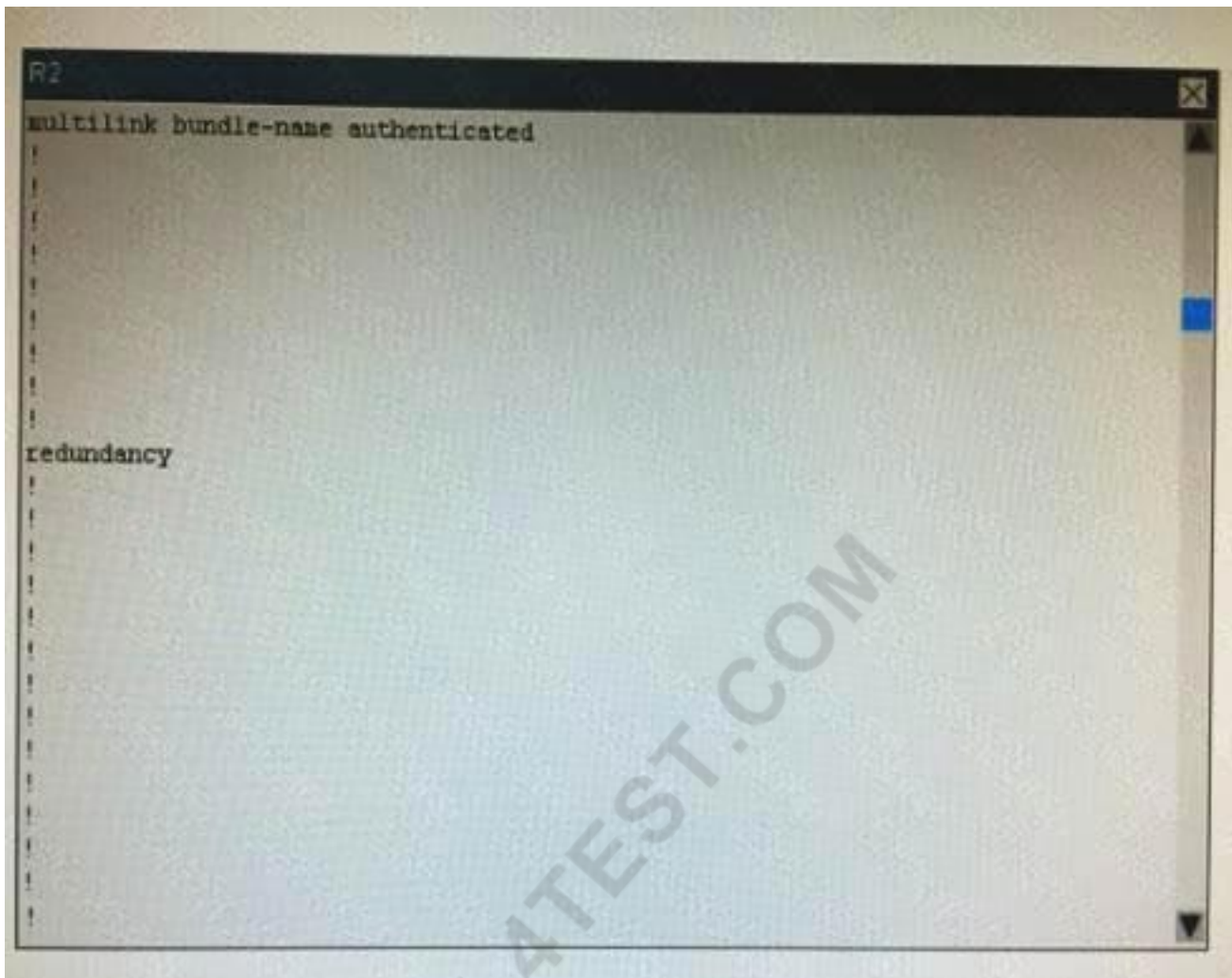


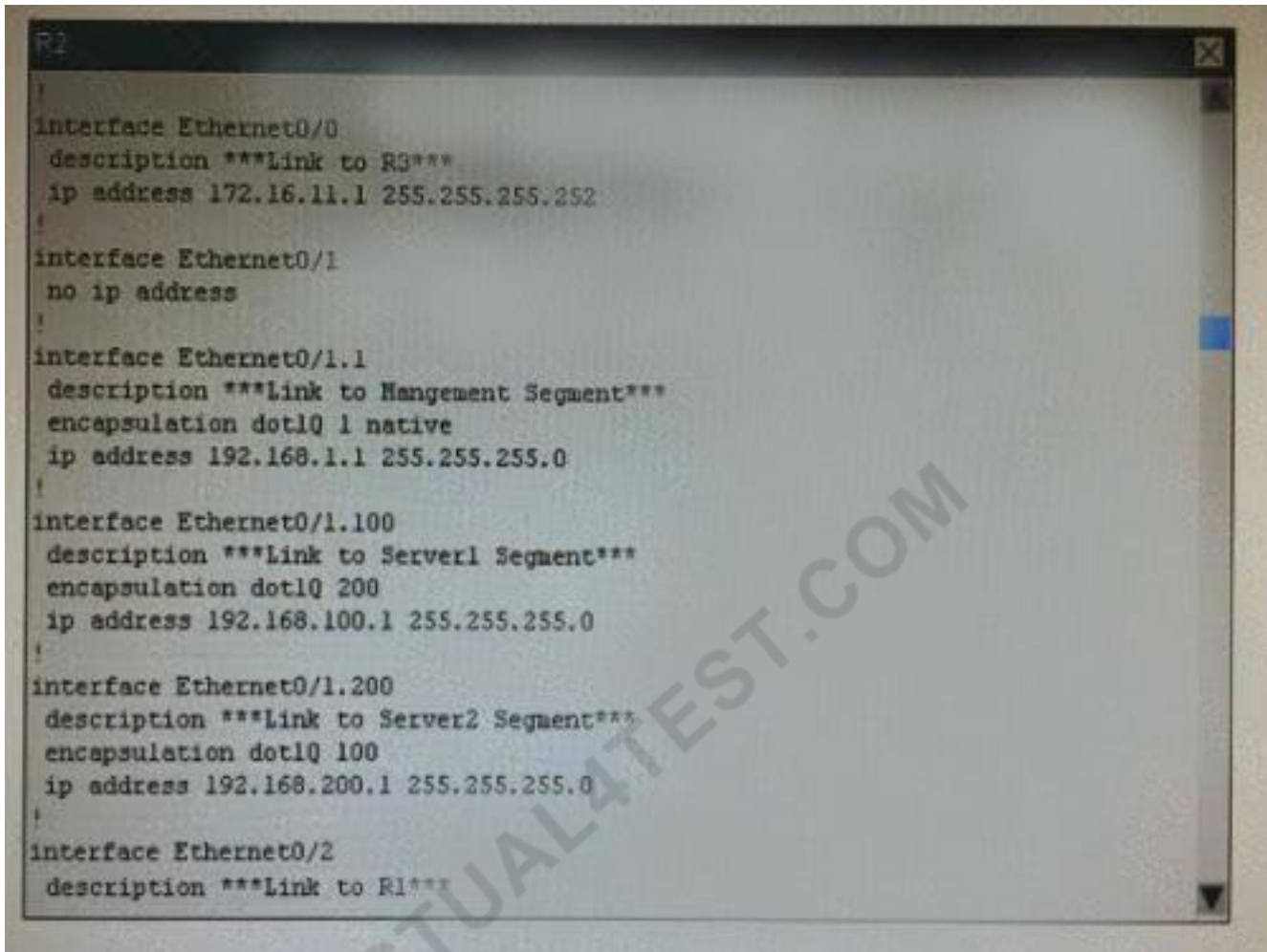


```
R2
R2#show run
R2#show running-config
Building configuration...

Current configuration : 1505 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
```

```
R2
no hwi auto-configure
no hwi pvc
hwi snmp-timeout 180
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
```





```
R2
!
interface Ethernet0/0
  description ***Link to R3***
  ip address 172.16.11.1 255.255.255.252
!
interface Ethernet0/1
  no ip address
!
interface Ethernet0/1.1
  description ***Link to Management Segment***
  encapsulation dot1q 1 native
  ip address 192.168.1.1 255.255.255.0
!
interface Ethernet0/1.100
  description ***Link to Server1 Segment***
  encapsulation dot1q 200
  ip address 192.168.100.1 255.255.255.0
!
interface Ethernet0/1.200
  description ***Link to Server2 Segment***
  encapsulation dot1q 100
  ip address 192.168.200.1 255.255.255.0
!
interface Ethernet0/2
  description ***Link to R1***
```

A screenshot of a network configuration window titled 'R2'. The window displays a series of configuration commands for various interfaces. The commands are as follows: 'interface Ethernet0/0', 'description \*\*\*Link to R3\*\*\*', 'ip address 172.16.11.1 255.255.255.252', '!', 'interface Ethernet0/1', 'no ip address', '!', 'interface Ethernet0/1.1', 'description \*\*\*Link to Management Segment\*\*\*', 'encapsulation dot1q 1 native', 'ip address 192.168.1.1 255.255.255.0', '!', 'interface Ethernet0/1.100', 'description \*\*\*Link to Server1 Segment\*\*\*', 'encapsulation dot1q 200', 'ip address 192.168.100.1 255.255.255.0', '!', 'interface Ethernet0/1.200', 'description \*\*\*Link to Server2 Segment\*\*\*', 'encapsulation dot1q 100', 'ip address 192.168.200.1 255.255.255.0', '!', and 'interface Ethernet0/2', 'description \*\*\*Link to R1\*\*\*'. A large, diagonal watermark reading 'ACTUAL4TEST.COM' is overlaid across the center of the image.

```
R2
!
interface Ethernet0/2
  description ***Link to R1***
  ip address 172.16.14.2 255.255.255.252
!
interface Ethernet0/3
  description ***Link to LAN***
  ip address 10.10.10.1 255.255.255.0
!
router rip
  version 2
  network 10.0.0.0
  network 172.16.0.0
  network 192.168.1.0
  network 192.168.100.0
  network 192.168.200.0
  no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
```



```
R2
!
control-plane
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0 4
  login
  transport input all
!
end
R2#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4200 (bia aabb.cc00.4200)
  Description: ***Link to R3***
  Internet address is 172.16.11.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
```

```
R2
R2#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4200 (bia aabb.cc00.4200)
  Description: ***Link to R3***
  Internet address is 172.16.11.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:32, output 00:00:06, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    50 packets input, 15683 bytes, 0 no buffer
    Received 50 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
  343 packets output, 42566 bytes, 0 underruns
  0 output errors, 0 collisions, 1 interface resets
  2 unknown protocol drops
```

```
R2
2 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:00, output 00:00:08, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 1000 bits/sec, 2 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    4632 packets input, 308536 bytes, 0 no buffer
    Received 4421 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
  512 packets output, 73148 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
```

```
R2
512 packets output, 73148 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
73 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/1.1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Mangement Segment***
  Internet address is 192.168.1.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 1.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
  Last clearing of "show interface" counters never
Ethernet0/1.100 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Server1 Segment***
  Internet address is 192.168.100.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 200.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
```



```
R2
Keepalive set (10 sec)
Last clearing of "show interface" counters never
Ethernet0/1.100 is up, line protocol is up
Hardware is AndP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
Description: ***Link to Server1 Segment***
Internet address is 192.168.100.1/24
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation 802.1Q Virtual LAN, Vlan ID 200.
ARP type: ARPA, ARP Timeout 04:00:00
Keepalive set (10 sec)
Last clearing of "show interface" counters never
Ethernet0/1.200 is up, line protocol is up
Hardware is AndP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
Description: ***Link to Server2 Segment***
Internet address is 192.168.200.1/24
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation 802.1Q Virtual LAN, Vlan ID 100.
ARP type: ARPA, ARP Timeout 04:00:00
Keepalive set (10 sec)
Last clearing of "show interface" counters never
Ethernet0/2 is up, line protocol is up
Hardware is AndP2, address is aabb.cc00.4220 (bia aabb.cc00.4220)
Description: ***Link to R1***
```



```
R2
Description: ***Link to R1***
Internet address is 172.16.14.2/30
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:02, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  128 packets input, 21994 bytes, 0 no buffer
  Received 127 broadcasts (77 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
  345 packets output, 39952 bytes, 0 underruns
    0 output errors, 0 collisions, 1 interface resets
    0 unknown protocol drops
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
    0 output buffer failures, 0 output buffers swapped out
```

```
R2
0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up
Hardware is Am2P2, address is aabb.cc00.4230 (bia aabb.cc00.4230)
Description: ***Link to LAN***
Internet address is 10.10.10.1/24
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
344 packets output, 42752 bytes, 0 underruns
0 output errors, 0 collisions, 6 interface resets
0 unknown protocol drops
```

```
R2
0 output errors, 0 collisions, 6 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
R2#
R2#
R2#show ip interface brief
Interface                IP-Address      OK? Method Status      Prot
ocol
Ethernet0/0              172.16.11.1     YES NVRAM    up          up
Ethernet0/1              unassigned      YES NVRAM    up          up
Ethernet0/1.1            192.168.1.1     YES NVRAM    up          up
Ethernet0/1.100          192.168.100.1   YES NVRAM    up          up
Ethernet0/1.200          192.168.200.1   YES NVRAM    up          up
Ethernet0/2              172.16.14.2     YES NVRAM    up          up
Ethernet0/3              10.10.10.1      YES NVRAM    up          up
R2#
R2#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
```



```
R2#
R2#show ip route
Codes: L - local, C - connected, S - static, R - RIP, H - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       + - replicated route, % - next hop override

Gateway of last resort is 172.16.14.1 to network 0.0.0.0

R*    0.0.0.0/0 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
      10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C      10.10.10.0/24 is directly connected, Ethernet0/3
L      10.10.10.1/32 is directly connected, Ethernet0/3
      172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
C      172.16.11.0/30 is directly connected, Ethernet0/0
L      172.16.11.1/32 is directly connected, Ethernet0/0
C      172.16.14.0/30 is directly connected, Ethernet0/2
L      172.16.14.2/32 is directly connected, Ethernet0/2
R      172.16.16.0/24 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
      192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.1.0/24 is directly connected, Ethernet0/1.1
```

```

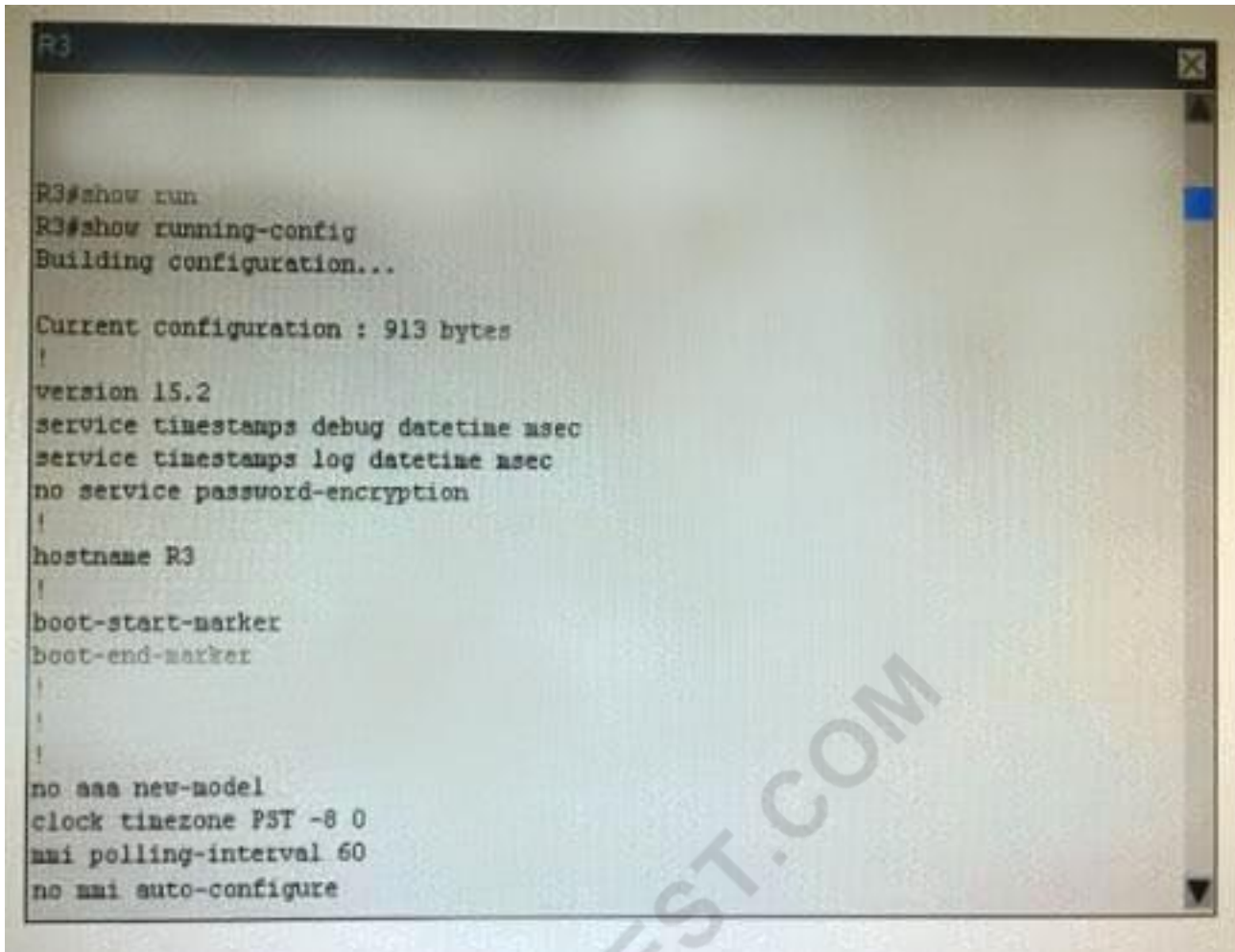
R2
o - ODR, P - periodic downloaded static route, H - MHRP, I - LISP
+ - replicated route, % - next hop override

Gateway of last resort is 172.16.14.1 to network 0.0.0.0

R*  0.0.0.0/0 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
    10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C    10.10.10.0/24 is directly connected, Ethernet0/3
L    10.10.10.1/32 is directly connected, Ethernet0/3
    172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
C    172.16.11.0/30 is directly connected, Ethernet0/0
L    172.16.11.1/32 is directly connected, Ethernet0/0
C    172.16.14.0/30 is directly connected, Ethernet0/2
L    172.16.14.2/32 is directly connected, Ethernet0/2
R    172.16.16.0/24 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
    192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.1.0/24 is directly connected, Ethernet0/1.1
L    192.168.1.1/32 is directly connected, Ethernet0/1.1
    192.168.100.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.100.0/24 is directly connected, Ethernet0/1.100
L    192.168.100.1/32 is directly connected, Ethernet0/1.100
    192.168.200.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.200.0/24 is directly connected, Ethernet0/1.200
L    192.168.200.1/32 is directly connected, Ethernet0/1.200
R2#

```





```
R3#show run
R3#show running-config
Building configuration...

Current configuration : 913 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
```





```
R3
interface Ethernet0/0
  description ***Link to LAN***
  ip address 10.10.12.1 255.255.255.0
!
interface Ethernet0/1
  description ***Link to R2***
  ip address 172.16.11.2 255.255.255.252
!
interface Ethernet0/2
  no ip address
  shutdown
!
interface Ethernet0/3
  no ip address
  shutdown
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
```

ACTUAL4TEST.COM

```

R3
control-plane
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
!
end
R3#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4300 (bia aabb.cc00.4300)
  Description: ***Link to LAN***
  Internet address is 10.10.12.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255

```

```

R3
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
 5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
 Received 0 broadcasts (0 IP multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
666 packets output, 71699 bytes, 0 underruns
  0 output errors, 0 collisions, 11 interface resets
  0 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier
  0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4310 (bia aabb.cc00.4310)
  Description: ***Link to R2***

```



```
R3
Hardware is AndP2, address is aabb.cc00.4310 (bia aabb.cc00.4310)
Description: ***Link to R2***
Internet address is 172.16.11.2/30
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:21, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  316 packets input, 74089 bytes, 0 no buffer
    Received 316 broadcasts (200 IP multicasts)
      0 runs, 0 giants, 0 throttles
      0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
      0 input packets with dribble condition detected
  669 packets output, 71888 bytes, 0 underruns
      0 output errors, 0 collisions, 1 interface resets
      0 unknown protocol drops
      0 babbles, 0 late collision, 0 deferred
      0 lost carrier, 0 no carrier
```

```
R3
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is administratively down, line protocol is down
Hardware is Am79C96, address is 8000.0000.0000 (bia 8000.0000.0000)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes): Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
    0 packets output, 0 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 unknown protocol drops
```

```
R3
0 unknown protocol drops
0 babblers, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
Hardware is AndP2, address is aabb.cc00.4330 (bia aabb.cc00.4330)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts (0 IP multicasts)
    0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
    0 packets output, 0 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
```

```
R3
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
R3#
R3#
R3#show ip interface brief
Interface                IP-Address      OK? Method Status      Prot
ocol
Ethernet0/0              10.10.12.1      YES NVRAM    up          up
Ethernet0/1              172.16.11.2     YES NVRAM    up          up
Ethernet0/2              unassigned      YES NVRAM    administratively down down
Ethernet0/3              unassigned      YES NVRAM    administratively down down
R3#
R3#
R3#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
```

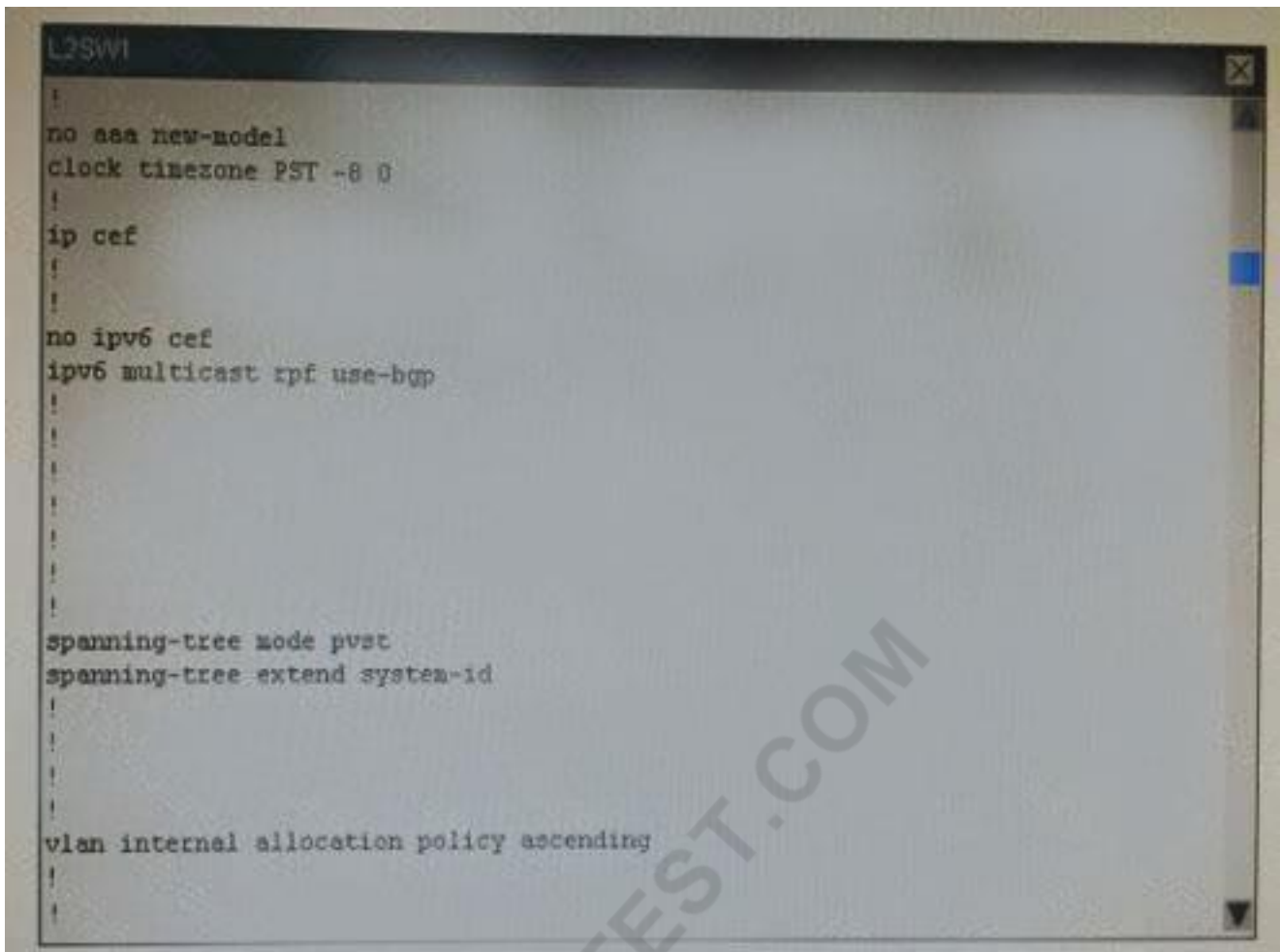


```
R3
Ethernet0/2          unassigned      YES NVRAM  administratively down down
Ethernet0/3          unassigned      YES NVRAM  administratively down down
R3#
R3#
R3#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - IGRP
       + - replicated route, % - next hop override

Gateway of last resort is not set

  10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.10.12.0/24 is directly connected, Ethernet0/0
L       10.10.12.1/32 is directly connected, Ethernet0/0
  172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.16.11.0/30 is directly connected, Ethernet0/1
L       172.16.11.2/32 is directly connected, Ethernet0/1
R3#
R3#
R3#
```





```
!
no aaa new-model
clock timezone PST -8 0
!
ip cef
!
!
no ipv6 cef
ipv6 multicast rpf use-bgp
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
!
vlan internal allocation policy ascending
!
!
```

```
L2SW1
L2SW1#show run
L2SW1#show running-config
Building configuration...

Current configuration : 1074 bytes
!
version 15.1
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
service compress-config
!
hostname L2SW1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
!
ip cef
!
```

```
L2SW1
interface Vlan1
  ip address 192.168.1.254 255.255.255.0
  !
ip default-gateway 192.168.1.1
!
no ip http server
!
!
!
!
control-plane
!
!
line con 0
  logging synchronous
line aux 0
line vty 0 4
  login
!
end
L2SW1#
L2SW1#
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
```

```
L2SW1
!
interface Ethernet0/0
description ***Link to R2***
switchport trunk encapsulation dot1q
switchport mode trunk
duplex auto
!
interface Ethernet0/1
description ***Link to Server1 segment***
switchport access vlan 100
switchport mode access
duplex auto
!
interface Ethernet0/2
description ***Link to Server2 Segment***
switchport access vlan 200
switchport mode access
duplex auto
!
interface Ethernet0/3
duplex auto
!
interface Vlan1
ip address 192.168.1.254 255.255.255.0
!
```

```

L2SW1
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4500 (bia aabb.cc00.4500)
  Description: ***Link to R2***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:07, output 00:00:00, output hang never
  Last clearing of "show interface" counters never
  Input queue: 12/2000/0/0 (size/max/drops/flushes): Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/0 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 1000 bits/sec, 2 packets/sec
    1447 packets input, 208877 bytes, 0 no buffer
    Received 139 broadcasts (0 multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
    13457 packets output, 919293 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets

```

```

L2SW1
    13457 packets output, 919293 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 unknown protocol drops
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
    0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4510 (bia aabb.cc00.4510)
  Description: ***Link to Server1 segment***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:07, output 00:00:01, output hang never
  Last clearing of "show interface" counters never
  Input queue: 5/2000/0/0 (size/max/drops/flushes): Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/0 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    755 packets input, 80219 bytes, 0 no buffer
    Received 123 broadcasts (0 multicasts)

```



```
L2SW1
755 packets input, 80219 bytes, 0 no buffer
Received 123 broadcasts (0 multicasts)
0 runs, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
3867 packets output, 268544 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 babble, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up (connected)
Hardware is AndP2, address is aabb.cc00.4520 (bia aabb.cc00.4520)
Description: ***Link to Server2 Segment***
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Auto-duplex, Auto-speed, media type is unknown
input flow-control is off, output flow-control is unsupported
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:07, output 00:00:01, output hang never
Last clearing of "show interface" counters never
Input queue: 5/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
```

```
LIJSM
Queuing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  758 packets input, 81010 bytes, 0 no buffer
  Received 125 broadcasts (0 multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
 3867 packets output, 268544 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier
  0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up (connected)
  Hardware is AndP2, address is aabb.cc00.4530 (bia aabb.cc00.4530)
  MTU 1500 bytes, BU 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input never, output never, output hang never
```

```
L2SW1
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
  Received 0 broadcasts (0 multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
 3566 packets output, 252186 bytes, 0 underruns
  0 output errors, 0 collisions, 55 interface resets
  0 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier
  0 output buffer failures, 0 output buffers swapped out
Vlan1 is up, line protocol is up
  Hardware is Ethernet SVI, address is aabb.cc80.4500 (bia aabb.cc80.4500)
  Internet address is 192.168.1.254/24
  MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive not supported
```

```
L2SW1
Keepalive not supported
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:12, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  235 packets input, 42480 bytes, 0 no buffer
    Received 235 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    11 packets output, 830 bytes, 0 underruns
    0 output errors, 0 interface resets
    0 unknown protocol drops
    0 output buffer failures, 0 output buffers swapped out
L2SW1#
L2SW1#
L2SW1#show ip interface brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
Ethernet0/0	unassigned	YES	unset	up	up
Ethernet0/1	unassigned	YES	unset	up	up
Ethernet0/2	unassigned	YES	unset	up	up
Ethernet0/3	unassigned	YES	unset	up	up



```

L2SW1
0 output buffer failures, 0 output buffers swapped out
L2SW1#
L2SW1#
L2SW1#show ip interface brief
Interface                IP-Address      OK? Method Status      Protocol
Ethernet0/0              unassigned      YES unset  up          up
Ethernet0/1              unassigned      YES unset  up          up
Ethernet0/2              unassigned      YES unset  up          up
Ethernet0/3              unassigned      YES unset  up          up
Vlan1                    192.168.1.254   YES NVRAM  up          up
L2SW1#
L2SW1#
L2SW1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - IIS
       + - replicated route, % - next hop override

Gateway of last resort is not set

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks

```

```

L2SW1
Ethernet0/0              unassigned      YES unset  up          up
Ethernet0/1              unassigned      YES unset  up          up
Ethernet0/2              unassigned      YES unset  up          up
Ethernet0/3              unassigned      YES unset  up          up
Vlan1                    192.168.1.254   YES NVRAM  up          up
L2SW1#
L2SW1#
L2SW1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - IIS
       + - replicated route, % - next hop override

Gateway of last resort is not set

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.1.0/24 is directly connected, Vlan1
L      192.168.1.254/32 is directly connected, Vlan1
L2SW1#
L2SW1#
L2SW1#

```



Users in the main office complain that they are unable to reach internet sites.

You observe that internet traffic that is destined towards ISP router is not forwarded correctly on Router R1.

What could be an issue?

Ping to Internet server shows the following results from R1:

R1#ping 209.165.200.225

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 209.165.200.225. timeout is 2 seconds:

Success rate is 0 percent (0/5)

- A.** The next hop router address for the default route is incorrectly configured.
- B.** Default route pointing to ISP router is configured with AD of 255.
- C.** Default route pointing to ISP router is not configured on Router R1
- D.** Router R1 configured as DHCP client is not receiving default route via DHCP from ISP router.

**Answer:** C

Explanation

(Default Static Route will fix the problem to connect to ISP router)

Explanation/show command:

```
172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
R      172.16.11.0/30 [ 120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
C      172.16.14.0/30 is directly connected, Ethernet0/2
L      172.16.14.1/32 is directly connected, Ethernet0/2
C      172.16.16.0/24 is directly connected, Ethernet0/1
L      172.16.16.1/32 is directly connected, Ethernet0/1
R      192.168.1.0/24 [ 120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R      192.168.100.0/24 [ 120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R      192.168.200.0/24 [ 120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
209.165.201.0/24 is variably subnetted, 2 subnets, 2 masks
C      209.165.201.0/27 is directly connected, Ethernet0/0
L      209.165.201.1/32 is directly connected, Ethernet0/0
R1#
```

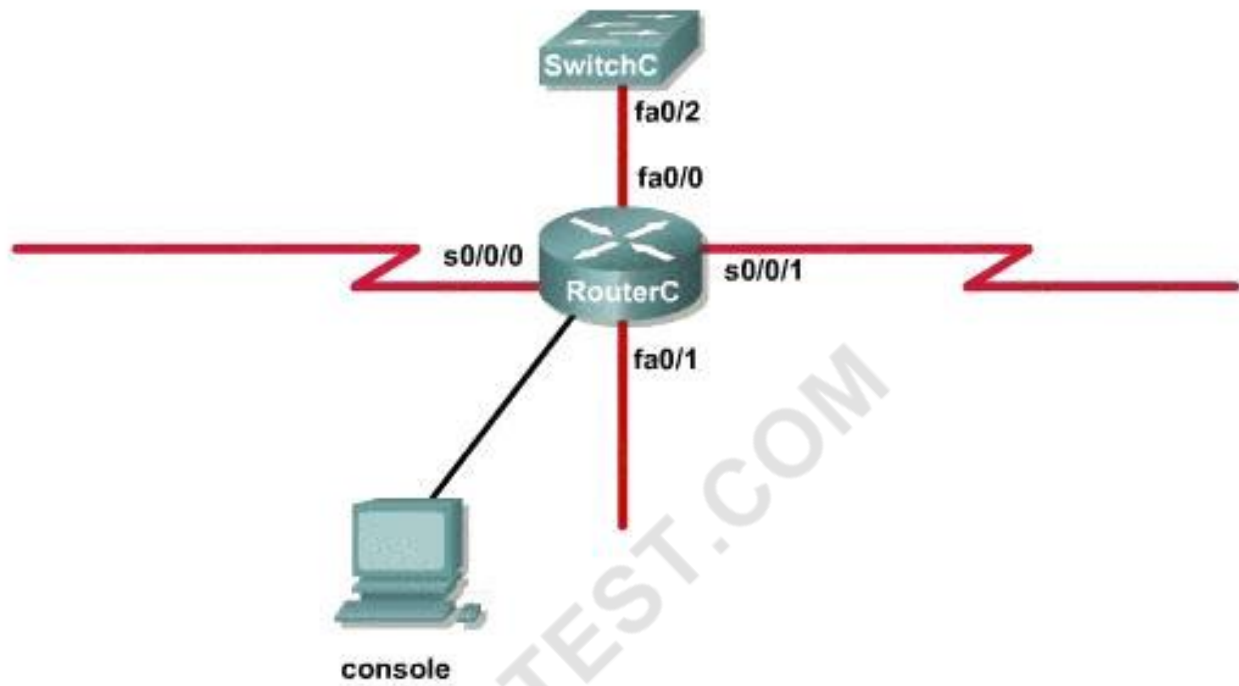
```
R1
interface Ethernet0/2
description ***Link to R2***
ip address 172.16.14.1 255.255.255.252
ip nat inside
ip virtual-reassembly in
!
interface Ethernet0/3
no ip address
shutdown
!
router rip
version 2
network 172.16.0.0
default-information originate
no auto-summary
!
ip forward-protocol nd
!
no ip http server
no ip http secure-server
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 10.10.10.0 255.255.255.0 172.16.14.2 200
```

**NO.414** An administrator is trying to ping and telnet from SwitchC to RouterC with the results shown below.

```
SwitchC>
SwitchC> ping 10.4.4.3
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.4.4.3, timeout is 2 seconds:
U.U.U
Success rate is 0 percent (0/5)
SwitchC>
SwitchC> telnet 10.4.4.3
Trying 10.4.4.3 ...
% Destination unreachable; gateway or host down
SwitchC>
```

Click the console connected to RouterC and issue the appropriate commands to answer the questions.

## Topology



RouterC

Press RETURN to get started!  
RouterC>

<output omitted>

```
interface Loopback1
 ip address 172.16.4.1.255.255.255.0
!
interface Loopback2
 ip address 10.145.145.1 255.255.255.0
 ipv6 address 2001:410:2:3::/64 eui-64
!
interface FastEthernet0/0
 ip address 10.4.4.3.255.255.255.0
 ip access-group 106 in
 duplex auto
 speed auto
!
interface FastEthernet0/1
 no ip address
 shutdown
 duplex auto
 speed auto
!
interface Serial0/0/0
 bandwidth 64
 no ip address
 ip access-group 102 out
 encapsulation frame-relay
 ip ospf authentication
 ip ospf authentication
 ip ospf authentication-key san-fran
!
interface Serial0/0/0.1 point-to-point
 ip address 10.140.3.2 255.255.255.0
 ip authentication mode eigrp 100 md5
 ip authentication key-chain eigrp 100 icndchain
 frame-relay interface-dlci 120
!
interface Serial0/0/1
 bandwidth 64
 ip address 10.45.45.1 255.255.255.0
 ip access-group 102 in
 ip authentication mode eigrp 100 md5
 ip authentication key-chain eigrp 100 icndchain
 ip ospf authentication
 ip ospf authentication-key san-fran
 ipv6 address 2001:410:2:10::/64 eui-64
!
```

```
router eigrp 100
  network 10.0.0.0
  network 172.16.0.0
  network 192.168.2.0
  not auto-summary
!
router ospf 100
  log-adjacency-changes
  network 10.4.4.3 0.0.0.0 area 0
  network 10.45.45.1 0.0.0.0 area 0
  network 10.140.3.2 0.0.0.0 area 0
  network 192.168.2.62 0.0.0.0 area 0
!
router rip
  version 2
  network 10.0.0.0
  network 172.16.0.0
!
ip default-gateway 10.1.1.2
!
!
ip http server
no ip http secure-server
!
```



```
access-list 102 permit tcp any any eq ftp
access-list 102 permit tcp any any eq ftp-data
access-list 102 deny tcp any any eq telnet
access-list 102 deny icmp any any echo-reply
access-list 102 permit ip any any

access-list 104 permit tcp any any eq ftp
access-list 104 permit tcp any any eq ftp-data
access-list 104 deny tcp any any eq telnet
access-list 104 permit icmp any any echo
access-list 104 deny icmp any any echo-reply
access-list 104 permit ip any any

access-list 106 permit tcp any any eq ftp
access-list 106 permit tcp any any ftp-data
access-list 106 deny tcp any any eq telnet
access-list 106 permit icmp any any echo-reply
access-list 110 permit udp any any eq domain
access-list 110 permit udp any eq domain any
access-list 110 permit tcp any any eq domain
access-list 110 permit tcp any eq domain any
access-list 110 permit tcp any any

access-list 114 permit ip 10.4.4.0.0.0.0.255 any

access-list 115 permit ip 0.0.0.0 255.255.255.0 any

access-list 122 deny tcp any any
access-list 122 deny imp any any echo-reply
access-list 122 permit ip any any
!
```

<output omitted>

What would be the effect of issuing the command `ip access-group 115 in` on the `s0/0/1` interface?

- A. No host could connect to RouterC through `s0/0/1`.
- B. Telnet and ping would work but routing updates would fail.

- C. FTP, FTP-DATA, echo, and www would work but telnet would fail.
- D. Only traffic from the 10.4.4.0 network would pass through the interface.

**Answer:** A

Explanation

First let's see what was configured on interface S0/0/1:

```
interface Serial0/0/1
 bandwidth 64
 ip address 10.45.45.1 255.255.255.0
 ip access-group 102 in
```

**NO.415** Which two addresses are defined as private IP addresses? (Choose two)

- A. 172.31.255.100
- B. 12.17.1.20
- C. 172.15.2.250
- D. 10.172.76.200
- E. 192.109.32.10

**Answer:** A D

**NO.416** Which two statements about the spanning-tree bridge ID are true? (Choose two.)

- A. It is composed of a 4-bit bridge priority and a 12-bit system ID extension.
- B. The bridge ID is transmitted in the IP header to elect the root bridge.
- C. The system ID extension is a value between 1 and 4095.
- D. It is composed of an 8-bit bridge priority and a 16-bit system ID extension.
- E. The bridge priority must be incremented in blocks of 4096.

**Answer:** A E

**NO.417** which statement about snmpv2 is true ?

- A. it requires password at least eight characters in length
- B. it requires passwords to be encrypted
- C. its privacy algorithms use md5 encryption by default
- D. its authentic and privacy algorithms are enabled without default values

**Answer:** D

**NO.418** which two options are the best reasons to use an ipv4 private ip space ?

- A. to manage routing overhead
- B. to implement nat
- C. to connect applications
- D. to enable intra-enterprise communication
- E. to conserve global address space

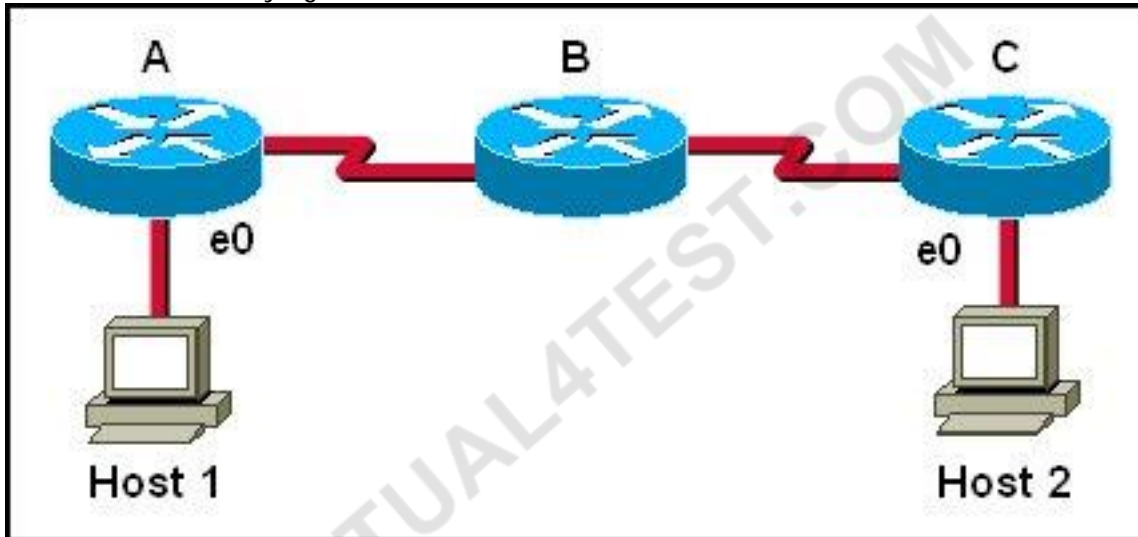
**Answer:** A E

**NO.419** Which sequence begins a unique local IPv6 address in binary notation?

- A. 1111110
- B. 1111111
- C. 00000000
- D. 1111100

**Answer:** A

**NO.420** Host 1 is trying to communicate with Host 2. The e0 interface on Router C is down.



Which of the following are true? (Choose two.)

- A. Router C will use ICMP to inform Host 1 that Host 2 cannot be reached.
- B. Router C will use ICMP to inform Router B that Host 2 cannot be reached.
- C. Router C will use ICMP to inform Host 1, Router A, and Router B that Host 2 cannot be reached.
- D. Router C will send a Destination Unreachable message type.
- E. Router C will send a Router Selection message type.
- F. Router C will send a Source Quench message type.

**Answer:** A D

Explanation

Host 1 is trying to communicate with Host 2. The e0 interface on Router C is down. Router C will send ICMP packets to inform Host 1 that Host 2 cannot be reached.

**NO.421** Which two statements about the data field in an Ethernet frame are true? (Choose two)

- A. It includes 6 bytes of the source address and 6 bytes of the destination address
- B. The frame is marked as a jumbo frame if the data field is more than 512 bytes in length
- C. It can be padded so that the frame meets the minimum length requirement
- D. It contains a 32-bit CRC.
- E. The frame is marked as a runt if data field is less than 64 bytes in length

**Answer:** D E

**NO.422** Drag and drop the protocols from the left onto the correct IP traffic types on the right.

DHCP
HTTP
SMTP
SNMP
Telnet
VoIP

TCP

UDP

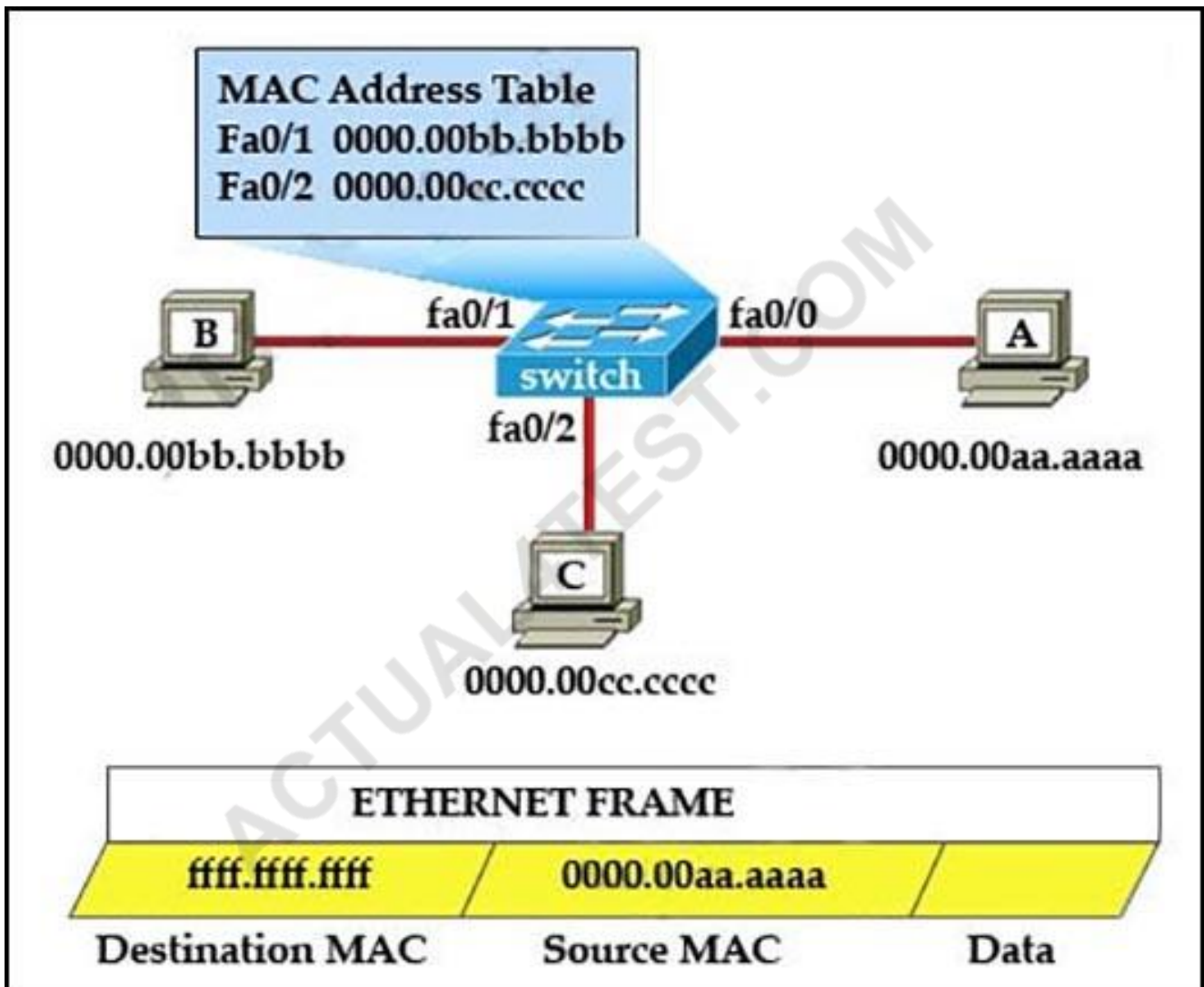
**Answer:**

DHCP
HTTP
SMTP
SNMP
Telnet
VoIP

TCP
HTTP
SMTP
Telnet

UDP
DHCP
SNMP
VoIP

**NO.423** Refer to the exhibit.



The MAC address table is shown in its entirety. The Ethernet frame that is shown arrives at the switch. What two operations will the switch perform when it receives this frame? (Choose two.)

- A. The switch will not forward a frame with this destination MAC address.
- B. The frame will be forwarded out of all the ports on the switch.
- C. The MAC address of ffff.ffff.ffff will be added to the MAC address table.
- D. The frame will be forwarded out of all the active switch ports except for port fa0/0.
- E. The MAC address of 0000.00aa.aaaa will be added to the MAC Address Table.
- F. The frame will be forwarded out of fa0/0 and fa0/1 only.

**Answer:** D E

**NO.424** Which configuration gracefully brings down the line protocol status of a GRE tunnel interface if the tunnel destination becomes unreachable?

- A. Configure tunnel interface keepalives.
- B. Configure a static route for the tunnel
- C. Replace the tunnel with a loopback interface
- D. Configure an IGP such as OSPF on the tunnel

**Answer:** C



**NO.425** Which function allows EIGRP peers to receive notice of implementing topology changes?

- A. successors
- B. advertised changes
- C. goodbye messages
- D. expiration of the hold timer

**Answer:** C

**NO.426** which two statements about data vlans on access ports are true ?

- A. they can be configured as trunk ports
- B. 802.1Q encapsulation must be configured on the interface
- C. Exactly one vlan can be configured on the interface
- D. Two or more vlans can be configured on the interface
- E. They can be configured as host ports

**Answer:** C E

**NO.427** Drag and drop the IPv6 IP addresses from the left onto the correct IPv6 address types on the right

::	modified EUI-64
2020:10DB:0:0:85AB:800:52:7348	multicast
D8:FC:93:FF:FE:D8:05:0A	unicast
FF01::1	unspecified

**Answer:**

::	2020:10DB:0:0:85AB:800:52:7348
2020:10DB:0:0:85AB:800:52:7348	FF01::1
D8:FC:93:FF:FE:D8:05:0A	D8:FC:93:FF:FE:D8:05:0A
FF01::1	::

Explanation

FF01::1 = multicast

= unspecified

2020:10DB:0:0:85AB:800:52:7348 = Modified EUI-64

D8:FC:93:FF:FE:D8:05:0A = unicast

**NO.428** You apply a new inbound access list to routers, blocking UDP packets to the HSRP group. Which two effects does this action have on HSRP group process? (Choose two )

- A. HSRP redundancy works as expected.
- B. HSRP redundancy fails
- C. The active router immediately becomes the standby router

- D. Both the active and standby routers become active
- E. The routers in the group generate duplicate IP address warnings

**Answer:** B D

**NO.429** Which two statements are true regarding ICMP packets? (Choose two.)

- A. They are encapsulated within IP datagrams.
- B. They guarantee datagram delivery.
- C. TRACERT uses ICMP packets.
- D. They acknowledge receipt of TCP segments.
- E. They are encapsulated within UDP datagrams.

**Answer:** A C

**NO.430** Refer to the exhibit.

```

R1#show ip eigrp topology
EIGRP-IPv4 Topology Table for AS(777)/ID(10.111.253.216)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - reply Status, s - sia Status

P 10.111.9.72/30, 1 successors, FD is 642560
   via Connected, GigabitEthernet0/0.1
P 10.42.88.128/25, 1 successors, FD is 28160
   via Connected, GigabitEthernet0/2.101
P 10.42.90.128/25, 1 successors, FD is 28160
   via Connected, GigabitEthernet0/2.701
P 10.42.91.0/24, 1 successors, FD is 28160
   via Connected, GigabitEthernet0/2.900
P 192.168.0.0/16, 1 successors, FD is 1732096, tag is 13979
   via Redistributed (1732096/0)
P 172.16.0.0/12, 1 successors, FD is 1732096, tag is 13979
   via Redistributed (1732096/0)
P 10.0.0.0/8, 1 successors, FD is 1732096, tag is 13979
   via Redistributed (1732096/0)
P 10.42.88.0/21, 1 successors, FD is 28160
   via Summary (28160/0), Null0
P 10.42.88.0/25, 1 successors, FD is 28160
   via Connected, GigabitEthernet0/2.100

```

Which two pieces of information can you determine from the EIGRP topology table? (Choose two)

- A. The EIGRP neighbor IP address is 10.111.253.216
- B. Each route has only one best path
- C. Route 10.42.91.0/24 has a tag of 28160
- D. Route 10.42.88.0/21 has an administrative distance of 28160
- E. The reported distance of 10.0.0.0/8 is 0.

**Answer:** D E

**NO.431** Which two descriptions of distance-vector routing protocols are true? (Choose two)

- A. Each router is aware of only its neighbor routers.
- B. Each router determines its own path to a destination.
- C. Each router views the network as if it were the root of its own topology.
- D. The hop count metric is used to determine the best path to a destination.
- E. Each router in the network shares a database of known routes.

**Answer:** D E

**NO.432** Which statements is true about Router on Stick?

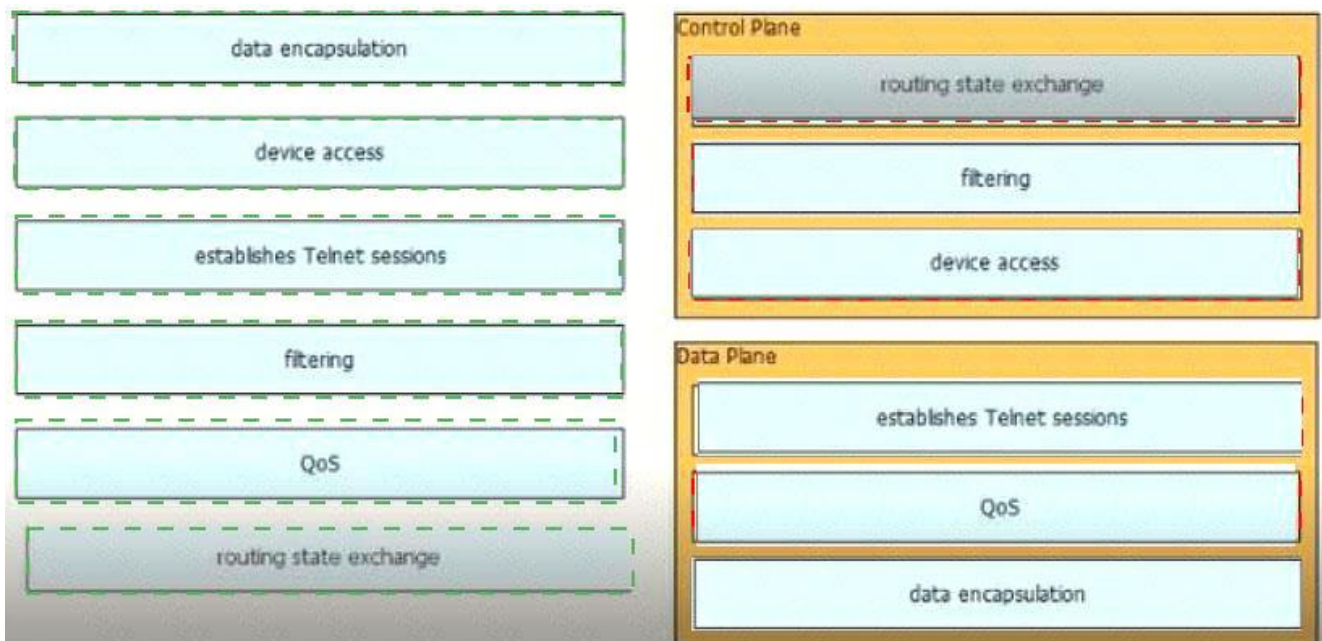
- A.** When a router have multiple subnets on a single physical link.
- B.** When a router have single subnet on multiple physical links.
- C** when a router have multiple interface on single physical links.
- C.** When a router have single interface on multiple physical links

**Answer:** A

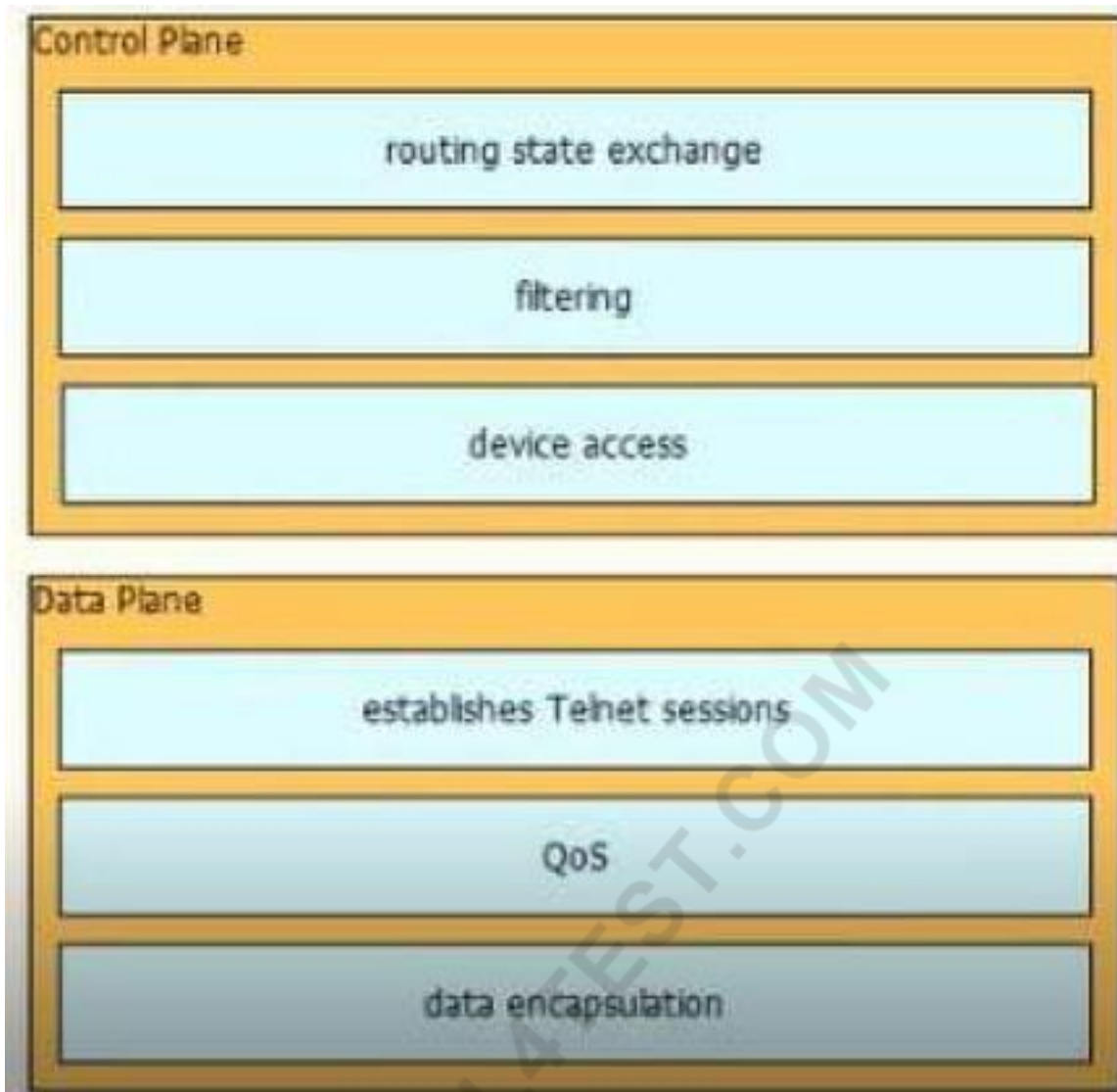
**NO.433** Drag and drop the networking features or functions from the left onto the planes on which they operate on the right .



**Answer:**



Explanation



**NO.434** Which function does traffic shaping perform?

- A. it buffers traffic without queuing it
- B. it queues traffic without buffering it
- C. it drops packets to control the output rate
- D. it buffers and queues excess packets

**Answer:** D

**NO.435** Scenario:

You work for a company that provides managed network services, and of your real estate clients running a small office is experiencing network issues, Troubleshoot the network issues.

Router R1 connects the main office to internet, and routers R2 and R3 are internal routers NAT is enabled on Router R1.

The routing protocol that is enable between routers R1, R2, and R3 is RIPv2.

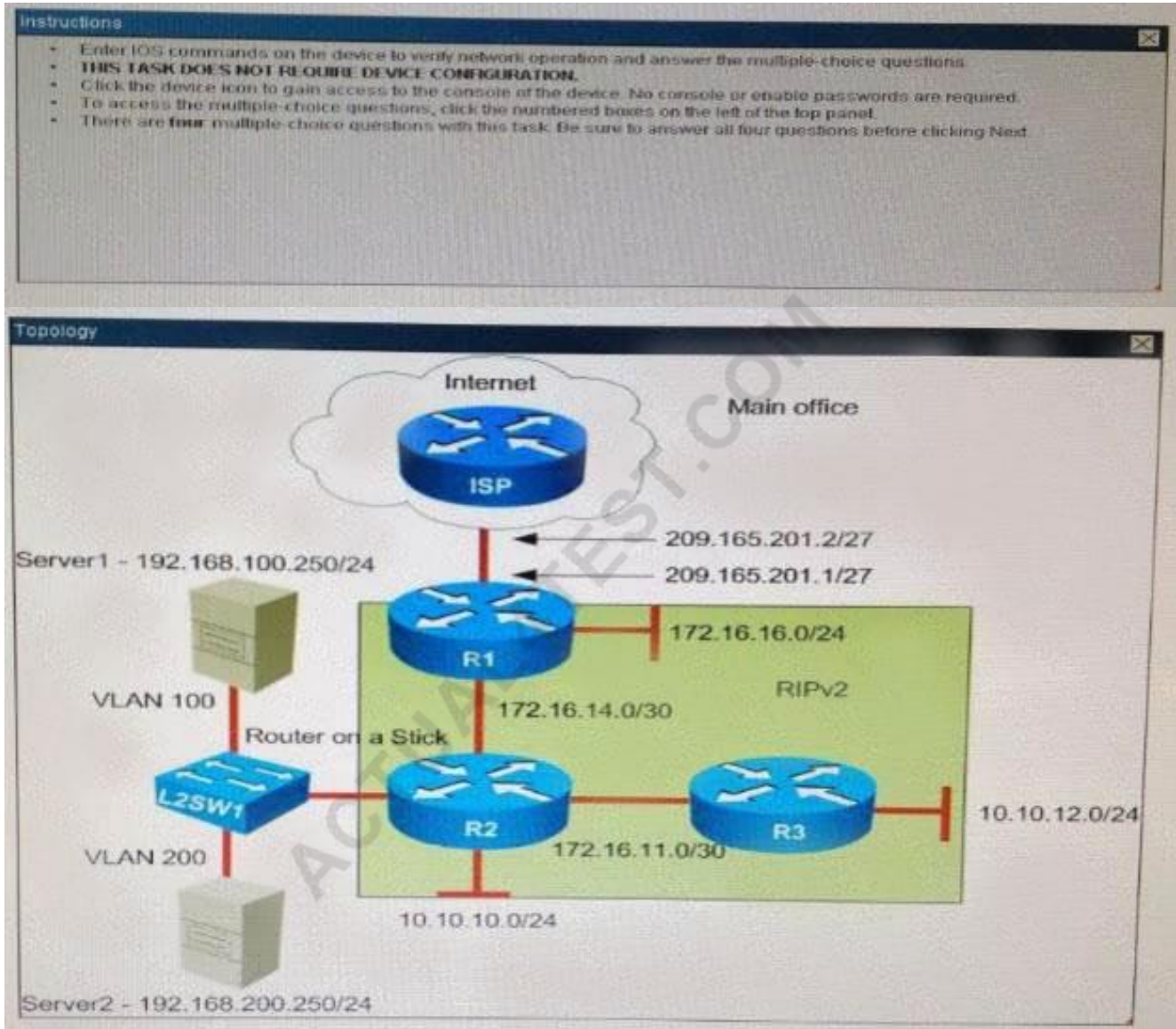
R1 sends default route into RIPv2 for internal routers to forward internet traffic to R1.

Server1 and Server2 are placed in VLAN 100 and 200 respectively, and dare still running router on stick configuration with router R2.

You have console access on R1, R2, R3, and L2SW1 devices. Use only show commands to



troubleshoot the issues.





```
R1
R1#show r
R1#show run
R1#show running-config
Building configuration...

Current configuration : 1438 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nmi polling-interval 60
no nmi auto-configure
```

```
R1
!
no aaa new-model
clock timezone PST -8 0
nmi polling-interval 60
no nmi auto-configure
no nmi pvc
nmi snap-timeout 180
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
```



```
R1
!
interface Ethernet0/0
  description ***Link to ISP***
  ip address 209.165.201.1 255.255.255.224
  ip nat outside
  ip virtual-reassembly in
!
interface Ethernet0/1
  description ***Link to LAN***
  ip address 172.16.16.1 255.255.255.0
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/2
  description ***Link to R2***
  ip address 172.16.14.1 255.255.255.252
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/3
  no ip address
  shutdown
!
router rip
  version 2
```

```
R1
!
router rip
  version 2
  network 172.16.0.0
  default-information originate
  no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 10.10.10.0 255.255.255.0 172.16.14.2 200
!
ip access-list standard LOCAL
  permit 10.0.0.0 0.255.255.255
  permit 172.16.0.0 0.0.255.255
  permit 192.168.0.0 0.0.255.255
!
!
!
control-plane
!
```

```
R1
!
line con 0
  logging synchronous
line aux 0
line vty 0 4
  login
  transport input all
!
!
end
R1#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AmdP2, address is 8abb.cc00.4103 (bia 8abb.cc00.4103)
  Description: ***Link to ISP***
  Internet address is 209.165.201.1/27
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:53, output 00:00:07, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
```



```

R1
Input queue: 0/75/0/0 (size/max/drops/flushes): Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  40 packets input, 11786 bytes, 0 no buffer
Received 39 broadcasts (0 IP multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
191 packets output, 20271 bytes, 0 underruns
0 output errors, 0 collisions, 1 interface resets
4 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4110 (bia aabb.cc00.4110)
  Description: ***Link to LAN***
  Internet address is 172.16.16.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00

```

```

R1
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes): Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
245 packets output, 30725 bytes, 0 underruns
0 output errors, 0 collisions, 4 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4120 (bia aabb.cc00.4120)
  Description: ***Link to R2***
  Internet address is 172.16.14.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,

```

```

R1
Internet address is 172.16.14.1/30
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:16, output 00:00:07, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  98 packets input, 20097 bytes, 0 no buffer
Received 97 broadcasts (54 IP multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
247 packets output, 25359 bytes, 0 underruns
  0 output errors, 0 collisions, 1 interface resets
  4 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier
  0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down

```

```

R1
  0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
Hardware is AndP2, address is aabb.cc00.4130 (bia aabb.cc00.4130)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier

```



```
R1
 0 habbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out
NVIO is up, line protocol is up
Hardware is NVI
Interface is unnumbered. Using address of Ethernet0/0 (209.165.201.1)
MTU 1514 bytes, BW 56 Kbit/sec, DLY 5000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation UNKNOWN, loopback not set
Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
 0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
 0 runs, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 packets output, 0 bytes, 0 underruns
 0 output errors, 0 collisions, 0 interface resets
 0 unknown protocol drops
 0 output buffer failures, 0 output buffers swapped out
R1#
R1#show ip interface brief
```

```

R1
R1#
R1#show ip interface brief
Interface                IP-Address      OK? Method Status      Prot
GigabitEthernet0/0       209.165.201.1   YES NVRAM    up           up
GigabitEthernet0/1       172.16.16.1     YES NVRAM    up           up
GigabitEthernet0/2       172.16.14.1     YES NVRAM    up           up
GigabitEthernet0/3       unassigned      YES NVRAM    administrativ down down
NVI0                     209.165.201.1   YES unset    up           up
R1#
R1#
R1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       + - replicated route, % - next hop override

Gateway of last resort is not set

10.0.0.0/24 is subnetted, 1 subnets
R    10.10.10.0 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2

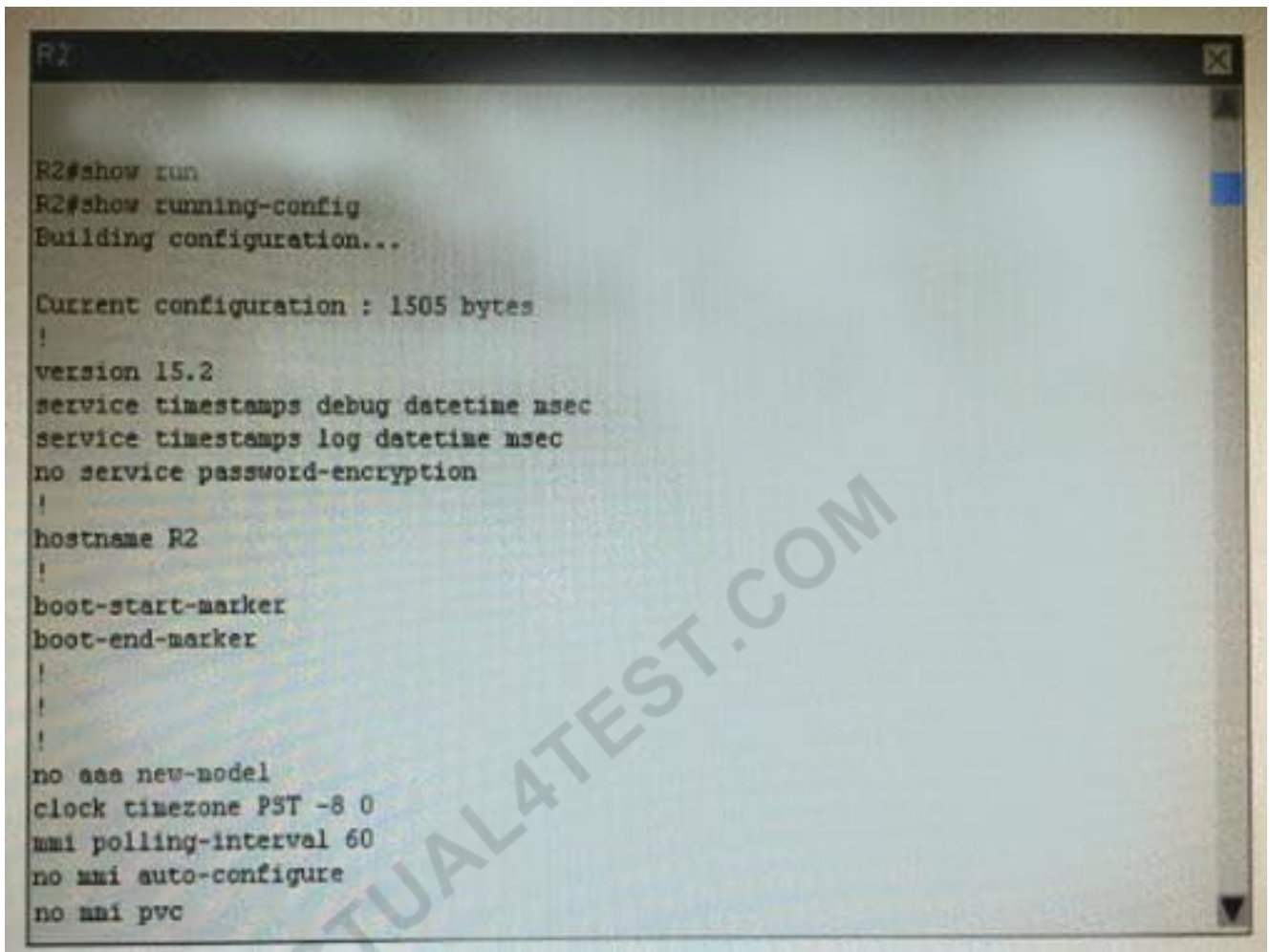
```

```
R1
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
+ - replicated route, % - next hop override

Gateway of last resort is not set

10.0.0.0/24 is subnetted, 1 subnets
R    10.10.10.0 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
R    172.16.11.0/30 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
C    172.16.14.0/30 is directly connected, Ethernet0/2
L    172.16.14.1/32 is directly connected, Ethernet0/2
C    172.16.16.0/24 is directly connected, Ethernet0/1
L    172.16.16.1/32 is directly connected, Ethernet0/1
R    192.168.1.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R    192.168.100.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R    192.168.200.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
209.165.201.0/24 is variably subnetted, 2 subnets, 2 masks
C    209.165.201.0/27 is directly connected, Ethernet0/0
L    209.165.201.1/32 is directly connected, Ethernet0/0
R1#
R1#
```

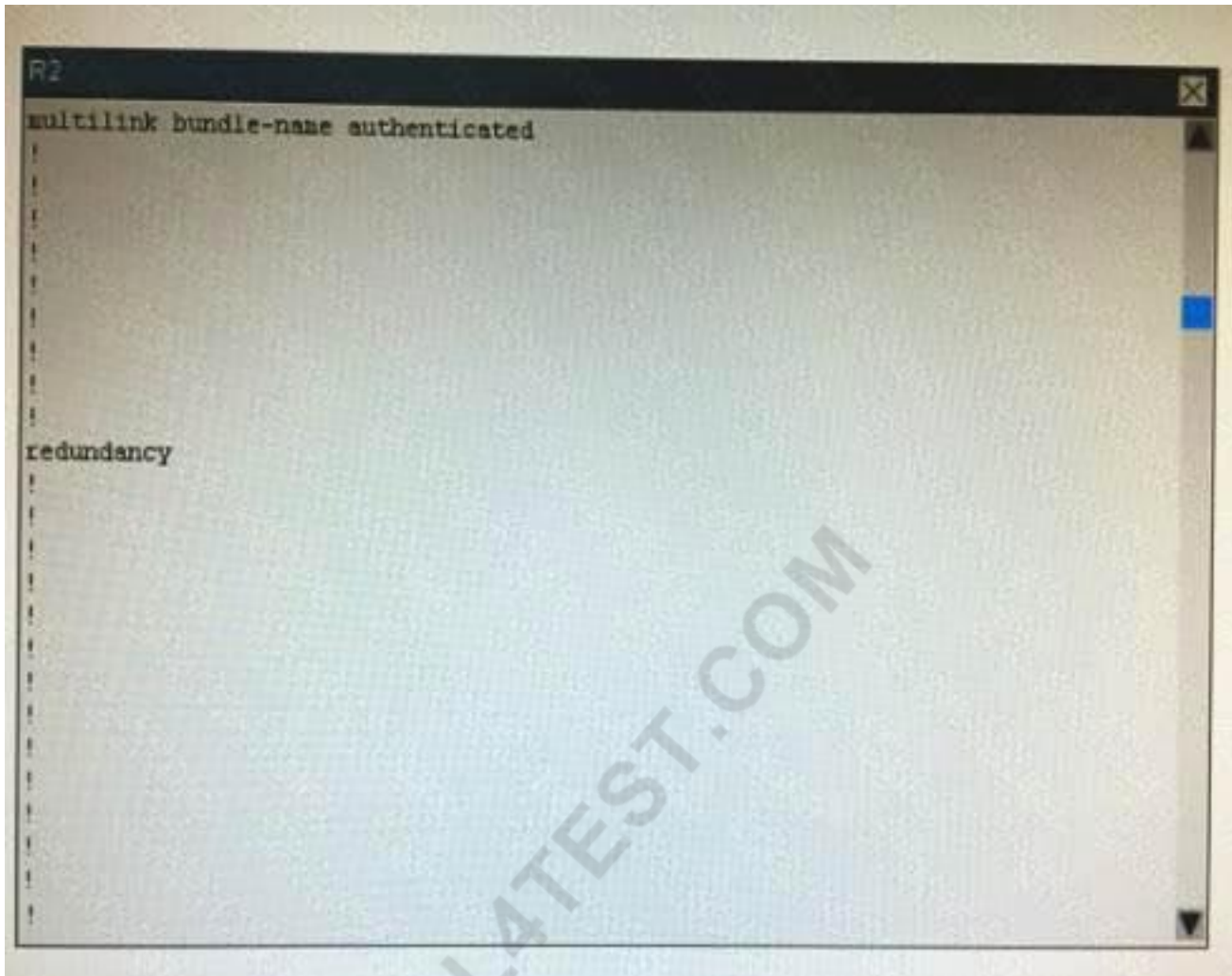




```
R2
R2#show run
R2#show running-config
Building configuration...

Current configuration : 1505 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
```

```
R2
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
```



```
R2
!
interface Ethernet0/0
  description ***Link to R3***
  ip address 172.16.11.1 255.255.255.252
!
interface Ethernet0/1
  no ip address
!
interface Ethernet0/1.1
  description ***Link to Management Segment***
  encapsulation dot1q 1 native
  ip address 192.168.1.1 255.255.255.0
!
interface Ethernet0/1.100
  description ***Link to Server1 Segment***
  encapsulation dot1q 200
  ip address 192.168.100.1 255.255.255.0
!
interface Ethernet0/1.200
  description ***Link to Server2 Segment***
  encapsulation dot1q 100
  ip address 192.168.200.1 255.255.255.0
!
interface Ethernet0/2
  description ***Link to R1***
```

```
R2
!
interface Ethernet0/2
  description ***Link to R1***
  ip address 172.16.14.2 255.255.255.252
!
interface Ethernet0/3
  description ***Link to LAN***
  ip address 10.10.10.1 255.255.255.0
!
router rip
  version 2
  network 10.0.0.0
  network 172.16.0.0
  network 192.168.1.0
  network 192.168.100.0
  network 192.168.200.0
  no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
```



```
R2
!
control-plane
!
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0 4
  login
  transport input all
!
!
end
R2#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4200 (bia aabb.cc00.4200)
  Description: ***Link to R3***
  Internet address is 172.16.11.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
```

```
R2
R2#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4200 (bia aabb.cc00.4200)
  Description: ***Link to R3***
  Internet address is 172.16.11.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:32, output 00:00:06, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    50 packets input, 15683 bytes, 0 no buffer
    Received 50 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
  343 packets output, 42566 bytes, 0 underruns
  0 output errors, 0 collisions, 1 interface resets
  2 unknown protocol drops
```

```
R2
2 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:00, output 00:00:08, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 1000 bits/sec, 2 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    4632 packets input, 308536 bytes, 0 no buffer
    Received 4421 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
    512 packets output, 73148 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
```

```
R2
512 packets output, 73148 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
73 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/1.1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Mangement Segment***
  Internet address is 192.168.1.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 1.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
  Last clearing of "show interface" counters never
Ethernet0/1.100 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Server1 Segment***
  Internet address is 192.168.100.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 200.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
```



```
R2
Keepalive set (10 sec)
Last clearing of "show interface" counters never
Ethernet0/1.100 is up, line protocol is up
Hardware is AndP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
Description: ***Link to Server1 Segment***
Internet address is 192.168.100.1/24
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation 802.1Q Virtual LAN, Vlan ID 200.
ARP type: ARPA, ARP Timeout 04:00:00
Keepalive set (10 sec)
Last clearing of "show interface" counters never
Ethernet0/1.200 is up, line protocol is up
Hardware is AndP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
Description: ***Link to Server2 Segment***
Internet address is 192.168.200.1/24
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation 802.1Q Virtual LAN, Vlan ID 100.
ARP type: ARPA, ARP Timeout 04:00:00
Keepalive set (10 sec)
Last clearing of "show interface" counters never
Ethernet0/2 is up, line protocol is up
Hardware is AndP2, address is aabb.cc00.4220 (bia aabb.cc00.4220)
Description: ***Link to R1***
```



```
R2
Description: ***Link to R1***
Internet address is 172.16.14.2/30
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:02, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  128 packets input, 21994 bytes, 0 no buffer
    Received 127 broadcasts (77 IP multicasts)
      0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
  345 packets output, 39952 bytes, 0 underruns
    0 output errors, 0 collisions, 1 interface resets
    0 unknown protocol drops
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
    0 output buffer failures, 0 output buffers swapped out
```

```
R2
0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up
Hardware is Am2P2, address is aabb.cc00.4230 (bia aabb.cc00.4230)
Description: ***Link to LAN***
Internet address is 10.10.10.1/24
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts (0 IP multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
344 packets output, 42752 bytes, 0 underruns
0 output errors, 0 collisions, 6 interface resets
0 unknown protocol drops
```

```

R2
0 output errors, 0 collisions, 6 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
R2#
R2#
R2#show ip interface brief
Interface                IP-Address      OK? Method Status      Prot
ocol
Ethernet0/0              172.16.11.1     YES NVRAM    up          up
Ethernet0/1              unassigned      YES NVRAM    up          up
Ethernet0/1.1            192.168.1.1     YES NVRAM    up          up
Ethernet0/1.100          192.168.100.1   YES NVRAM    up          up
Ethernet0/1.200          192.168.200.1   YES NVRAM    up          up
Ethernet0/2              172.16.14.2     YES NVRAM    up          up
Ethernet0/3              10.10.10.1      YES NVRAM    up          up
R2#
R2#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route

```



```
R2
R2#
R2#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       + - replicated route, % - next hop override

Gateway of last resort is 172.16.14.1 to network 0.0.0.0

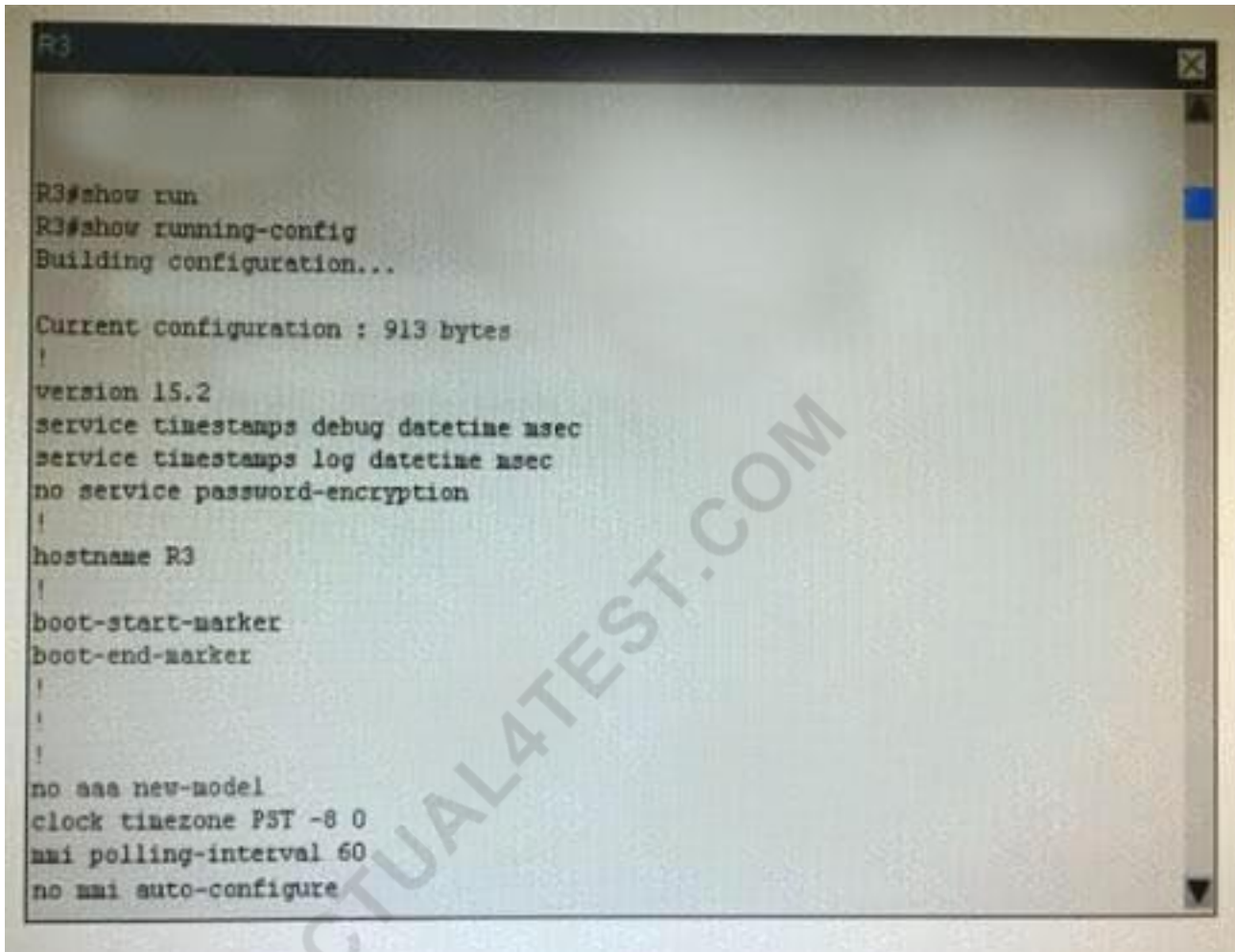
R*    0.0.0.0/0 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
      10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C      10.10.10.0/24 is directly connected, Ethernet0/3
L      10.10.10.1/32 is directly connected, Ethernet0/3
      172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
C      172.16.11.0/30 is directly connected, Ethernet0/0
L      172.16.11.1/32 is directly connected, Ethernet0/0
C      172.16.14.0/30 is directly connected, Ethernet0/2
L      172.16.14.2/32 is directly connected, Ethernet0/2
R      172.16.16.0/24 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
      192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.1.0/24 is directly connected, Ethernet0/1.1
```

```
R2
o - ODR, P - periodic downloaded static route, H - MHRP, I - LISP
+ - replicated route, % - next hop override

Gateway of last resort is 172.16.14.1 to network 0.0.0.0

R*  0.0.0.0/0 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
    10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C    10.10.10.0/24 is directly connected, Ethernet0/3
L    10.10.10.1/32 is directly connected, Ethernet0/3
    172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
C    172.16.11.0/30 is directly connected, Ethernet0/0
L    172.16.11.1/32 is directly connected, Ethernet0/0
C    172.16.14.0/30 is directly connected, Ethernet0/2
L    172.16.14.2/32 is directly connected, Ethernet0/2
R    172.16.16.0/24 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
    192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.1.0/24 is directly connected, Ethernet0/1.1
L    192.168.1.1/32 is directly connected, Ethernet0/1.1
    192.168.100.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.100.0/24 is directly connected, Ethernet0/1.100
L    192.168.100.1/32 is directly connected, Ethernet0/1.100
    192.168.200.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.200.0/24 is directly connected, Ethernet0/1.200
L    192.168.200.1/32 is directly connected, Ethernet0/1.200
R2#
```

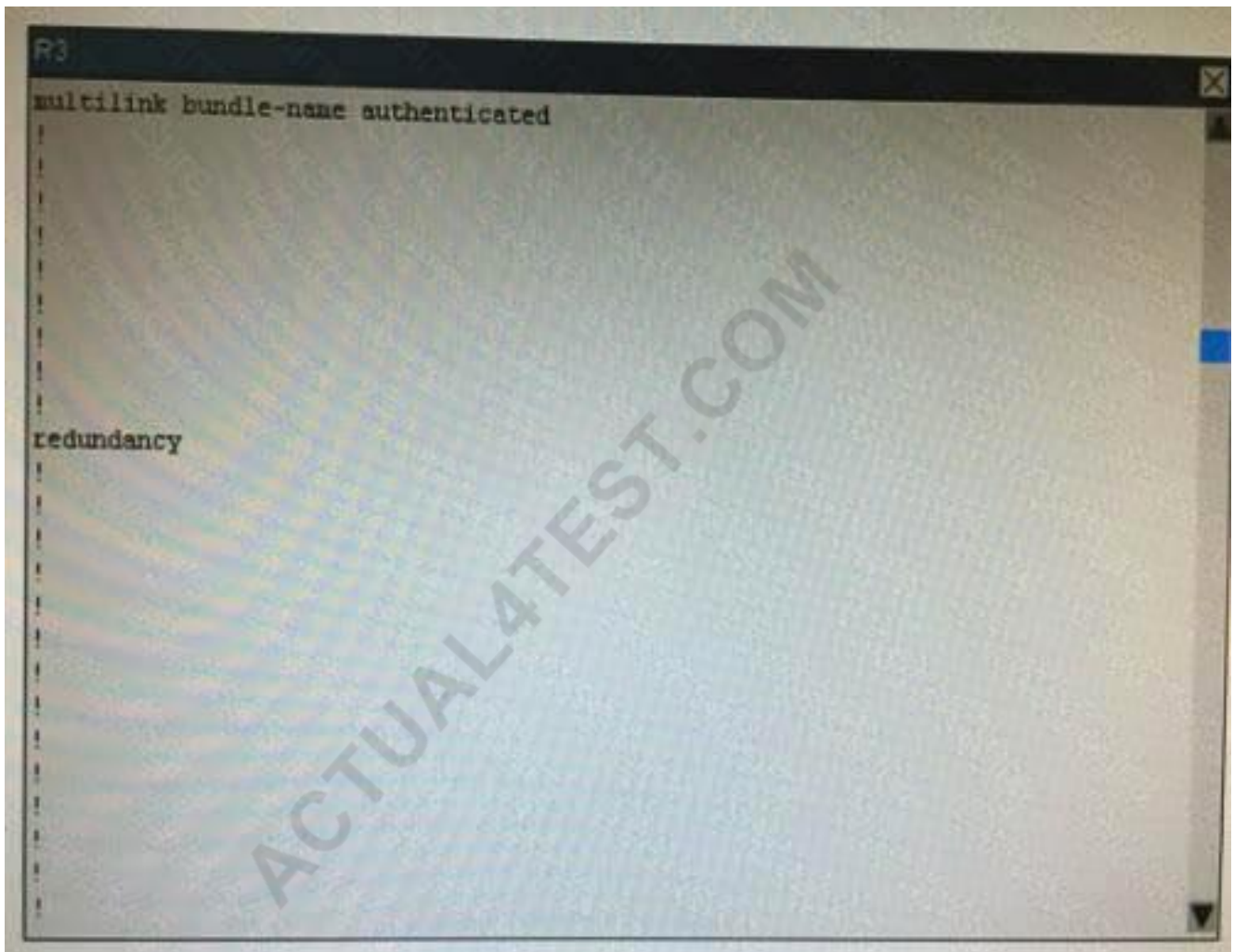




```
R3
R3#show run
R3#show running-config
Building configuration...

Current configuration : 913 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
```





```
R3
interface Ethernet0/0
  description ***Link to LAN***
  ip address 10.10.12.1 255.255.255.0
!
interface Ethernet0/1
  description ***Link to R2***
  ip address 172.16.11.2 255.255.255.252
!
interface Ethernet0/2
  no ip address
  shutdown
!
interface Ethernet0/3
  no ip address
  shutdown
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
```

```

R3
control-plane

line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all

end
R3#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4300 (bia aabb.cc00.4300)
  Description: ***Link to LAN***
  Internet address is 10.10.12.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255

```

```

R3
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
  Received 0 broadcasts (0 IP multicasts)
  0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
  666 packets output, 71699 bytes, 0 underruns
  0 output errors, 0 collisions, 11 interface resets
  0 unknown protocol drops
  0 babbles, 0 late collision, 0 deferred
  0 lost carrier, 0 no carrier
  0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AndP2, address is aabb.cc00.4310 (bia aabb.cc00.4310)
  Description: ***Link to R2***

```



```
R3
Hardware is AndP2, address is aabb.cc00.4310 (bia aabb.cc00.4310)
Description: ***Link to R2***
Internet address is 172.16.11.2/30
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:21, output 00:00:05, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  316 packets input, 74089 bytes, 0 no buffer
    Received 316 broadcasts (200 IP multicasts)
      0 runs, 0 giants, 0 throttles
      0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
      0 input packets with dribble condition detected
  669 packets output, 71888 bytes, 0 underruns
      0 output errors, 0 collisions, 1 interface resets
      0 unknown protocol drops
      0 babbles, 0 late collision, 0 deferred
      0 lost carrier, 0 no carrier
```

```
R3
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is administratively down, line protocol is down
Hardware is AndP2, address is aabb.cc00.4320 (bia aabb.cc00.4320)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
  0 runs, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 unknown protocol drops
```

```
R3
0 unknown protocol drops
0 babblers, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
Hardware is AndP2, address is aabb.cc00.4330 (bia aabb.cc00.4330)
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts (0 IP multicasts)
  0 runs, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
  0 input packets with dribble condition detected
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
```

```
R3#
0 input packets with dribble condition detected
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
R3#
R3#
R3#show ip interface brief
Interface                IP-Address      OK? Method Status      Prot
ocol
Ethernet0/0               10.10.12.1      YES NVRAM    up          up
Ethernet0/1               172.16.11.2     YES NVRAM    up          up
Ethernet0/2               unassigned      YES NVRAM    administratively down down
Ethernet0/3               unassigned      YES NVRAM    administratively down down
R3#
R3#
R3#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
```

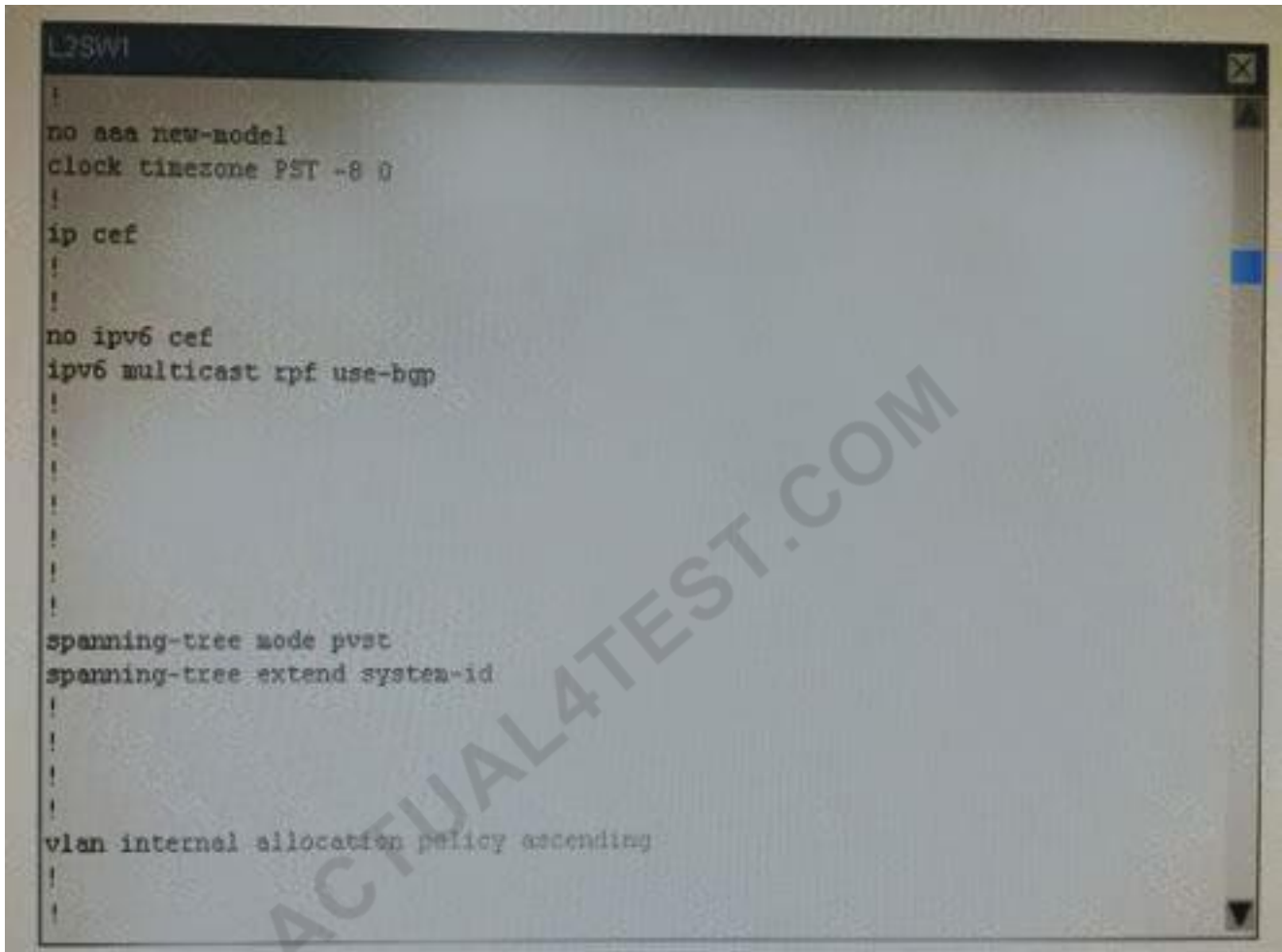


```
R3
Ethernet0/2          unassigned      YES NVRAM  administratively down down
Ethernet0/3          unassigned      YES NVRAM  administratively down down
R3#
R3#
R3#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       + - replicated route, % - next hop override

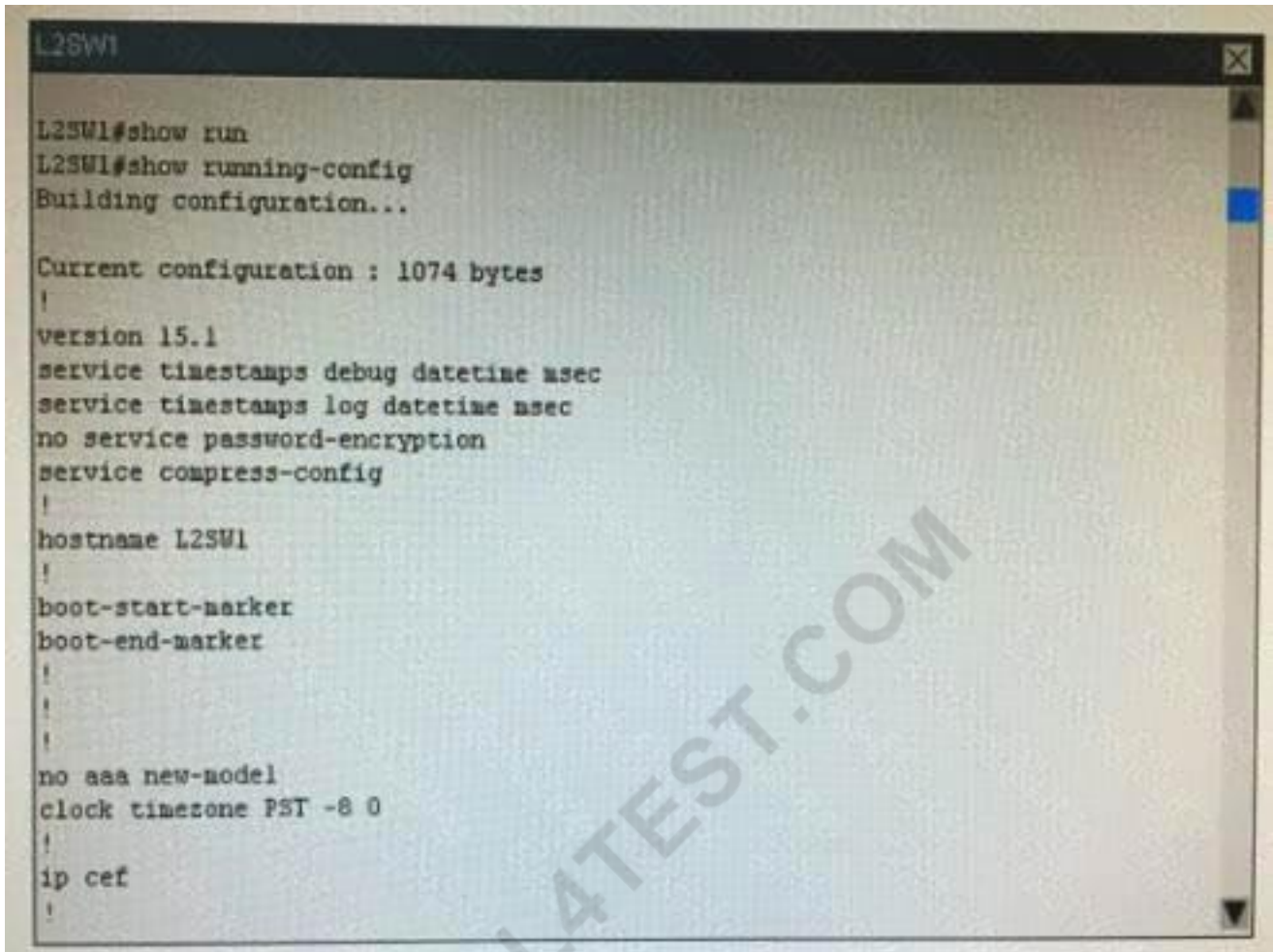
Gateway of last resort is not set

  10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.10.12.0/24 is directly connected, Ethernet0/0
L       10.10.12.1/32 is directly connected, Ethernet0/0
  172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.16.11.0/30 is directly connected, Ethernet0/1
L       172.16.11.2/32 is directly connected, Ethernet0/1
R3#
R3#
R3#
```





```
!
no aaa new-model
clock timezone PST -8 0
!
ip cef
!
no ipv6 cef
ipv6 multicast rpf use-bgp
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
!
vlan internal allocation policy ascending
!
!
```



A screenshot of a Cisco IOS terminal window titled 'L2SW1'. The terminal shows the following commands and output:

```
L2SW1#show run
L2SW1#show running-config
Building configuration...

Current configuration : 1074 bytes
!
version 15.1
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
service compress-config
!
hostname L2SW1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
!
ip cef
!
```

A large diagonal watermark 'ACTUAL4TEST.COM' is visible across the terminal output.

```
L2SW1
interface Vlan1
  ip address 192.168.1.254 255.255.255.0
  !
ip default-gateway 192.168.1.1
!
no ip http server
!
!
!
!
!
control-plane
!
!
line con 0
  logging synchronous
line aux 0
line vty 0 4
  login
!
end
L2SW1#
L2SW1#
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
```

```
L2SW1
!
interface Ethernet0/0
  description ***Link to R2***
  switchport trunk encapsulation dot1q
  switchport mode trunk
  duplex auto
!
interface Ethernet0/1
  description ***Link to Server1 segment***
  switchport access vlan 100
  switchport mode access
  duplex auto
!
interface Ethernet0/2
  description ***Link to Server2 Segment***
  switchport access vlan 200
  switchport mode access
  duplex auto
!
interface Ethernet0/3
  duplex auto
!
interface Vlan1
  ip address 192.168.1.254 255.255.255.0
!
```



```

L2SW1
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4500 (bia aabb.cc00.4500)
  Description: ***Link to R2***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:07, output 00:00:00, output hang never
  Last clearing of "show interface" counters never
  Input queue: 12/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/0 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 1000 bits/sec, 2 packets/sec
    1447 packets input, 208877 bytes, 0 no buffer
    Received 139 broadcasts (0 multicasts)
    0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
    13457 packets output, 919293 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets

```

```

L2SW1
    13457 packets output, 919293 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 unknown protocol drops
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
    0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4510 (bia aabb.cc00.4510)
  Description: ***Link to Server1 segment***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:07, output 00:00:01, output hang never
  Last clearing of "show interface" counters never
  Input queue: 5/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/0 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    755 packets input, 80219 bytes, 0 no buffer
    Received 123 broadcasts (0 multicasts)

```



```
L2SW1
755 packets input, 80219 bytes, 0 no buffer
Received 123 broadcasts (0 multicasts)
0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
3867 packets output, 268544 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 babble, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up (connected)
Hardware is AndP2, address is aabb.cc00.4520 (bia aabb.cc00.4520)
Description: ***Link to Server2 Segment***
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
Auto-duplex, Auto-speed, media type is unknown
input flow-control is off, output flow-control is unsupported
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:07, output 00:00:01, output hang never
Last clearing of "show interface" counters never
Input queue: 5/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
```

```
L2SW1
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
 758 packets input, 81010 bytes, 0 no buffer
Received 125 broadcasts (0 multicasts)
 0 runts, 0 giants, 0 throttles
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
 0 input packets with dribble condition detected
3867 packets output, 268544 bytes, 0 underruns
 0 output errors, 0 collisions, 0 interface resets
 0 unknown protocol drops
 0 babbles, 0 late collision, 0 deferred
 0 lost carrier, 0 no carrier
 0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up (connected)
  Hardware is AndP2, address is aabb.cc00.4530 (bia aabb.cc00.4530)
  MTU 1500 bytes, BU 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input never, output never, output hang never
```

```
L2SW1
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts (0 multicasts)
    0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    0 input packets with dribble condition detected
  3566 packets output, 252186 bytes, 0 underruns
    0 output errors, 0 collisions, 55 interface resets
    0 unknown protocol drops
    0 babbles, 0 late collision, 0 deferred
    0 lost carrier, 0 no carrier
    0 output buffer failures, 0 output buffers swapped out
Vlan1 is up, line protocol is up
  Hardware is Ethernet SVI, address is aabb.cc80.4500 (bia aabb.cc80.4500)
  Internet address is 192.168.1.254/24
  MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive not supported
```

```
L2SW1
Keepalive not supported
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:12, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  235 packets input, 42480 bytes, 0 no buffer
    Received 235 broadcasts (0 IP multicasts)
      0 runs, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    11 packets output, 830 bytes, 0 underruns
      0 output errors, 0 interface resets
    0 unknown protocol drops
    0 output buffer failures, 0 output buffers swapped out
L2SW1#
L2SW1#
L2SW1#show ip interface brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
Ethernet0/0	unassigned	YES	unset	up	up
Ethernet0/1	unassigned	YES	unset	up	up
Ethernet0/2	unassigned	YES	unset	up	up
Ethernet0/3	unassigned	YES	unset	up	up



```

L2SW1
0 output buffer failures, 0 output buffers swapped out
L2SW1#
L2SW1#
L2SW1#show ip interface brief
Interface                IP-Address      OK? Method Status      Protocol
Ethernet0/0              unassigned      YES unset  up          up
Ethernet0/1              unassigned      YES unset  up          up
Ethernet0/2              unassigned      YES unset  up          up
Ethernet0/3              unassigned      YES unset  up          up
Vlan1                    192.168.1.254   YES NVRAM  up          up
L2SW1#
L2SW1#
L2SW1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - IGRP
       + - replicated route, % - next hop override

Gateway of last resort is not set

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks

```

```

L2SW1
Ethernet0/0              unassigned      YES unset  up          up
Ethernet0/1              unassigned      YES unset  up          up
Ethernet0/2              unassigned      YES unset  up          up
Ethernet0/3              unassigned      YES unset  up          up
Vlan1                    192.168.1.254   YES NVRAM  up          up
L2SW1#
L2SW1#
L2SW1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - IGRP
       + - replicated route, % - next hop override

Gateway of last resort is not set

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.1.0/24 is directly connected, Vlan1
L    192.168.1.254/32 is directly connected, Vlan1
L2SW1#
L2SW1#
L2SW1#

```



Examine R2 configuration, the traffic that is destined to R3 LAN network sourced from Router R2 is forwarded to R1 instead R3. What could be an issue?

```
R2#traceroute 10.10.12.1 source 10.10.10.1
Type escape sequence to abort.
Tracing the route to 10.10.12.1
VRF info: (vrf in name/id, vrf out name/id)
 1 172.16.14.1 0 msec 1 msec 0 msec
 2 172.16.14.1 1H 1H *
```

- A. RIPv2 routing updates are suppressed between R2 and R3 using passive interface feature.
- B. RIPv2 enabled on R3, but R3 LAN network that is not advertised into RIPv2 domain.
- C. No issue that is identified; this behavior is normal since default route propagated into RIPv2 domain by Router R1.
- D. RIPv2 not enabled on R3.

**Answer:** D

Explanation

As per R3

```
R3
interface Ethernet0/3
 no ip address
 shutdown
!
ip forward-protocol nd
!
no ip http server
no ip http secure-server
!
!
!
!
control-plane
!
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
```

NO RIPv2 CONFIG!

**NO.436** If you change the weight and distance parameters on a device with an established bgp neighbor, which additional task must you perform to allow two devices to continue exchanging routes ?

- A. Change the weight and distance settings on the other device to match
- B. reset the gateway interface
- C. reset the BGP connections on the device
- D. Clear the IP routers on the device

**Answer:** C

**NO.437** Which IPV6 function serves the same purpose as ARP entry verification on an IPv4 network?

- A. interface ip address verification.
- B. MAC address table verification
- C. neighbor discovery verification
- D. routing table entry verification

**Answer:** C

**NO.438** You have configured the host computers on a campus LAN to receive their DHCP addresses from the local router to be able to browse their corporate site. Which statement about the network environment is true?

- A. It supports a DNS server for use by DHCP clients.
- B. Two host computers may be assigned the same IP address.
- C. The DNS server must be configured manually on each host.
- D. The domain name must be configured locally on each host computer.

**Answer:** A

**NO.439** Which symptom most commonly indicates that two connecting interfaces are configured with a duplex mismatch?

- A. interface with an up/down status
- B. collisions on the interface
- C. an interface with a down/down status
- D. the spanning-tree process shutting down

**Answer:** B

**NO.440** which layer of the osi model does PPP perform ?

- A. Layer 2
- B. Layer 3
- C. Layer 5
- D. Layer 1

**Answer:** A

**NO.441** Which two are features of IPv6? (Choose two.)

- A. anycast
- B. broadcast
- C. multicast
- D. podcast
- E. allcast

**Answer:** A C

Explanation

IPv6 addresses are classified by the primary addressing and routing methodologies common in networking:

unicast addressing, anycast addressing, and multicast addressing.

\* A unicast address identifies a single network interface. The Internet Protocol delivers packets sent to a unicast address to that specific interface.

\* An anycast address is assigned to a group of interfaces, usually belonging to different nodes. A packet sent to an anycast address is delivered to just one of the member interfaces, typically the nearest host, according to the routing protocol's definition of distance. Anycast addresses cannot be identified easily, they have the same format as unicast addresses, and differ only by their presence in the network at multiple points. Almost any unicast address can be employed as an anycast address.

\* A multicast address is also used by multiple hosts, which acquire the multicast address destination by participating in the multicast distribution protocol among the network routers. A packet that is sent to a multicast address is delivered to all interfaces that have joined the corresponding multicast group.

**NO.442** An administrator has connected devices to a switch and, for security reasons, wants the dynamically learned MAC addresses from the address table added to the running configuration. Which action must be taken to accomplish this?

- A. Use the `switchport port-security` command to allow MAC addresses to be added to the configuration.
- B. Enable port security and use the keyword `sticky`.
- C. Set the switchport mode to trunk and save the running configuration.
- D. Use the `switchport protected` command to have the MAC addresses added to the configuration.

**Answer:** B

**NO.443** Which two statements about UDP are true? (Choose two)

- A. It can transmit data at a rate higher than the path capacity
- B. It uses a three-way handshake to ensure that traffic is transmitted properly
- C. It guarantees packet delivery
- D. It includes protection against duplicate packets
- E. It can be used for multicast and broadcast traffic

**Answer:** A E

**NO.444** Which extended ping feature do you use to specify the path that the packet traverses?

- A. record
- B. verbose
- C. timestamp
- D. strict

**Answer:** D

**NO.445** Which two approaches are common when troubleshooting network issues? (Choose two)

- A. top-down

- B. divide and conquer
- C. round-robin
- D. layer-by-layer
- E. policing

**Answer:** A B

**NO.446** Which statement about spanning tree root bridge election is true ?

- A. every root bridge must reside on the root switch
- B. it is always performed automatically
- C. every VLAN must use the same root bridge
- D. Each VLAN must have its own root bridge

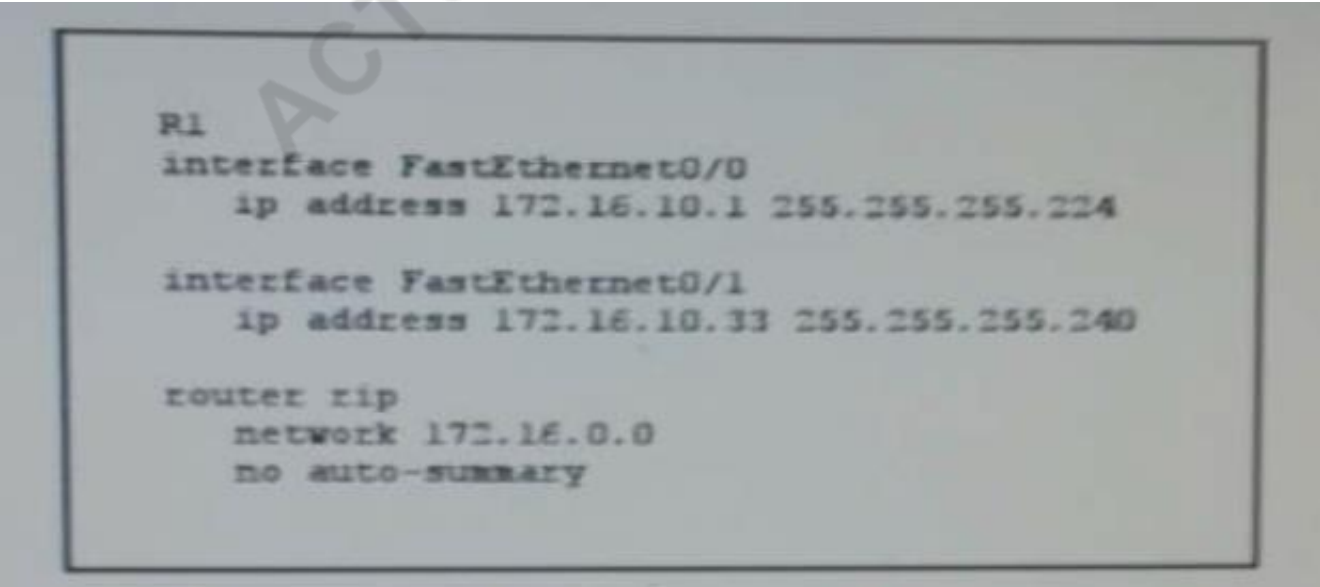
**Answer:** D

**NO.447** Which two statements about LLDP are true? (Choose two.)

- A. It enables systems to learn about one another over the data-link layer.
- B. It is a Cisco-proprietary technology.
- C. It is implemented in accordance with the 802.11a specification.
- D. It uses mandatory TLVs to discover the neighboring devices.
- E. It functions at Layer 2 and Layer 3.

**Answer:** A D

**NO.448** Exhibit:



```
R1
interface FastEthernet0/0
 ip address 172.16.10.1 255.255.255.224

interface FastEthernet0/1
 ip address 172.16.10.33 255.255.255.240

router rip
 network 172.16.0.0
 no auto-summary
```

After you apply the given configuration to R1, you determine that it is failing to advertise the 172.16.10.32/27 network which action is most likely to correct the problem ?

- A. enable passive interface
- B. enable manual summarization
- C. enable autosummarization
- D. enable RIPv2

**Answer:** D

**NO.449** Which technology provides chassis redundancy in a VSS environment?

- A. OBFD
- B. Stack Wise
- C. VRRP
- D. multichassis EtherChannels

**Answer:** D

**NO.450** What is the minimum Ethernet frame size?

- A. 32 bytes
- B. 64 bytes
- C. 1024 bytes
- D. 1500 bytes

**Answer:** B

**NO.451** Which two statements about IPv4 multicast traffic are true? (Choose two)

- A. It is bandwidth-intensive.
- B. It simultaneously delivers multiple streams of data
- C. It is the most efficient way to deliver data to multiple receivers
- D. It burdens the source host without affecting remote hosts.
- E. It uses a minimum amount of network bandwidth.

**Answer:** B C

**NO.452** Which command can you enter to configure an IPv6 static route?

- A. router(config)#ipv6 route FE80:0202::/32 serial 0/1 1
- B. router(config)#ipv6 route FE80:0202::/32 serial 0/1 201
- C. router(config)#ipv6 route ::/0 serial 0/1
- D. router(config)#ipv6 route static resolve default

**Answer:** B

**NO.453** What is the benefit of point-to-point leased line ?

- A. Low cost
- B. Full-mesh capability
- C. Flexibility of design
- D. Simply configuration

**Answer:** D

**NO.454** Which two commands can you use to troubleshoot DHCP issues? (Choose two)

- A. service dhcps
- B. ip helper-address
- C. clear ip route dhcp
- D. show ip route dhcp
- E. show ip name-server

**Answer:** A B



**NO.455** Which three options are the major components of a network virtualization architecture? (Choose three.)

- A. virtual network services
- B. authentication services
- C. network access control
- D. network resilience
- E. path isolation
- F. policy enforcement

**Answer:** A C E

**NO.456** Which two statements about wireless controllers are true? (Choose two)

- A. They provide Layer 2 services only
- B. They can be configured as virtual controllers to support autonomous access points
- C. They provide the configuration for managed access points on the network
- D. They are intended to directly manage a small number of access points
- E. At least one physical controller is needed to manage the virtual controllers of a network
- F. They can facilitate load balancing between access points

**Answer:** C F

**NO.457** Which option is the master redundancy scheme for stacked switches?

- A. 1:N
- B. 1:1
- C. N:1
- D. 1+N

**Answer:** A

**NO.458** which value must you configure on a device before EIGRP For IPV6 Can start Running ?

- A. Process ID
- B. Router ID
- C. Public IP Address
- D. Loopback interface

**Answer:** B

**NO.459** Which two benefits of implementing a full-mesh WAN topology are true? (Choose two)

- A. increased latency
- B. redundancy
- C. reduced jitter
- D. improved scalability
- E. reliability

**Answer:** B E

**NO.460**

## Instructions

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

## Scenario

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

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

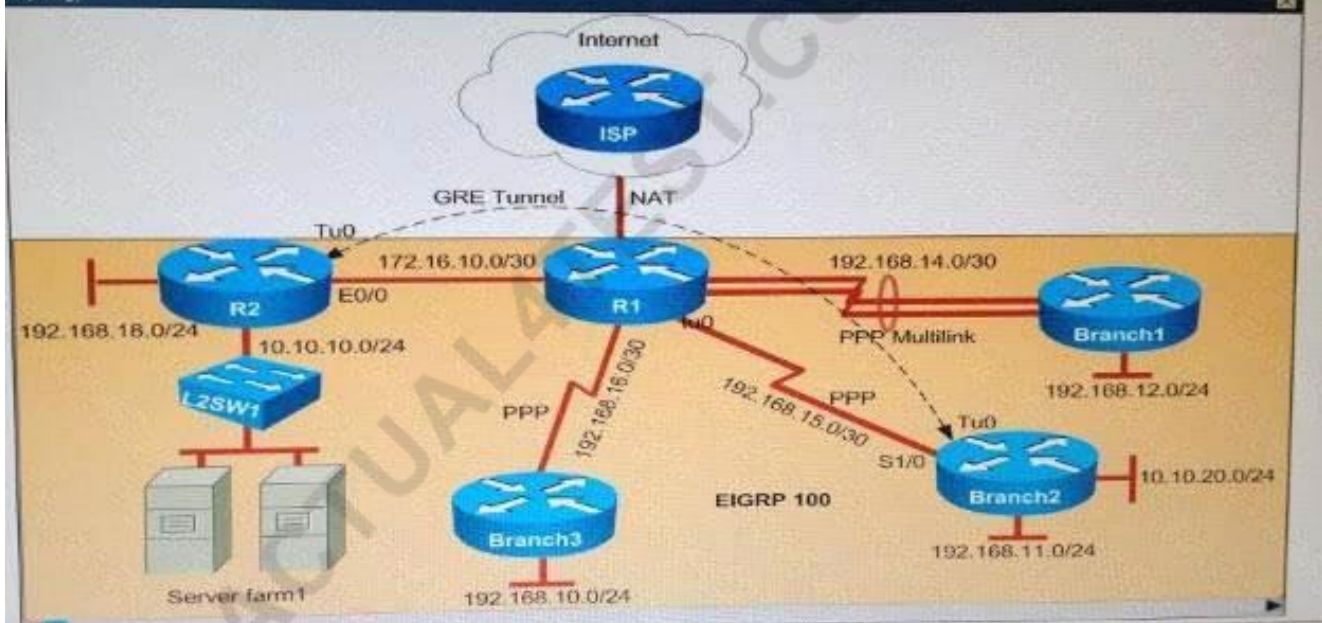
Routers Branch1, Branch2, and Branch3 connect to Router R1 in the main office over serial links.

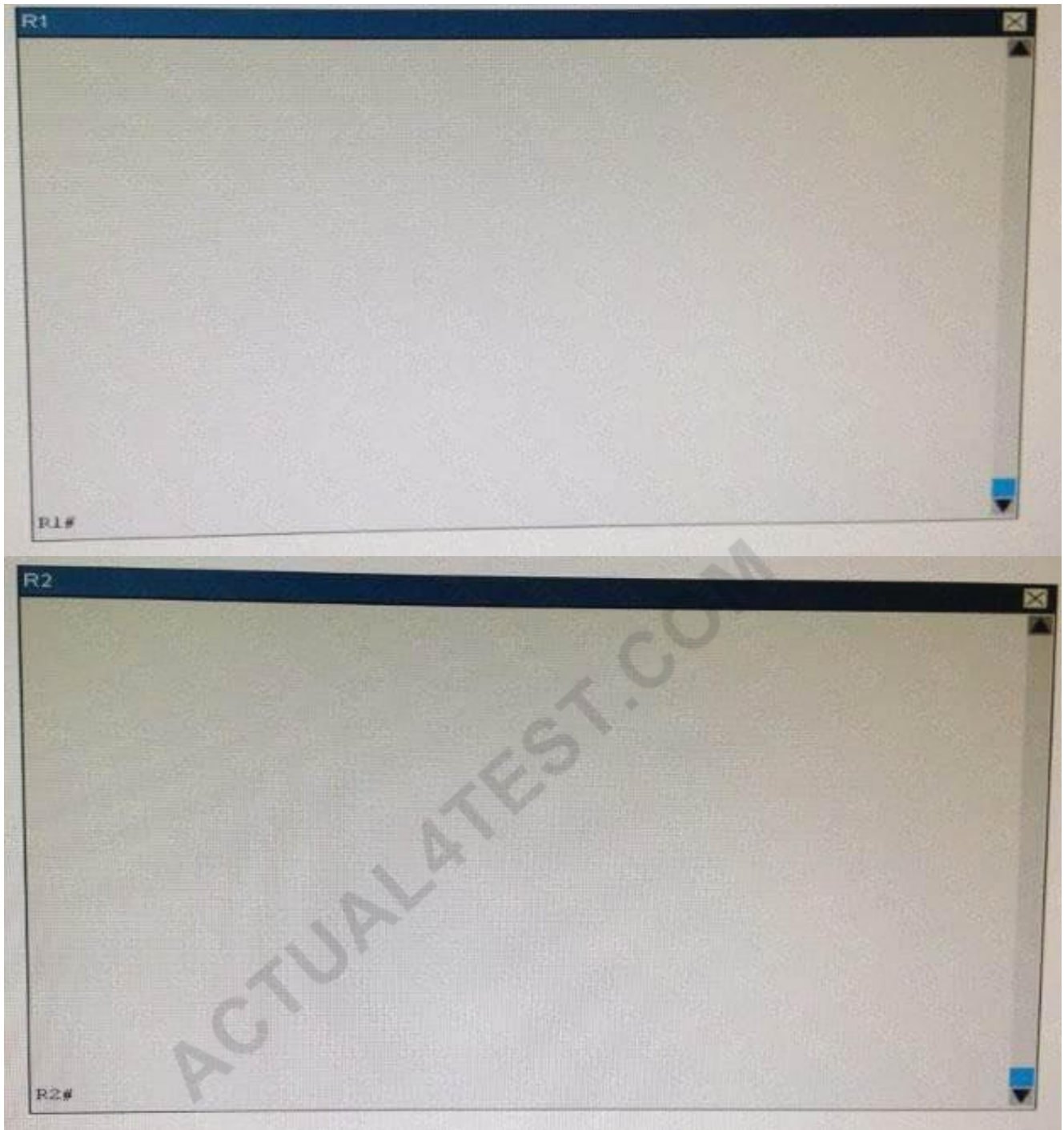
PPP multilink implementation is recommended between R1 and Branch1 routers.

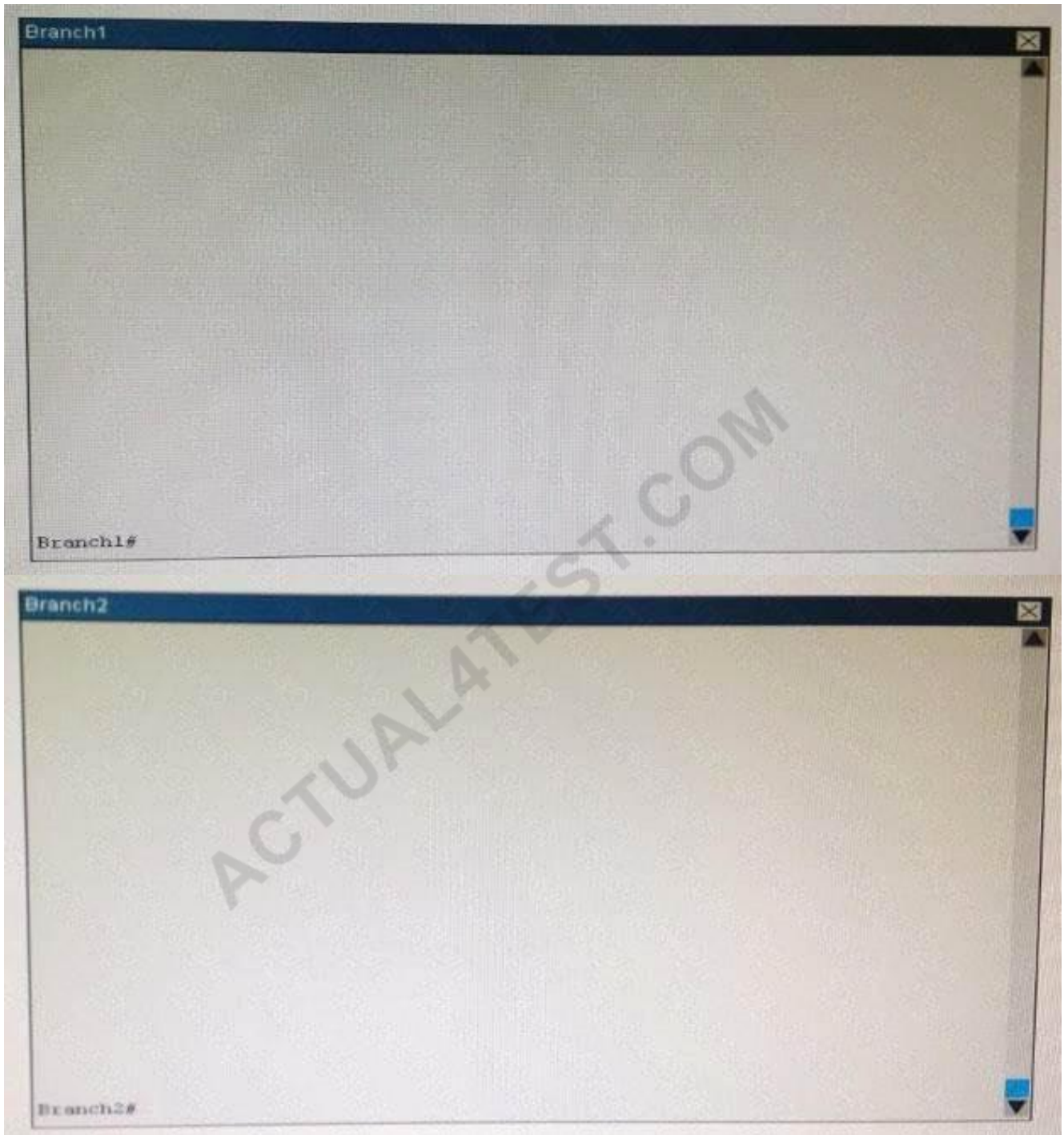
The GRE tunnel is configured between R2 and Branch2 routers, and traffic between Server farm1 10.10.10.0/24 network and Branch2 LAN 10.10.20.0/24 network is routed over GRE tunnel using static route.

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

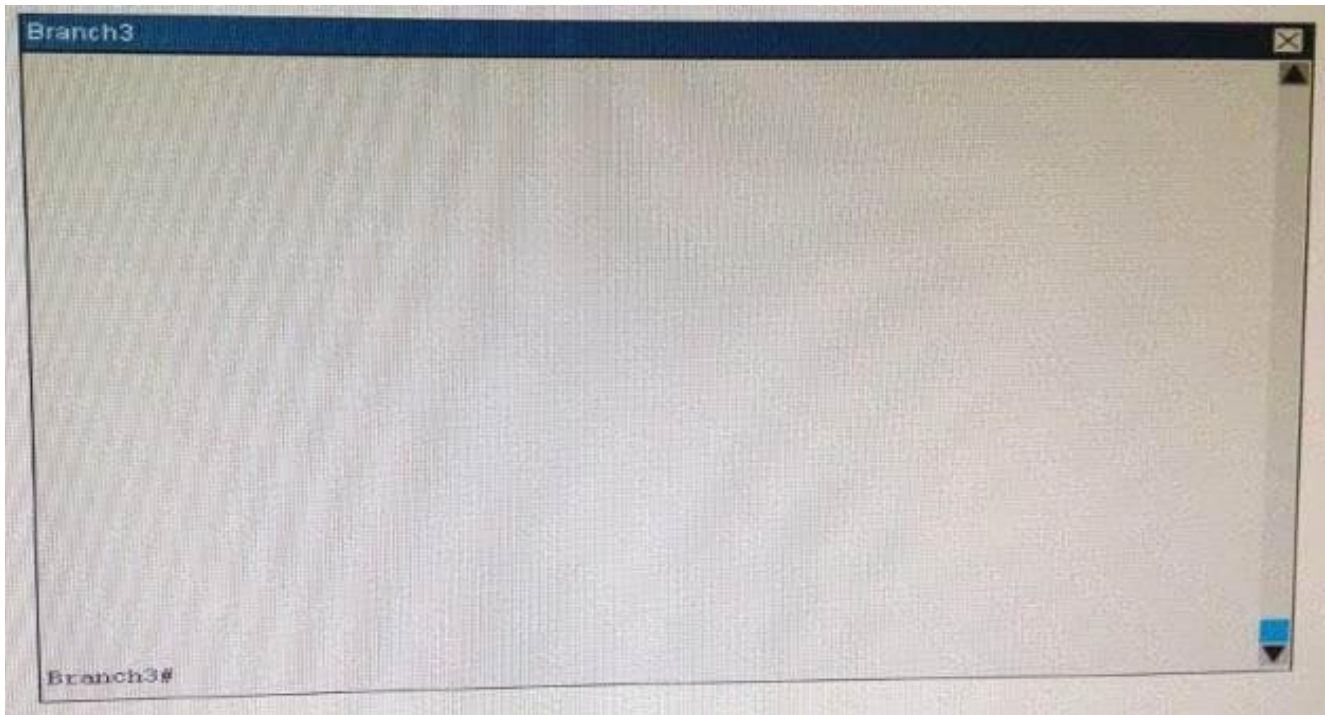
## Topology











Why did Branch1 router lose WAN connectivity with R1 router?

- A.** The IP address is misconfigured on PPP multilink interface on the Branch1 router.
- B.** The PPP multilink group is misconfigured on the Branch1 serial interfaces.
- C.** The PPP multilink group is misconfigured on the R1 serial interfaces.
- D.** The Branch1 serial interfaces are placed in a shutdown condition.

**Answer:** A

Explanation

This question clearly stated there is a WAN connectivity issue between R1 and Branch1 so we should check both of them with the "show ip interface brief" command. On R1:

R1#show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
Ethernet0/0	172.16.10.1	YES	manual	up	up
Ethernet0/1	203.1.1.2	YES	manual	up	up
Ethernet0/2	unassigned	YES	unset	administratively down	down
Ethernet0/3	unassigned	YES	unset	administratively down	down
Serial1/0	unassigned	YES	unset	up	up
Serial1/1	unassigned	YES	unset	up	up
Serial1/2	192.168.16.1	YES	manual	up	down
Serial1/3	192.168.15.1	YES	manual	up	up
<u>Multilink1</u>	<u>192.168.14.1</u>	YES	manual	up	up
NVI0	unassigned	NO	unset	up	up

On Branch1:



```
Branch1#show ip interface brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
Ethernet0/0	192.168.12.1	YES	manual	up	up
Ethernet0/1	unassigned	YES	unset	administratively down	down
Ethernet0/2	unassigned	YES	unset	administratively down	down
Ethernet0/3	unassigned	YES	unset	administratively down	down
Serial1/0	unassigned	YES	unset	up	up
Serial1/1	unassigned	YES	unset	up	up
Serial1/2	unassigned	YES	unset	administratively down	down
Serial1/3	unassigned	YES	unset	administratively down	down
Multilink1	192.168.41.2	YES	manual	up	up

We can see that although the Multilink1 interfaces are in "up/up" state but they are not in the same subnet.

According to the IP address scheme shown on the topology we can deduce the Multilink interface on Branch1 has been misconfigured, it should be 192.168.14.2 instead.

**NO.461** For which two protocols can PortFast alleviate potential host startup issues? (Choose two.)

- A. DHCP
- B. DNS
- C. OSPF
- D. RIP
- E. CDP

**Answer:** A E

**NO.462** Router R1 has a static route that is configured to a destination network. A directly connected interface is configured with an ip address in the same destination network . which statement about R1 is true ?

- A. R1 refuses to advertise the dynamic route to other neighbors
- B. R1 sends a withdrawal signal to the neighboring router
- C. R1 disables the routing protocol
- D. R1 prefers the directly connected interface

**Answer:** D

**NO.463** Refer to the exhibit.

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

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

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

**Answer:** C

Explanation

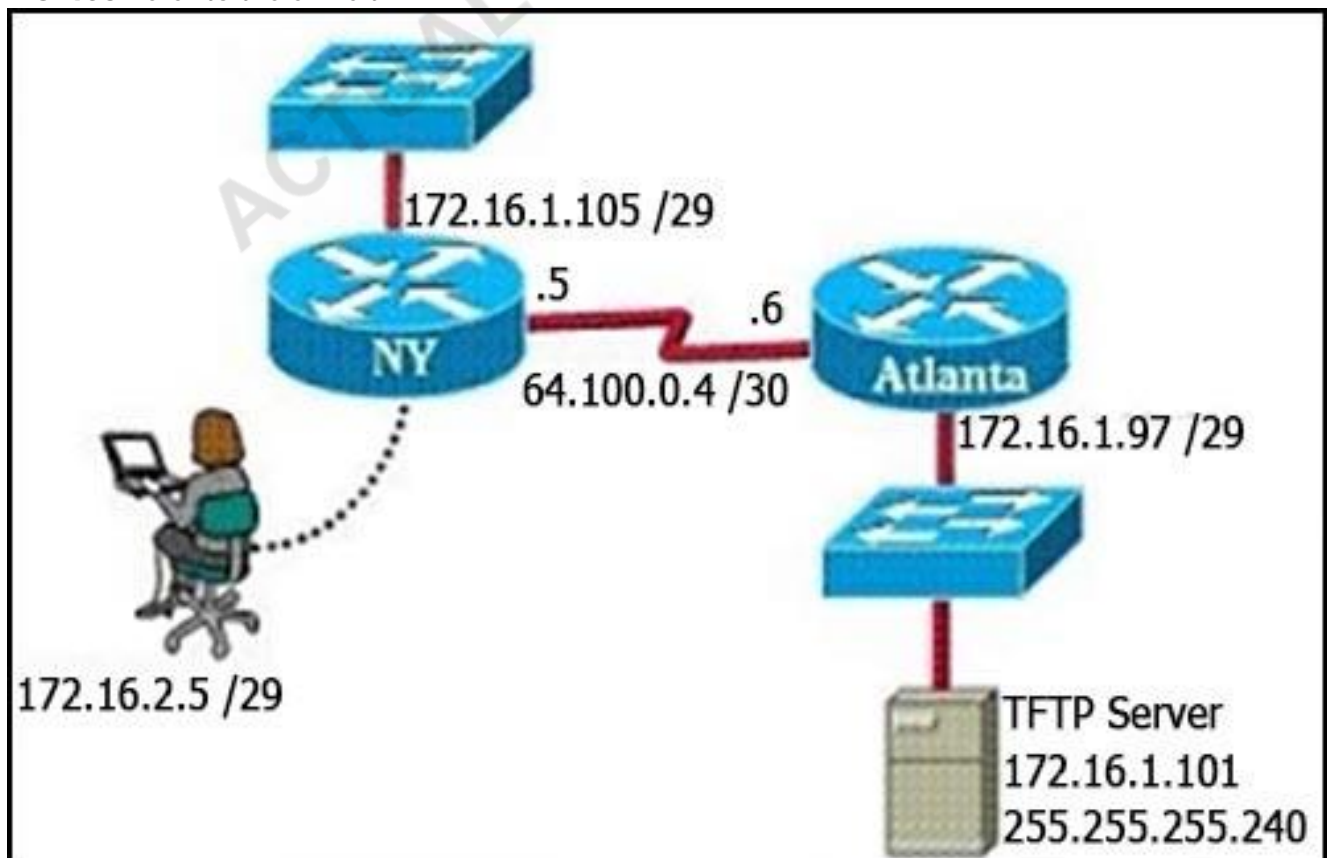
Since the port is in the blocked status, we must assume that there is a shorter path to the root bridge elsewhere.

**NO.464** What happens when you add a switch running an earlier IOS version to a StackWise configuration running a later version?

- A. The switch software upgrades the IOS version on the switch to match the version on the stack
- B. The switch keeps its version of IOS and runs normally as part of the stack
- C. The switch software downgrades the IOS version on the stack to match the version on the switch
- D. The stack ignores the switch until you update the IOS version on the switch

**Answer:** A

**NO.465** Refer to the exhibit.



A TFTP server has recently been instated in the Atlanta office. The network administrator is located in the NY office and has made a console connection to the NY router. After establishing the connection they are unable to backup the configuration file and iOS of the NY router to the TFTP server. What is the cause of this problem?

- A. The TFTP server has an incorrect subnet mask.
- B. The TFTP server has an incorrect IP address.

- C. The network administrator computer has an incorrect IP address.
- D. The NY router has an incorrect subnet mask.

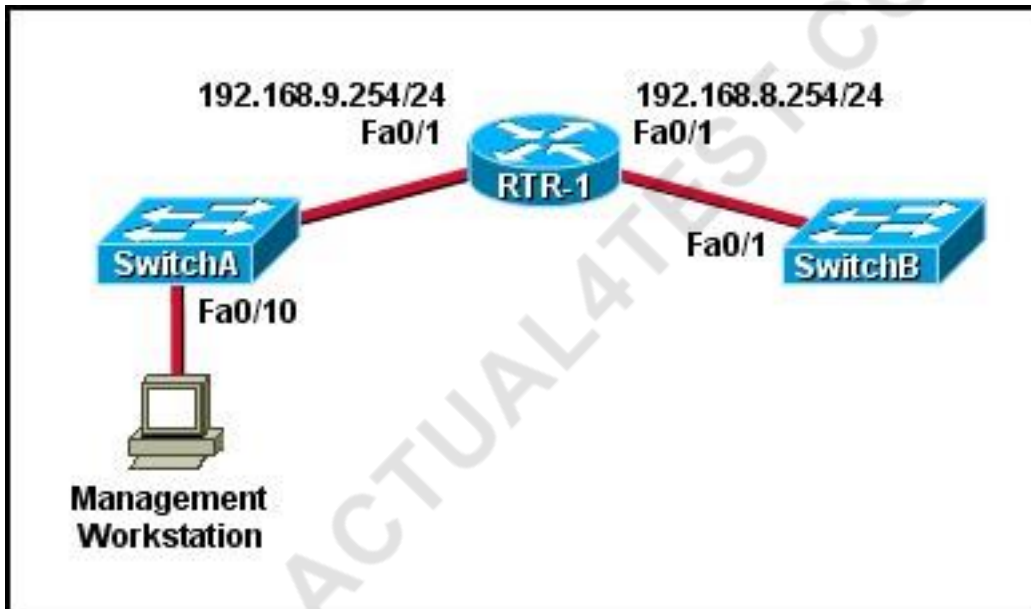
**Answer: A**

**NO.466** After an ftp session to ftp.cisco.com fails, you attempt to ping the server A ping to ftp.cisco.com also fails, but a ping to the ip address of the server successful. What is reason for the failed FTP session?

- A. A firewall is blocking traffic from the FTP site
- B. An ACL is blocking the FTP request
- C. The assigned DNS server is down
- D. The internet connection is down

**Answer: A**

**NO.467** Refer to the exhibit.



A technician has installed SwitchB and needs to configure it for remote access from the management workstation connected to SwitchA. Which set of commands is required to accomplish this task?

- A. SwitchB(config)# interface FastEthernet 0/1  
SwitchB(config-if)# ip address 192.168.8.252 255.255.255.0  
SwitchB(config-if)# no shutdown
- B. SwitchB(config)# interface vlan 1  
SwitchB(config-if)# ip address 192.168.8.252 255.255.255.0  
SwitchB(config-if)# ip default-gateway 192.168.8.254 255.255.255.0  
SwitchB(config-if)# no shutdown
- C. SwitchB(config)# ip default-gateway 192.168.8.254  
SwitchB(config)# interface vlan 1  
SwitchB(config-if)# ip address 192.168.8.252 255.255.255.0  
SwitchB(config-if)# no shutdown
- D. SwitchB(config)# ip default-network 192.168.8.254  
SwitchB(config)# interface vlan 1  
SwitchB(config-if)# ip address 192.168.8.252 255.255.255.0

SwitchB(config-if)# no shutdown

E. SwitchB(config)# ip route 192.168.8.254 255.255.255.0

SwitchB(config)# interface FastEthernet 0/1

SwitchB(config-if)# ip address 192.168.8.252 255.255.255.0

SwitchB(config-if)# no shutdown

**Answer:** C

Explanation

To remote access to SwitchB, it must have a management IP address on a VLAN on that switch.

Traditionally, we often use VLAN 1 as the management VLAN (but in fact it is not secure).

In the exhibit, we can recognize that the Management Workstation is in a different subnet from the SwitchB.

For intersubnetwork communication to occur, you must configure at least one default gateway. This default gateway is used to forward traffic originating from the switch only, not to forward traffic sent by devices connected to the switch.

**NO.468** Which symbol in the APIC-EM path Trace tool output indicates that an ACL is present and might deny packets?

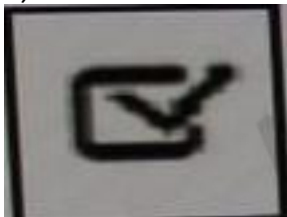
A)



B)



C)



D)



A. Option A

B. Option B

C. Option C

D. Option D

**Answer:** C

**NO.469** Which two topology state codes are displayed with the command? (Choose two)

- A. A - Active
- B. I - Inter-Area
- C. U - Update
- D. C - Connected
- E. S - Static

**Answer:** A D

**NO.470** How can you manually configure a switch so that it is selected as the root Switch?

- A. increase the priority number
- B. lower the port priority number
- C. lower the priority number
- D. increase the port priority number

**Answer:** C

**NO.471**

The screenshot displays a web-based interface for a network configuration task. It features two main panels: 'Instructions' and 'Scenario'. The 'Instructions' panel lists four bullet points: entering Cisco IOS commands, a note that no configuration is required, clicking device icons for console access, and clicking numbered boxes for questions. The 'Scenario' panel describes a task involving PPP and GRE tunnel configurations between routers R1, R2, and Branch1, Branch2, and Branch3. It specifies IP addresses for various networks and mentions the use of static routes for traffic over the GRE tunnel. The interface also includes a watermark 'TUALIST.COM'.

**Instructions**

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

**Scenario**

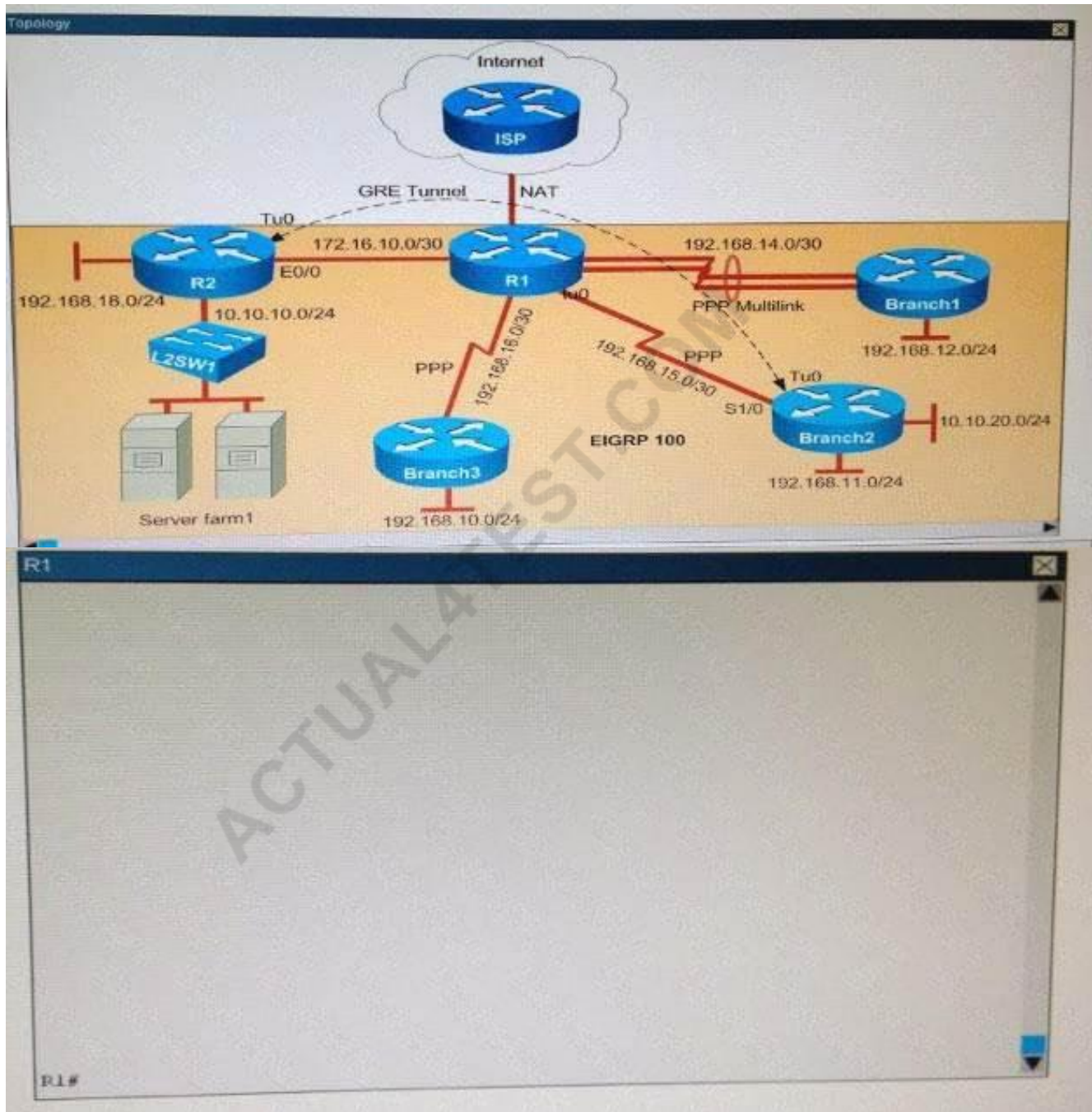
You are implementing PPP over serial links between R1 router and branch offices. In Phase 1 you must implement and verify PPP and GRE tunnel configurations as mentioned in the topology. In Phase 2 your colleague is expected to do NAT and ISP configurations between R1 and ISP router.

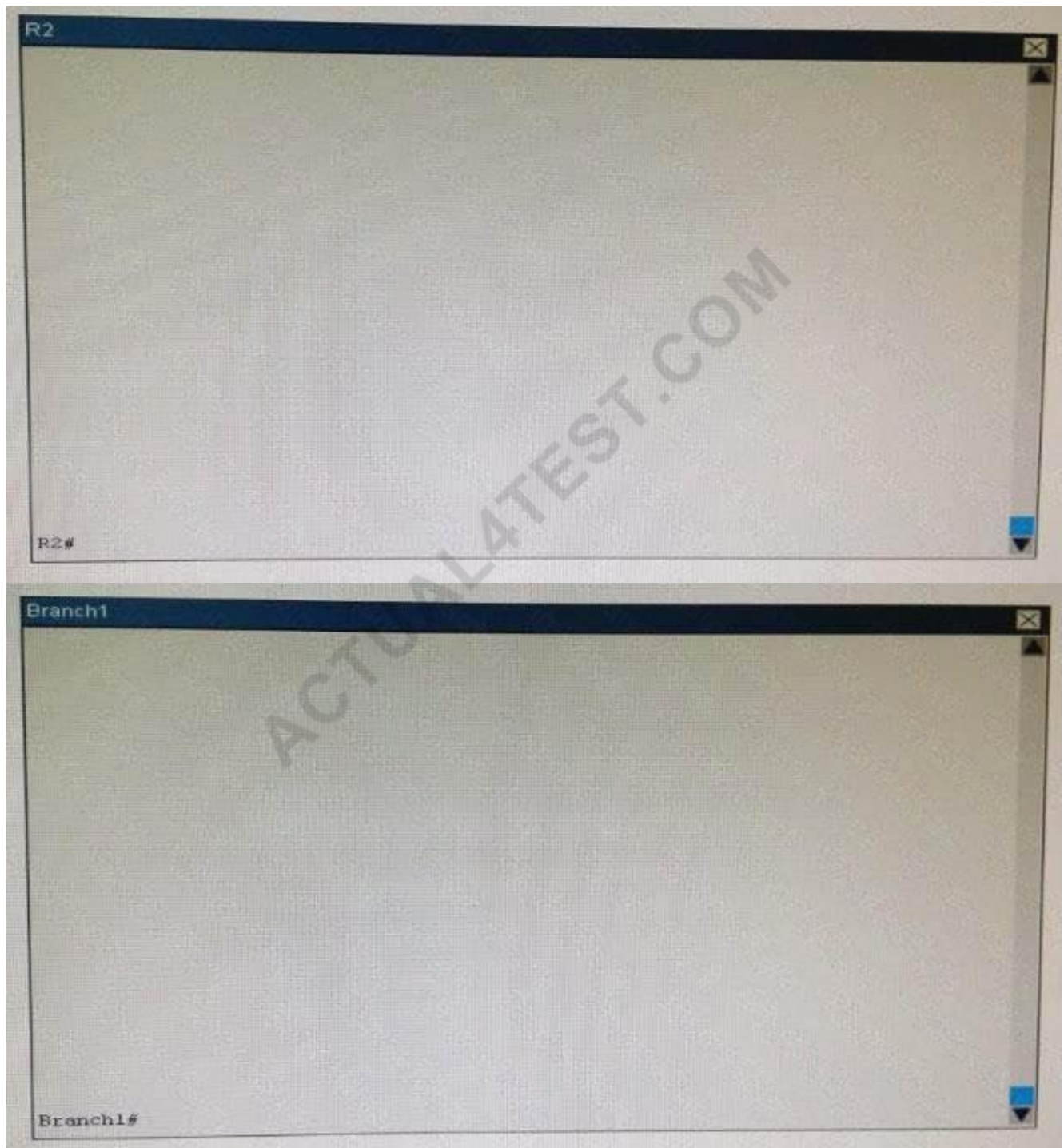
Identify the issues that you encounter during PPP over serial links implementation.

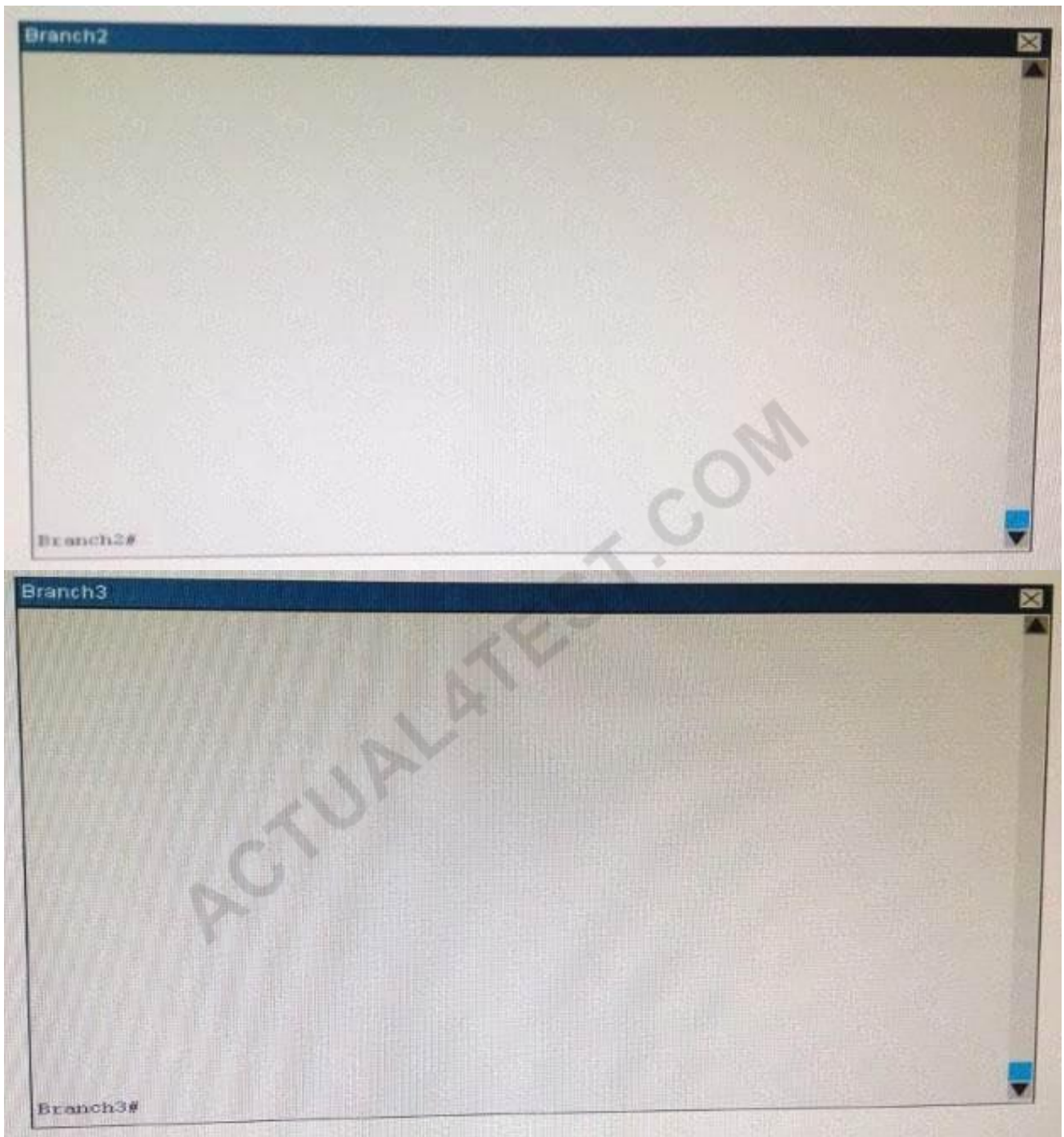
Routers Branch1, Branch2, and Branch3 connect to Router R1 in the main office over serial links. PPP multilink implementation is recommended between R1 and Branch1 routers. The GRE tunnel is configured between R2 and Branch2 routers, and traffic between Server farm1 10.10.10.0/24 network and Branch2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

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









Why is the Branch2 network 10.1 0.20.0/24 unable to communicate with the Server farm1 network 10.10.10.0/24 over the GRE tunnel?

- A. The GRE tunnel destination is not configured on the R2 router.
- B. The GRE tunnel destination is not configured on the Branch2 router.
- C. The static route points to the tunnel0 interface that is misconfigured on the Branch2 router.
- D. The static route points to the tunnel0 interface that is misconfigured on the R2 router.

**Answer:** C

Explanation

The Branch2 network is communicating to the Server farm, which is connected to R2, via GRE Tunnel so we should check the GRE tunnel first to see if it is in "up/up" state with the "show ip interface brief" command on the two routers.



On Branch2:

```
Branch2#show ip interface brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
Ethernet0/0	10.10.20.1	YES	manual	up	up
Ethernet0/1	192.168.11.1	YES	manual	up	up
Ethernet0/2	unassigned	YES	unset	administratively down	down
Ethernet0/3	unassigned	YES	unset	administratively down	down
Serial1/0	192.168.15.2	YES	manual	up	up
Serial1/1	unassigned	YES	unset	administratively down	down
Serial1/2	unassigned	YES	unset	administratively down	down
Serial1/3	unassigned	YES	unset	administratively down	down
Tunnel0	192.168.24.2	YES	manual	up	up

On R2:

```
R2#show ip interface brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
Ethernet0/0	172.16.10.2	YES	manual	up	up
Ethernet0/1	10.10.10.1	YES	manual	up	up
Ethernet0/2	192.168.18.1	YES	manual	up	up
Ethernet0/3	unassigned	YES	unset	administratively down	down
Tunnel0	192.168.24.1	YES	manual	up	up

We see interfaces Tunnel0 at two ends are "up/up" which are good so we should check for the routing part on two routers with the "show running-config" command and pay attention to the static routing of each router. On Branch2 we see:

```
Branch2#show running-config
```

```
<output omitted>
```

```
ip route 10.10.10.0 255.255.255.0 192.168.24.10
```

R2\_show\_run\_static.jpg

The destination IP address for this static route is not correct. It should be 192.168.24.1 (Tunnel0's IP address of R2), not 192.168.24.10 -> Answer C is correct.

Note: You can use the "show ip route" command to check the routing configuration on each router but if the destination is not reachable (for example: we configure "ip route 10.10.10.0 255.255.255.0 192.168.24.10" on Branch2, but if 192.168.24.10 is unknown then Branch2 router will not display this routing entry in its routing table.

**NO.472** Which command displays the number of times that an individual router translated an inside address to an outside address?

- A. show ip protocol
- B. show ip nat translation
- C. show counters
- D. show iproute
- E. show ip nat statistics

**Answer:** B

**NO.473** Refer to the exhibit.

```

R1#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is 192.168.14.4 to network 0.0.0.0

C    192.168.12.0/24 is directly connected, FastEthernet0/0
C    192.168.13.0/24 is directly connected, FastEthernet0/1
C    192.168.14.0/24 is directly connected, FastEthernet1/0
     192.168.10.0/24 is variably subnetted, 3 subnets, 3 masks
O     192.168.10.0/24 [110/2] via 192.168.14.4, 00:02:01, FastEthernet1/0
O     192.168.10.32/27 [110/11] via 192.168.13.3, 00:00:52, FastEthernet0/1
O     192.168.0.0/16 [110/2] via 192.168.15.5, 00:05:01, FastEthernet1/1
D     192.168.10.1/32 [90/52778] via 192.168.12.2, 00:03:44, FastEthernet0/0
O*E2 0.0.0.0/0 [110/1] via 192.168.14.4, 00:00:10, FastEthernet1/0

```

What is the metric for the route from R1 to 192.168.10.1?

- A. 2
- B. 90
- C. 110
- D. 52778

**Answer:** D

**NO.474** Which option describes the best way to troubleshoot and isolate a network problem?

- A. Gather the facts
- B. Change one variable at a time.
- C. Implement an action plan
- D. Create an Action plan

**Answer:** C

**NO.475** Which three statements accurately describe Layer 2 Ethernet switches? (Choose three.)

- A. Spanning Tree Protocol allows switches to automatically share VLAN information.
- B. Establishing VLANs increases the number of broadcast domains.
- C. Switches that are configured with VLANs make forwarding decisions based on both Layer 2 and Layer 3 address information.
- D. Microsegmentation decreases the number of collisions on the network.
- E. In a properly functioning network with redundant switched paths, each switched segment will contain one root bridge with all its ports in the forwarding state. All other switches in that broadcast domain will have only one root port.
- F. If a switch receives a frame for an unknown destination, it uses ARP to resolve the address.

**Answer:** B D E



### Explanation

Microsegmentation is a network design (functionality) where each workstation or device on a network gets its own dedicated segment (collision domain) to the switch. Each network device gets the full bandwidth of the segment and does not have to share the segment with other devices. Microsegmentation reduces and can even eliminate collisions because each segment is its own collision domain ->.

Note: Microsegmentation decreases the number of collisions but it increases the number of collision domains.

**NO.476** Which two of these functions do routers perform on packets? (Choose two.)

- A.** update the Layer 3 headers of outbound packets so that the packets are properly directed to valid next hops
- B.** update the Layer 2 headers of outbound packets with the MAC addresses of the next hops
- C.** examine the Layer 3 headers of inbound packets and use that information to determine the complete paths along which the packets will be routed to their ultimate destinations
- D.** examine the Layer 3 headers of inbound packets and use that information to determine the next hops for the packets
- E.** examine the Layer 2 headers of inbound packets and use that information to determine the next hops for the packets
- F.** update the Layer 3 headers of outbound packets so that the packets are properly directed to their ultimate destinations

**Answer:** B D

**NO.477** Which step in the router boot process searches for an IOS image to load into the router?

- A.** bootstrap
- B.** POST
- C.** mini-IOS
- D.** ROMMON mode

**Answer:** A

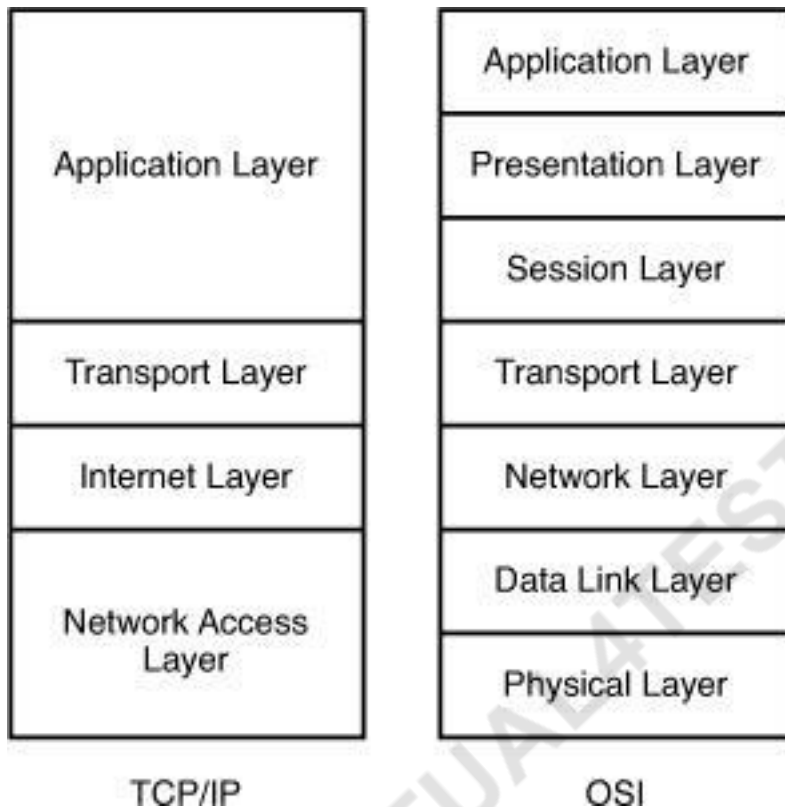
**NO.478** Where does routing occur within the DoD TCP/IP reference model?

- A.** application
- B.** internet
- C.** network
- D.** transport

**Answer:** B

### Explanation

The picture below shows the comparison between TCP/IP model & OSI model. Notice that the Internet Layer of TCP/IP is equivalent to the Network Layer which is responsible for routing decision.



**NO.479** Several users on your network have complained of connectivity issues to a specific host. While troubleshooting task can you perform to eliminate DNS issues as the cause?

- A. Connect to the host by its IP address
- B. Verity the DHCP settings on the host
- C. Verity that a valid route to the host is present in the routing table
- D. Connect to the host by its FQDN

**Answer:** D

**NO.480** While troubleshooting a GRE tunnel interface issue, show interface command output displays tunnel status up, but line protocol is down. Which reason for this problem is the most likely?

- A. The route to the tunnel destination address is through the tunnel itself.
- B. The tunnel was just reset.
- C. The interface has been administratively shut down.
- D. The next hop server is misconfigured.

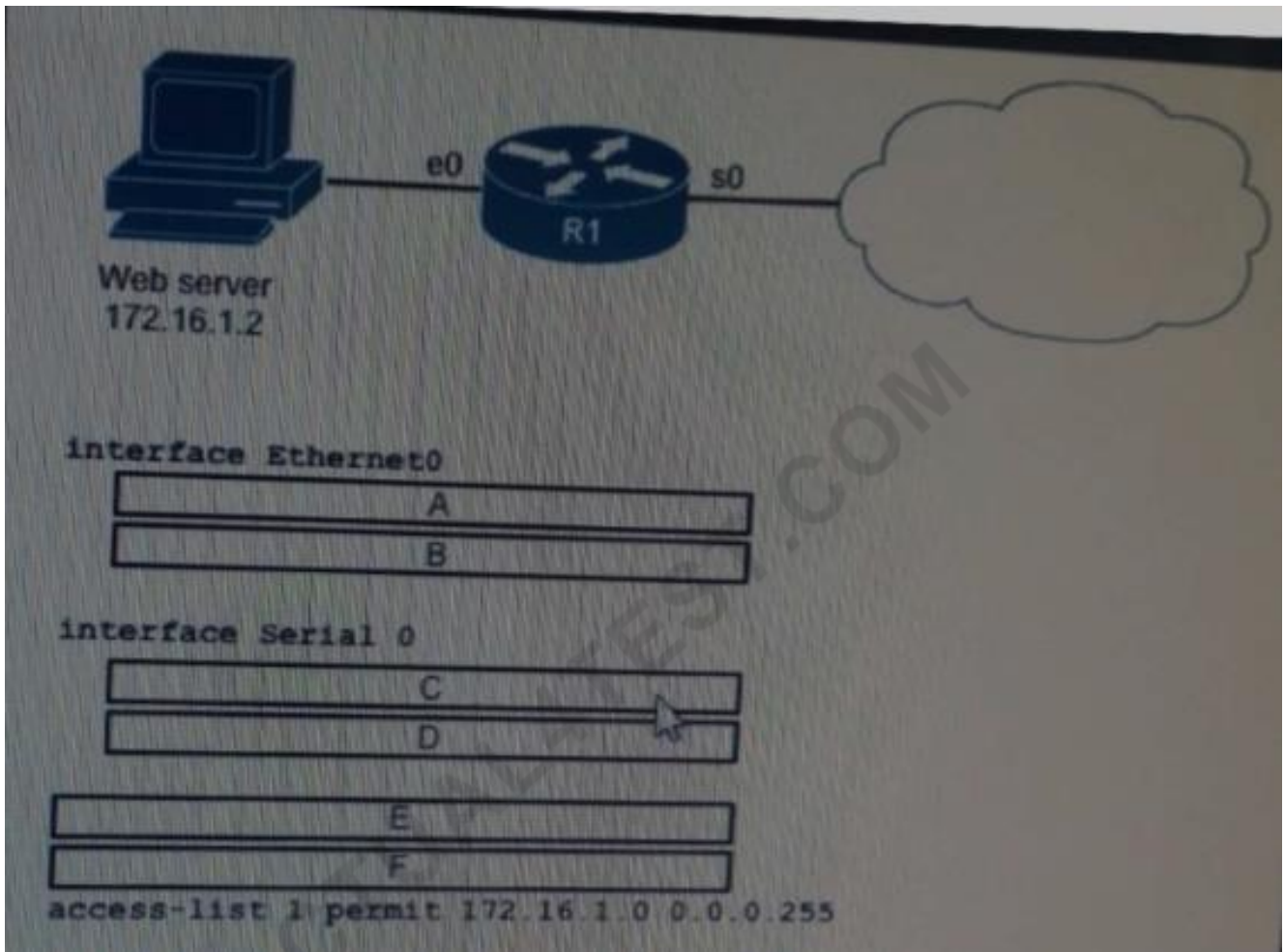
**Answer:** A

**NO.481** Which VLAN bridge priority value will make a switch as root for a given VLAN from the below options by the spanning-tree vlan vlan-id root command?

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

**Answer:** B

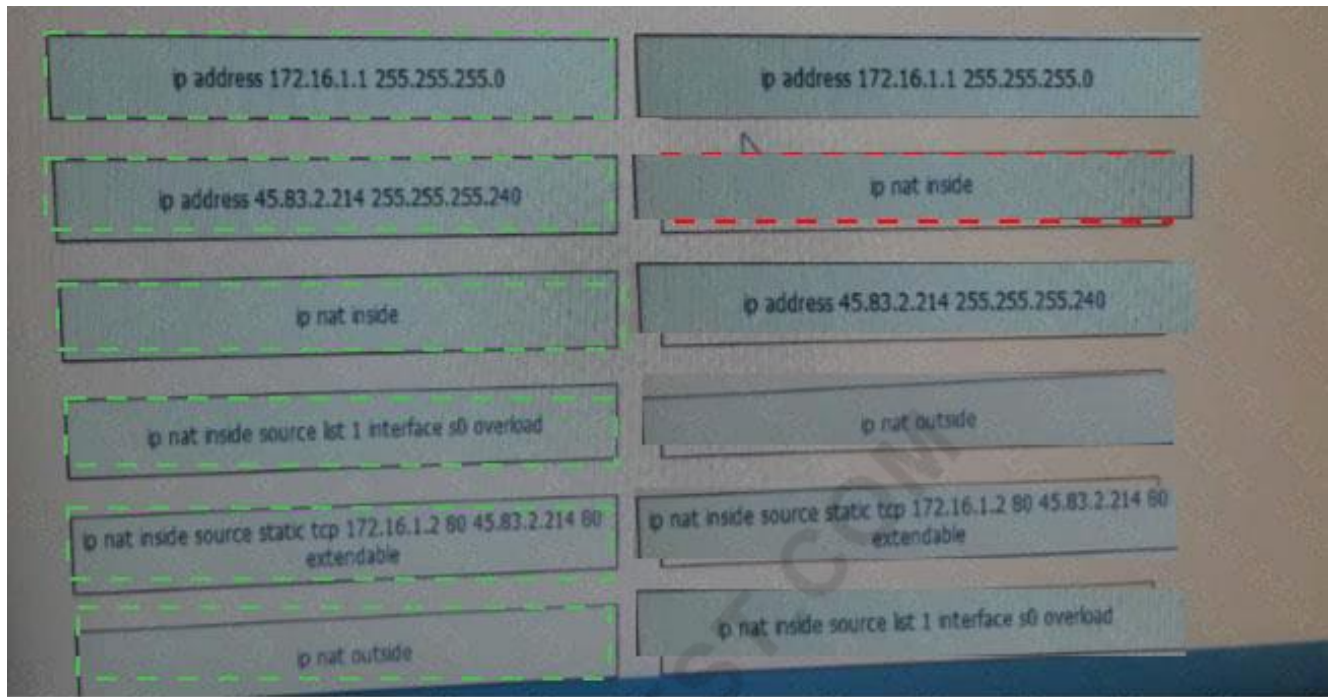
**NO.482** Refer to the exhibit.



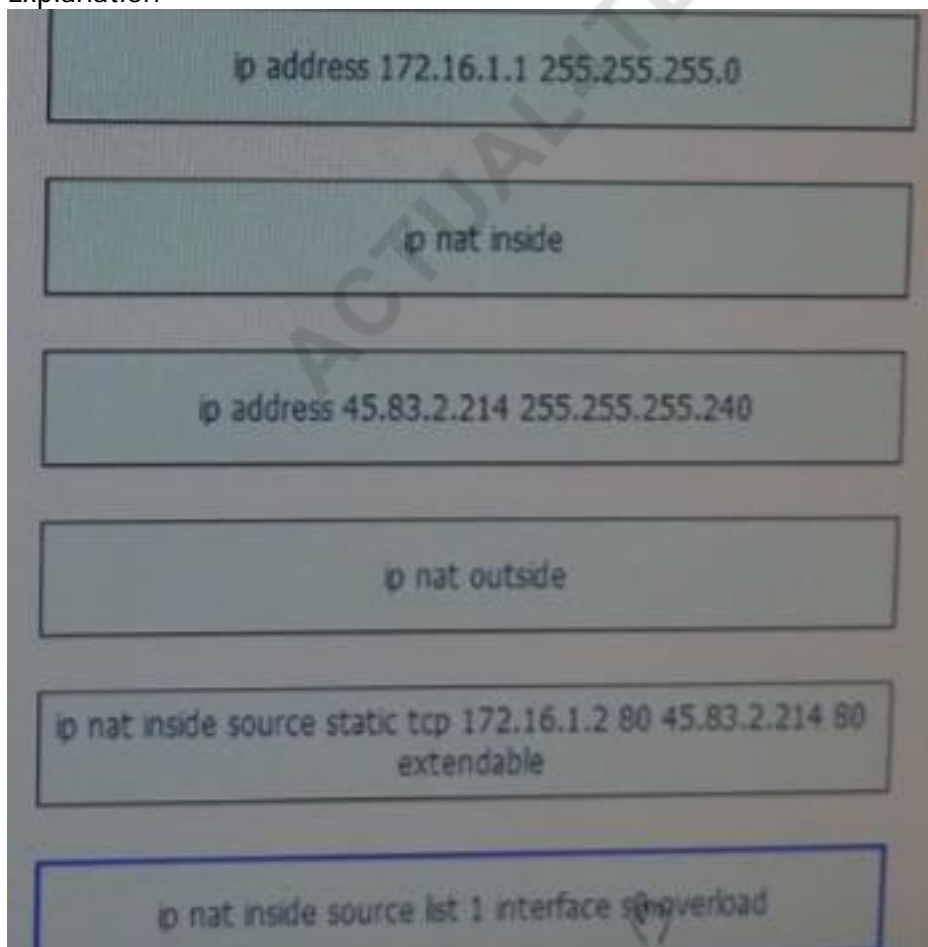
You are configuring the router to provide Static NAT for the web server. Drag and drop the configuration commands from left onto the letters that correspond to its position in the configuration on the right.

ip address 172.16.1.1 255.255.255.0	position A
ip address 45.83.2.214 255.255.255.240	position B
ip nat inside	position C
ip nat inside source list 1 interface s0 overload	position D
ip nat inside source static tcp 172.16.1.2 80 45.83.2.214 80 extendable	position E
ip nat outside	position F

**Answer:**



**Explanation**



**NO.483** Which two statements correctly describe RADIUS? (Choose two)

**A.** It separates authentication, authorization, and accounting functions.

- B. It can authorize specific router commands.
- C. It encrypts only the password.
- D. It combines authentication and authorization.
- E. It uses TCP as its transport protocol

**Answer:** C D

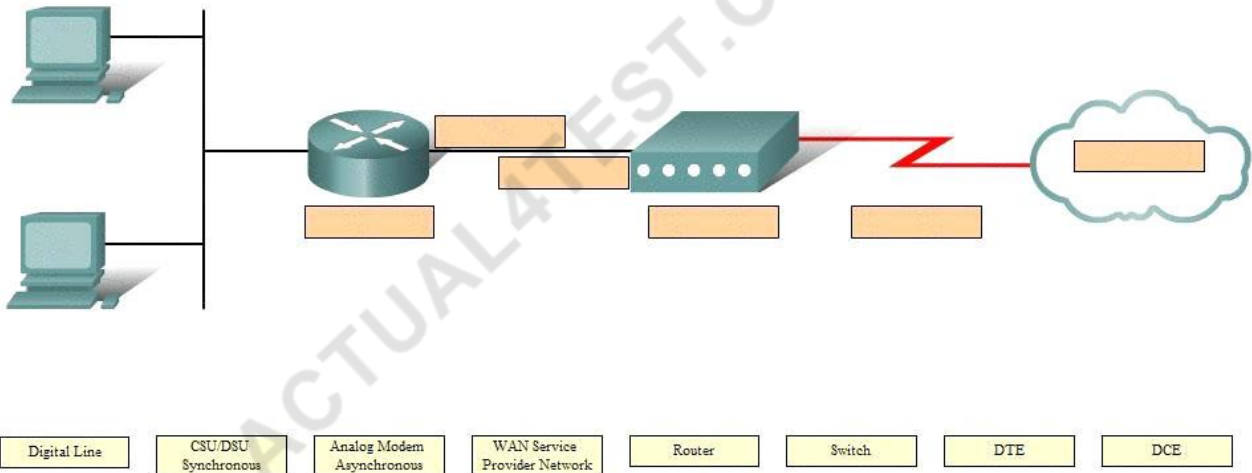
**NO.484** If a host experiences intermittent issues that relate to congestion within a network while remaining connected, which option could cause congestion on this LAN?

- A. multicasting
- B. network segmentation
- C. broadcast storms
- D. half-duplex operation

**Answer:** C

**NO.485** Refer to the exhibit. Complete this network diagram by dragging the correct device name or description to the correct location. Not all the names or descriptions will be used.

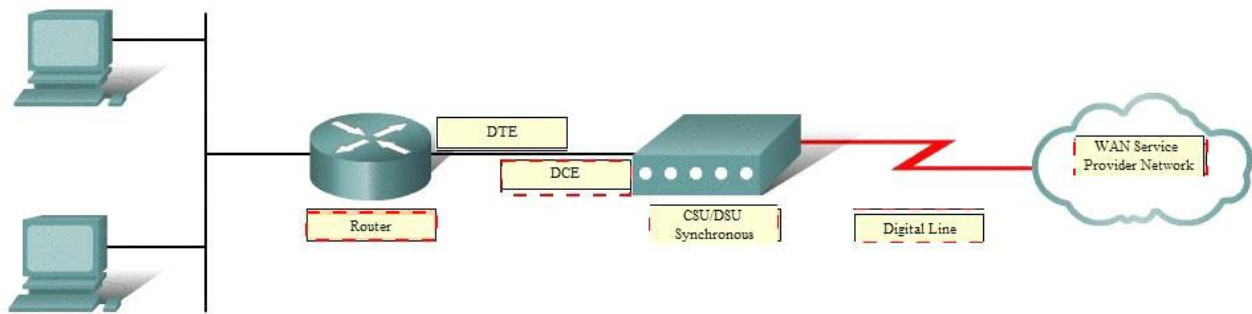
Refer to the exhibit. Complete this network diagram by dragging the correct device name or description to the correct location. Not all the names or descriptions will be used.



**Answer:**

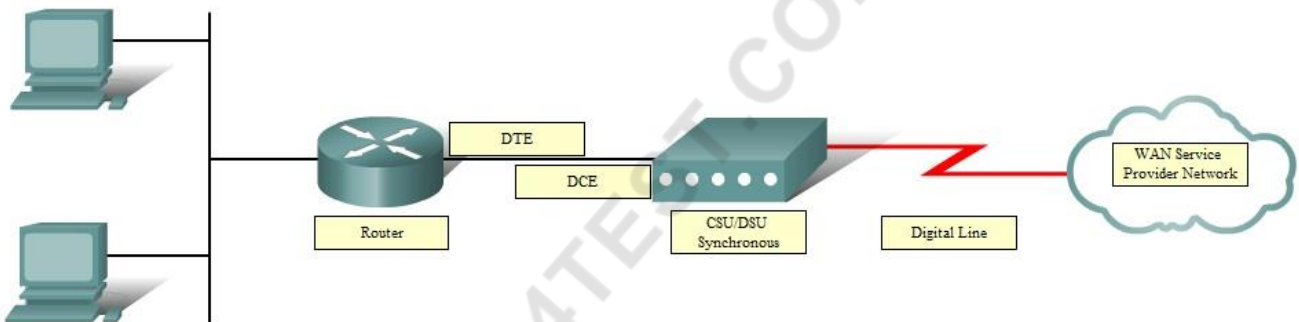


Refer to the exhibit. Complete this network diagram by dragging the correct device name or description to the correct location. Not all the names or descriptions will be used.



Digital Line CSU/DSU Synchronous Analog Modem Asynchronous WAN Service Provider Network Router Switch DTE DCE

Explanation



**NO.486** Refer to the exhibit.

```
router#show ip eigrp topology 10.0.0.5 255.255.255.255
IP-EIGRP topology entry for 10.0.0.5/32 State is Passive, Query
origin flag is 1, 1 Successor(s), FD is 41152000
```

Given the output from the show ip eigrp topology command, which router is the feasible successor?

**A.** 10.1.0.1 (Serial0), from 10.1.0.1, Send flag is 0x0

Composite metric is (46152000/41640000), Route is Internal

Vector metric:

Minimum bandwidth is 64 Kbit

Total delay is 45000 Microseconds

Reliability is 255/255

Load is 1/255

Minimum MTU is 1500

Hop count is 2

**B.** 10.0.0.2 (Serial0.1), from 10.0.0.2, Send flag is 0x0

Composite metric is (53973248/128256), Route is Internal  
Vector Metric:

Minimum bandwidth is 48 Kbit

Total delay is 25000 Microseconds

Reliability is 255/255

Load is 1/255

Minimum MTU is 1500

Hop count is 1

**C.** 10.1.0.3 (Serial0), from 10.1.0.3, Send flag is 0x0

Composite metric is (46866176/46354176), Route is Internal  
Vector metric:

Minimum bandwidth is 56 Kbit

Total delay is 45000 microseconds

Reliability is 255/255

Load is 1/255

Minimum MTU is 1500

Hop count is 2

**D.** 10.1.1.1 (Serial0.1), from 10.1.1.1, Send flag is 0x0

Composite metric is (46763776/46251776), Route is External  
Vector metric:

Minimum bandwidth is 56 Kbit

Total delay is 41000 microseconds

Reliability is 255/255

Load is 1/255

Minimum MTU is 1500

Hop count is 2

**Answer:** B

**NO.487** After you deploy a new WLAN controller on your network, which two additional tasks should you consider?

(Choose two)

**A.** Deploy POE switches

**B.** Deploy load balancers

**C.** Configure additional security policies.

**D.** Configure additional VLANs

**E.** Configure multiple VRRP groups

**Answer:** C D

**NO.488** What SNMP message alerts the manager to a condition on the network?

**A.** response

**B.** get

**C.** trap

**D.** capture

**Answer: C**

Explanation

An agent can send unsolicited traps to the manager. Traps are messages alerting the SNMP manager to a condition on the network. Traps can mean improper user authentication, restarts, link status (up or down), MAC address tracking, closing of a TCP connection, loss of connection to a neighbor, or other significant events.

Reference:

[http://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst2950/software/release/12-1\\_9\\_ea1/configuration/guid](http://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst2950/software/release/12-1_9_ea1/configuration/guid)

**NO.489** Which address class includes network 191.168.0.1/27?

**A.** Class C

**B.** Class B

**C.** Class D

**D.** Class A

**Answer: B**

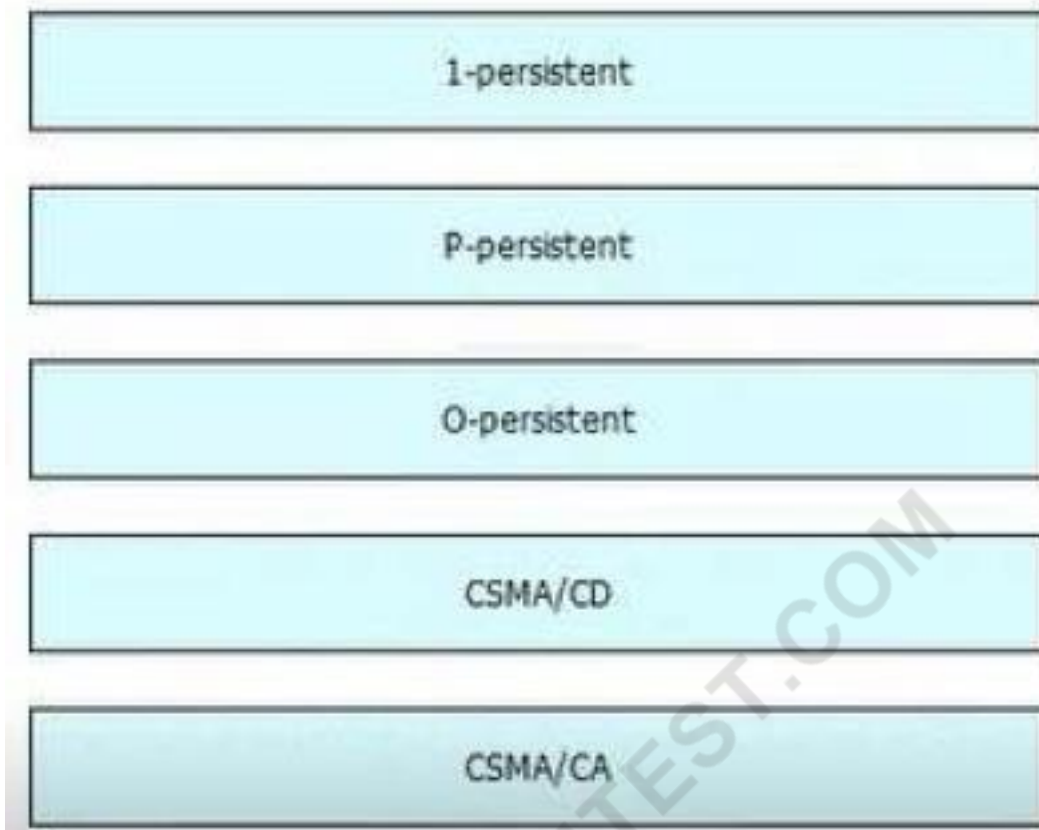
**NO.490** Drag and Drop the CSMA Components from the left onto the correct description on the right

1-persistent	access mode used for Ethernet networks
CSMA/CA	access mode used for Wi-Fi networks
CSMA/CD	access mode used in the controller area network
O-persistent	rules that define the system response when a collision occurs on an Ethernet network
P-persistent	rules that define the system response when a collision occurs on a Wi-Fi network

**Answer:**

1-persistent	1-persistent
CSMA/CA	P-persistent
CSMA/CD	O-persistent
O-persistent	CSMA/CD
P-persistent	CSMA/CA

## Explanation



**NO.491** What authentication type is used by SNMPv2?

- A. username and password
- B. community strings
- C. HMAC-SHA
- D. HMAC-MD5

**Answer:** B

**NO.492** Which option is the industry-standard protocol for etherChannel?

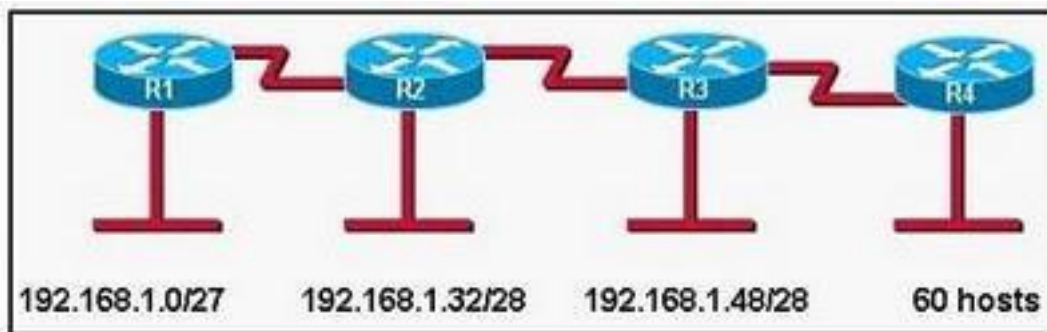
- A. Cisco Discovery protocol
- B. PAgp
- C. LACP
- D. DTP

**Answer:** B

Explanation

<http://www.omnisecu.com/cisco-certified-network-associate-ccna/etherchannel-pagp-and-lacp-modes.php>

**NO.493** Refer to the exhibit.



A new subnet with 60 hosts has been added to the network. Which subnet address should this network use to provide enough usable addresses while wasting the fewest addresses?

- A. 192.168.1.56/26
- B. 192.168.1.56/27
- C. 192.168.1.64/26
- D. 192.168.1.64/27

**Answer:** C

Explanation

A subnet with 60 host is  $2 \times 2 \times 2 \times 2 \times 2 \times 2 = 64 - 2 = 62$

6 bits needed for hosts part. Therefore subnet bits are 2 bits (8-6) in fourth octet.

8bits+ 8bits+ 8bits + 2bits = /26

/26 bits subnet is 24bits + 11000000 = 24bits + 192

256 - 192 = 64

0 -63

64 - 127

**NO.494** Which two features are compatible with port security?

- A. Etherchannel
- B. Voice VLAN
- C. Span source port
- D. Span destination port
- E. DTP

**Answer:** B C

**NO.495** Scenario

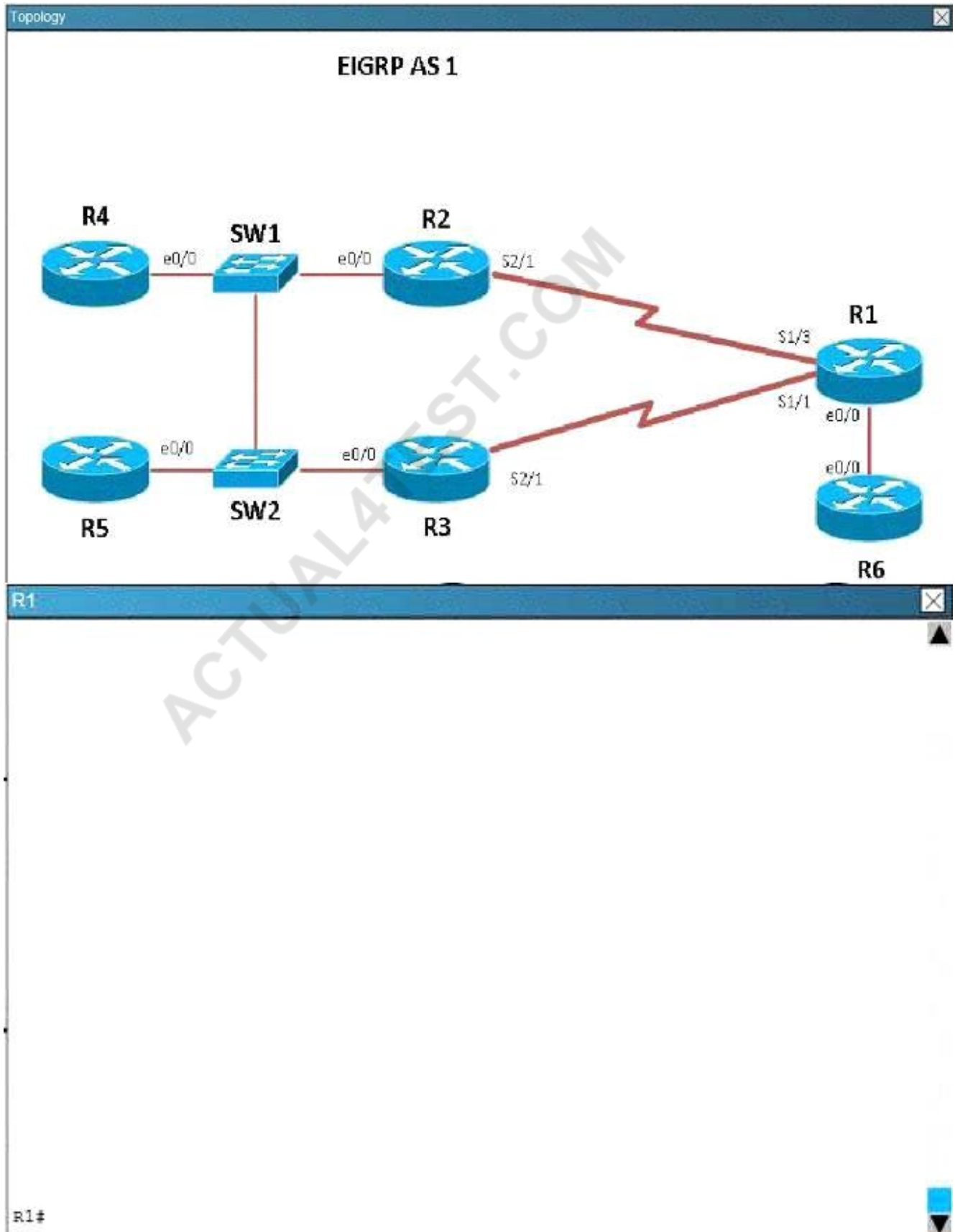
Refer to the topology. Your company has connected the routers R1, R2, and R3 with serial links. R2 and R3 are connected to the switches SW1 and SW2, respectively. SW1 and SW2 are also connected to the routers R4 and R5.

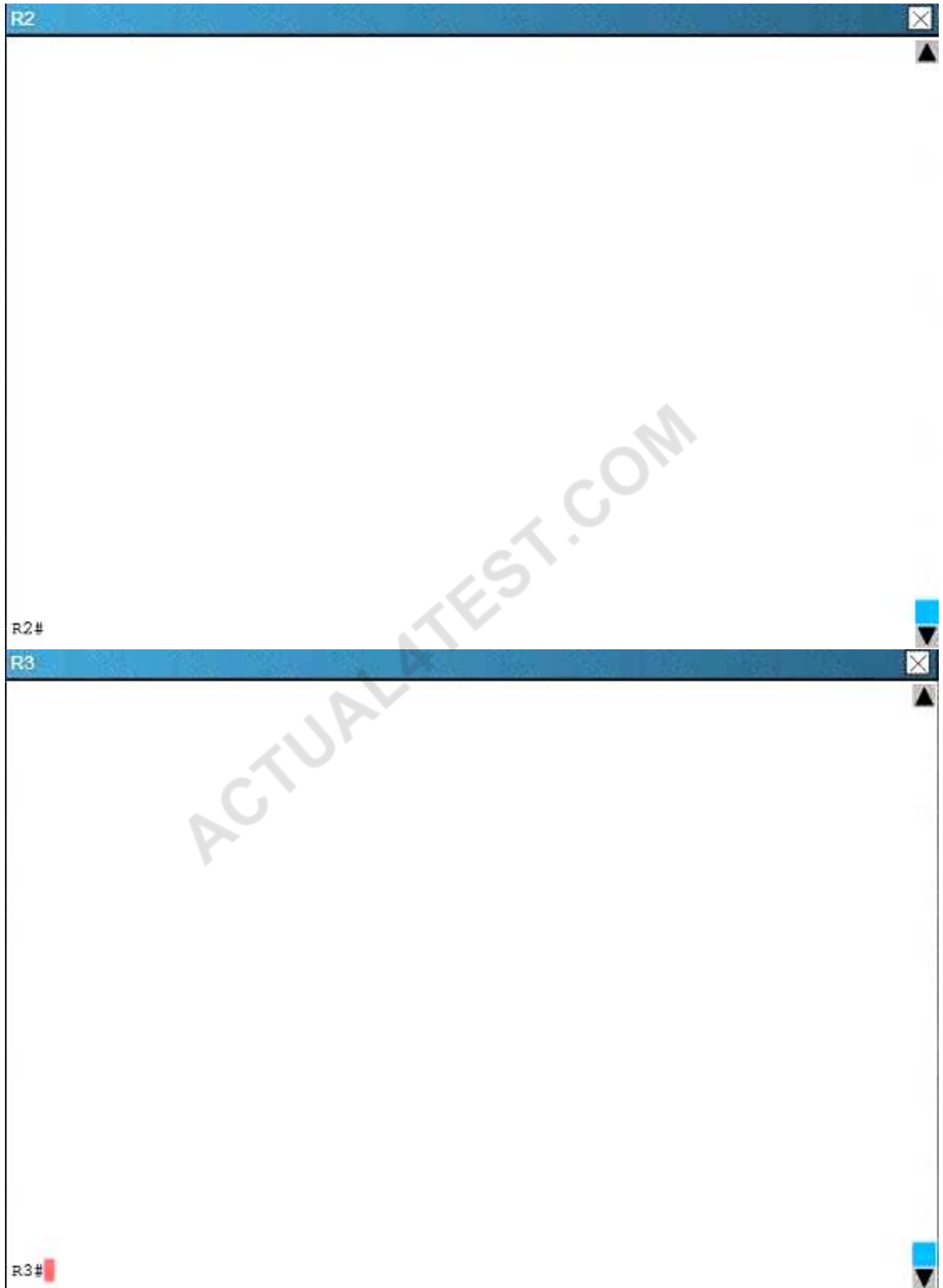
The EIGRP routing protocol is configured.

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

Use the appropriate show commands to troubleshoot the issues.







R4



R4#



R5



R5#



R6



R6#

SW1



SW1#



SW2

SW2#

Which path does traffic take from R1 to R5?

- A. The traffic goes through R2.
- B. The traffic goes through R3.
- C. The traffic is equally load-balanced over R2 and R3.
- D. The traffic is unequally load-balanced over R2 and R3.

**Answer: A**

Explanation

Using the "show ip int brief" command on R5 we can see the IP addresses assigned to this router.

Then, using the "show ip route" command on R1 we can see that to reach 10.5.5.5 and 10.5.5.55 the preferred path is via Serial 1/3, which we see from the diagram is the link to R2.

R1	R5
<p>Codes: L - local, E - external, S - static, R - RIP, M - mobile, B -  D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area  N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2  E1 - OSPF external type 1, E2 - OSPF external type 2  I - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS  ia - IS-IS inter area, * - candidate default, U - per-user static  o - OOR, P - periodic downloaded static route, H - NHRP, I - L1  + - replicated route, % - next hop override</p> <p>Gateway of last resort is not set</p> <pre> 10.0.0.0/32 is subnetted, 5 subnets C    10.1.1.1 is directly connected, Loopback0 O    10.2.2.2 [90/2297856] via 192.168.12.2, 00:37:12, Serial1/3 O    10.3.3.3 [90/2297856] via 192.168.13.3, 00:37:12, Serial1/1 O    10.5.5.5 [90/2323456] via 192.168.12.2, 00:37:12, Serial1/3 O    10.5.5.55 [90/2323456] via 192.168.12.2, 00:37:12, Serial1/3 C    192.168.12.0/24 is variably subnetted, 2 subnets, 2 masks C    192.168.12.0/24 is directly connected, Serial1/3 L    192.168.12.1/32 is directly connected, Serial1/3 C    192.168.13.0/24 is variably subnetted, 2 subnets, 2 masks C    192.168.13.0/24 is directly connected, Serial1/1 L    192.168.13.1/32 is directly connected, Serial1/1 C    192.168.16.0/24 is variably subnetted, 2 subnets, 2 masks </pre>	<pre> R5#show ip int brief Interface IP-Address OK? Method Status Prot Vlan1 unassigned YES NVRAM administratively down down Ethernet0/0 192.168.123.5 YES NVRAM up up Ethernet0/1 unassigned YES NVRAM administratively down down Ethernet0/2 unassigned YES NVRAM administratively down down Ethernet0/3 unassigned YES NVRAM administratively down down Loopback0 10.5.5.5 YES NVRAM up up Loopback1 10.5.5.55 YES NVRAM up up </pre>
R1#	R5#

R6



**NO.496** A user is unable to connect to the Internet. Based on the layered approach to troubleshooting and beginning with the lowest layer, drag each procedure on the left to its proper category on the right.

A user is unable to connect to the Internet. Based on the layered approach to troubleshooting and beginning with the lowest layer, drag each procedure on the left to its proper category on the right.

verify URL	Step 1
verify NIC operation	Step 2
verify IP configuration	Step 3
verify Ethernet cable connection	Step 4

**Answer:**

A user is unable to connect to the Internet. Based on the layered approach to troubleshooting and beginning with the lowest layer, drag each procedure on the left to its proper category on the right.

verify URL	verify Ethernet cable connection
verify NIC operation	verify NIC operation
verify IP configuration	verify IP configuration
verify Ethernet cable connection	verify URL

**Explanation**

verify Ethernet cable connection
verify NIC operation
verify IP configuration
verify URL

The question asks us to "begin with the lowest layer" so we have to begin with Layer 1: verify physical connection; in this case an Ethernet cable connection. For your information, "verify Ethernet cable connection" means that we check if the type of connection (crossover, straight-through, rollover...) is correct, the RJ45 headers are plugged in, the signal on the cable is acceptable...

Next we "verify NIC operation". We do this by simply making a ping to the loopback interface 127.0.0.1. If it works then the NIC card (layer 1, 2) and TCP/IP stack (layer 3) are working properly. Verify IP configuration belongs to layer 3. For example, checking if the IP can be assignable for host, the PC's IP is in the same network with the gateway...

Verifying the URL by typing in your browser some popular websites like google.com, microsoft.com to assure that the far end server is not down (it sometimes make we think we can't access to the Internet). We are using a URL so this step belongs to layer 7 of the OSI model.

**NO.497** Under which circumstance is a router on a stick most appropriate?

**A.** When the router must route a single across multiple physical links.

- B. When the router must route multiple subnets across multiple physical links.
- C. When the router must route a single across single physical links.
- D. When the router must route multiple subnets across single physical links.

**Answer:** B

**NO.498** Which mode is compatible with Trunk, Access, and desirable ports?

- A. Trunk Ports
- B. Access Ports
- C. Dynamic Auto
- D. Dynamic Desirable

**Answer:** C

Explanation

Explanation/Reference:

The 'dynamic auto' will configure the port to accept incoming negotiation and will accept becoming either a trunk or an access port. Dynamic Auto allows the port to negotiate DTP (Dynamic Trunking Protocol) if the other side is set to trunk or desirable. Otherwise it will become an access port.

**NO.499** Which two statements about MPLS are true?

- A. it encapsulates all traffic in an ipv4 header.
- B. it provides automatic authentication.
- C. it uses labels to separate and forward customer traffic.
- D. it can carry multiple protocols, including ipv4 and ipv6.
- E. it tags customer traffic using 802.1q.

**Answer:** C D

**NO.500** A switch is configured with all ports assigned to VLAN 2 with full duplex FastEthernet to segment existing departmental traffic. What is the effect of adding switch ports to a new VLAN on the switch?

- A. More collision domains will be created.
- B. IP address utilization will be more efficient.
- C. More bandwidth will be required than was needed previously.
- D. An additional broadcast domain will be created.

**Answer:** D

Explanation

Each VLAN creates its own broadcast domain. Since this is a full duplex switch, each port is a separate collision domain.

**NO.501** What is the easiest way to verify the Layer 3 path from a router to host 192 168.2.1?

- A. Use Telnet to connect the router to host 192 168 2 1
- B. Add a static route for host 192.168 2 1 to the routing table of the router
- C. Execute a traceroute from the router to host 192 168.2.1.
- D. Execute a ping from the router to host 192 168.2.1.

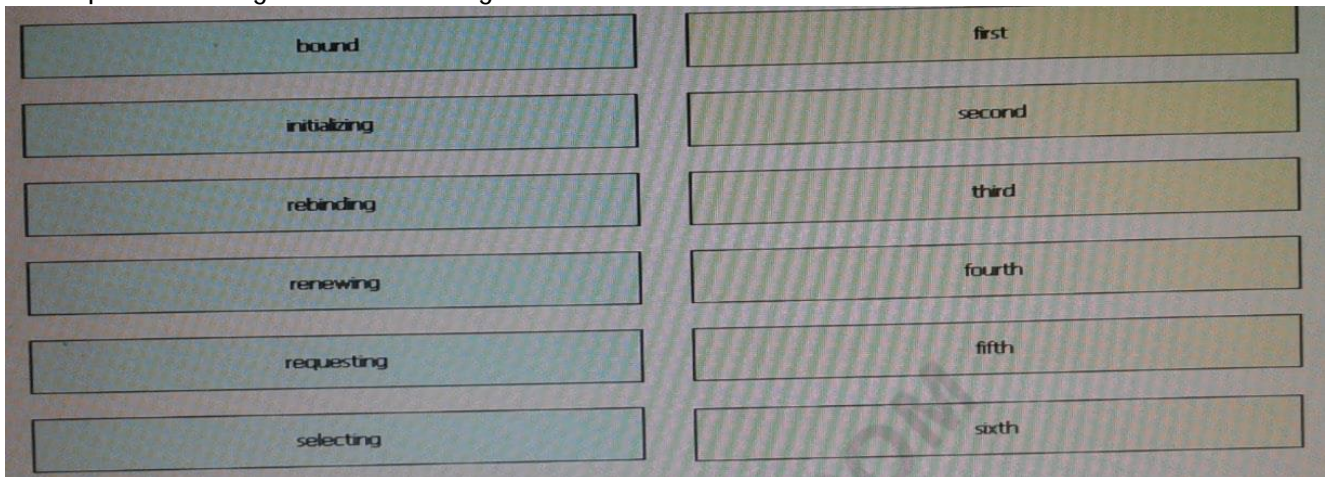
**Answer:** C

**NO.502** Which command should you enter to verify the priority of a router in an HSRP group?

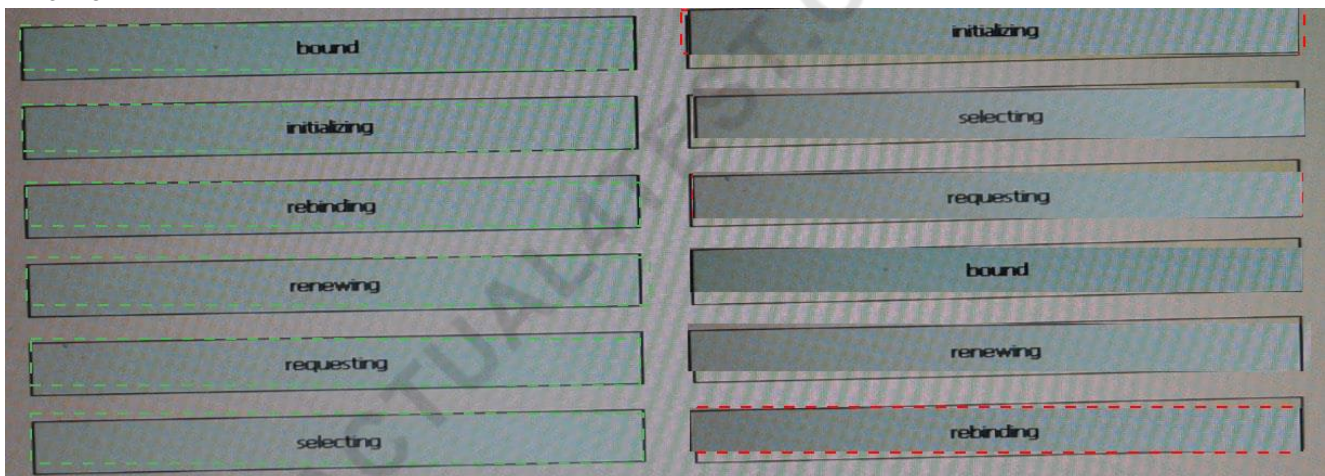
- A. show sessions
- B. show interfaces
- C. show hsrp
- D. show standby

**Answer:** D

**NO.503** Drag and drop the DHCP client states from the left into the standard order in which the Client passes through them on the right.



**Answer:**



Explanation

- \* Initializing
- \* Selecting
- \* Requesting
- \* Bound
- \* Renewing
- \* Rebinding

<https://www.cisco.com/c/en/us/support/docs/ip/dynamic-address-allocation-resolution/27470-100.html>

**NO.504** Refer to the exhibit.



```

R1#show ip eigrp topology
P 10.242.0.148/30, 1 successors, FD is 28416
  via 10.85.193.42 (28416/28160), TenGigabitEthernet0/1/0.100
P 10.245.128.192/27, 2 successors, FD is 3328
  via 10.85.193.42 (3328/3072), TenGigabitEthernet0/1/0.100
  via 10.85.193.46 (3328/3072), TenGigabitEthernet0/2/0.100
P 10.73.2.128/25, 1 successors, FD is 5120, tag is 9999
  via Redistributed (5120/0)
P 10.67.178.128/25, 1 successors, FD is 5120, tag is 9999
  via Redistributed (5120/0)
P 10.245.128.40/29, 1 successors, FD is 768
  via 10.85.193.42 (768/512), TenGigabitEthernet0/1/0.100
P 10.245.128.64/29, 1 successors, FD is 768
  via 10.85.193.46 (768/512), TenGigabitEthernet0/2/0.100
P 10.73.149.0/25, 1 successors, FD is 5120, tag is 9999
P 10.85.184.0/23, 2 successors, FD is 256768, tag is 20000
  via 10.85.193.42 (256768/256512), TenGigabitEthernet0/1/0.100
  via 10.85.193.46 (256768/256512), TenGigabitEthernet0/2/0.100

```

Which two facts can you determine from the EIGRP topology table? (Choose two)

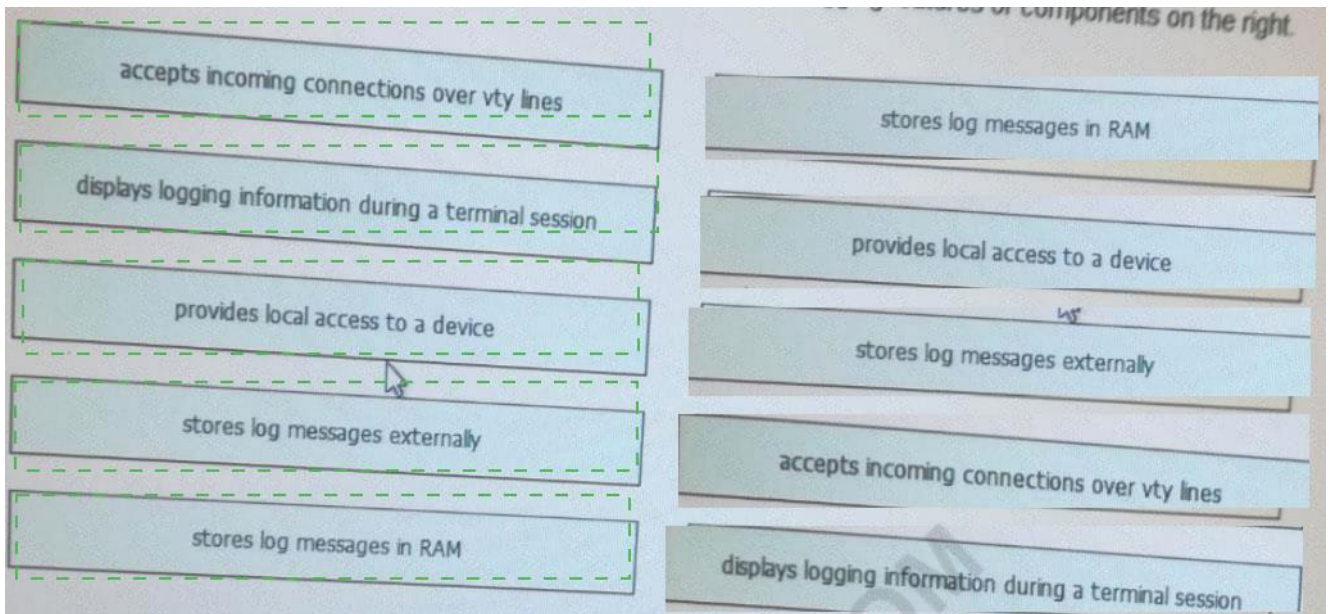
- A. The FD 28416 for route 10.242.0.148 is also the metric for the routing table
- B. The variance command must have been issued to allow route 10.85.184.0 to have two successors.
- C. If a route has more than one successor only one route is injected into the routing table.
- D. All successors are injecting into the routing table.
- E. The reported distance value is greater than the feasible distance

**Answer:** A C

**NO.505** Drag and drop the descriptions of logging from the left onto the correct logging features or components on the right.

accepts incoming connections over vty lines	buffered logging
displays logging information during a terminal session	console
provides local access to a device	syslog server logging
stores log messages externally	terminal
stores log messages in RAM	terminal monitor

**Answer:**



#### Explanation

Accept incoming cnc over vty lines-----terminal  
 Display logging inf during a terminal session-----terminal monitor  
 Provides loval access to a device-----console  
 Stores log msg externally -----syslog server  
 logging Stores log msg in RAM-----buffered logging

**NO.506** Which networking Technology is currently recognized as the standard for computer networking?

- A. System network architecture
- B. Transmission control protocol/Internet protocol
- C. Open system Interconnect
- D. Open network architecture

**Answer:** B

**NO.507** Which two descriptions of the default behavior of a router when you enter an invalid Cisco IOS CLI command are true?

- A. The router returns an error message.
- B. The router queries the default DNS server for the invalid command.
- C. The router prompts the user to enter an IP address.
- D. The router sends a broadcast message in an attempt to resolve the invalid command to an IP address.
- E. The router displays a system message prompting you to configure a DNS server.
- F. The router interprets the invalid command as a hostname

**Answer:** A F

**NO.508** Which two statements about the tunnel mode ipv6ip command are true? (Choose two.)

- A. It specifies that the tunnel is a Teredo tunnel.
- B. It specifies IPv6 as the encapsulation protocol.
- C. It enables the transmission of IPv6 packets within the configured tunnel.



- D. It specifies IPv4 as the encapsulation protocol.
- E. It specifies IPv6 as the transport protocol.

**Answer:** C D

**NO.509** Which two conditions can be used to elect the spanning-tree root bridge? (Choose two )

- A. the lowest MAC address
- B. the highest port priority
- C. the lowest switch priority
- D. the highest MAC address
- E. the lowest system ID

**Answer:** A C

**NO.510** Which HSRP feature was new in HSRPv2?

- A. VLAN group numbers that are greater than 255
- B. virtual MAC addresses
- C. tracking
- D. preemption

**Answer:** A

**NO.511** On a live network, which two commands will verify the operational status of router interfaces? (Choose two.)

- A. Router# show ip interface brief
- B. Router# debug interface
- C. Router# show ip protocols
- D. Router# show interfaces
- E. Router# show start

**Answer:** A D

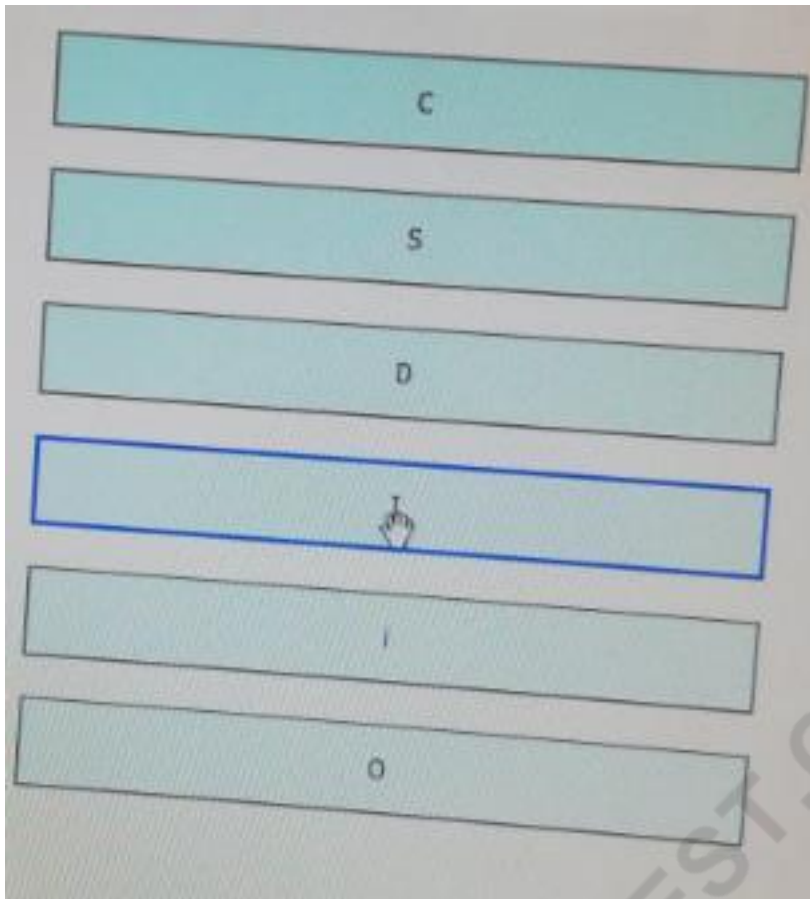
**NO.512** Drag and drop the route source codes in a routing table from the left onto the correct meanings on the right.

C	directly connected network
D	manually configured static route
I	route learned dynamically by EIGRP
i	route learned dynamically by IGRP
O	route learned dynamically by IS-IS
S	route learned dynamically by OSPF

**Answer:**

C	C
D	S
I	D
i	I
O	i
S	O

Explanation



**NO.513** What value is primarily used to determine which port becomes the root port on each nonroot switch in a spanning-tree topology?

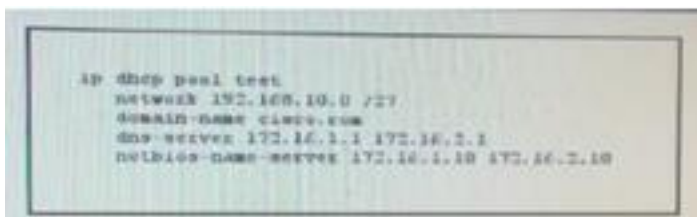
- A. path cost
- B. lowest port MAC address
- C. VTP revision number
- D. highest port priority number
- E. port priority number and MAC address

**Answer:** A

Explanation

The path cost to the root bridge is the most important value to determine which port will become the root port on each non-root switch. In particular, the port with lowest cost to the root bridge will become root port (on non-root switch).

**NO.514** Refer to the exhibit.



After you apply the given configuration to a router, the DHCP clients behind the device cannot communicate with hosts outside of their subnet. Which action is most likely to correct the problem?

- A. Configure the dns server on the same subnet as the clients

- B. Activate the dhcp pool
- C. Correct the subnet mask
- D. configure the default gateway

**Answer:** D

**NO.515** which technology supports multiple dynamic secure connections an unsecure transport network ?

- A. DMVPN
- B. VPN
- C. Site-to-site VPN
- D. client VPN

**Answer:** A

**NO.516** Which two statements about the ip subnet-zero command are true? (Choose two)

- A. It specifies the broadcast IP addresses in the subnet
- B. It is enabled by default on Cisco routers.
- C. It must be configured before you activate NAT on a router
- D. It enables the network to make full use of the available IP address space
- E. It must be configured each time you reboot a router.

**Answer:** B D

**NO.517** Which three statements accurately describe CDP? (Choose three.)

- A. CDP can discover Cisco devices that are not directly connected.
- B. CDP is a network layer protocol.
- C. CDP can discover directly connected neighboring Cisco devices.
- D. CDP is a datalink layer protocol.
- E. CDP is a Cisco proprietary protocol.
- F. CDP is an IEEE standard protocol.

**Answer:** C D E

**NO.518** Which two characteristics of a link-state routing protocol are true? (Choose two)

- A. Each router in the network maintains a separate routing database of its own neighbors.
- B. Each router uses LSAs to exchange the information about the network topology.
- C. Each router uses Dijkstra's algorithm to determine the shortest path.
- D. Each router establishes an adjacency to every other router in the network
- E. Each router uses the same path to each network in the topology.

**Answer:** B C

**NO.519** In which two ways can you prevent recursive routing in a tunneled environment? (Choose two)

- A. Configure routes through the tunnel with a lower metric than other routes.
- B. Configure route filtering to prevent the tunnel endpoints from learning each other through the tunnel.

- C. Enable QoS on the link.
- D. Configure routes through the tunnel with a higher metric than other routes.
- E. configure GRE keepalives on the tunnel interface.

**Answer:** B D

**NO.520** Which benefit of a hub-and-spoke WAN topology is true?

- A. It allows you to implement access restrictions between subscriber sites
- B. It supports application optimization.
- C. It supports Layer 2 VPNs
- D. It allows you to provide direct connections between subscribers.

**Answer:** A

**NO.521** Which type of device can be replaced by the use of sub interfaces for VLAN routing?

- A. Layer 2 bridge
- B. Layer 2 switch
- C. Layer 3 switch
- D. router

**Answer:** C

**NO.522** Which utility can you use to identify the cause of a traffic-flow blockage between two devices in a network?

- A. ACL analysis tool in APIC-EM
- B. ACL path analysis tool in APIC-EM
- C. APIC-EM automation scheduler
- D. iWan application

**Answer:** B

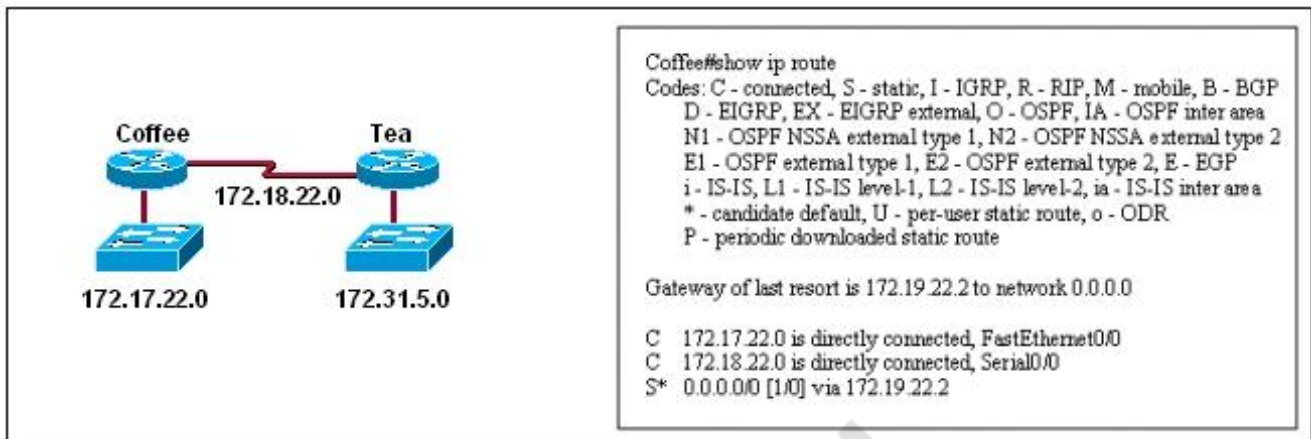
**NO.523** Which option is a valid IPv6 address?

- A. 2004:1:25A4:886F::1
- B. 2001:0000:130F:099a::12a
- C. 2002:7654:A1AD.61:81AF:CCC1
- D. FEC0:4873.5394:W06T::2A4

**Answer:** A

**NO.524** Users on the 172.17.22.0 network cannot reach the server located on the 172.31.5.0 network. The network administrator connected to router Coffee via the console port, issued the show ip route command, and was able to ping the server.





Based on the output of the show ip route command and the topology shown in the graphic, what is the cause of the failure?

- A. The network has not fully converged.
- B. IP routing is not enabled.
- C. A static route is configured incorrectly.
- D. The FastEthernet interface on Coffee is disabled.
- E. The neighbor relationship table is not correctly updated.
- F. The routing table on Coffee has not updated.

**Answer:** C

Explanation

The default route or the static route was configured with incorrect next-hop ip address 172.19.22.2. The correct IP address will be 172.18.22.2 to reach server located on 172.31.5.0 network. IP route 0.0.0.0 0.0.0.0 172.18.22.2

**NO.525** Which two characteristics of an ICMP echo based IP SLA are true? (Choose two)

- A. it requires a remote device to log and maintain collected data
- B. it can use RSPAN to report network statistics to a designated remote port
- C. it aggregates traffic statistics for reporting on a configurable basis
- D. it generates continuous traffic to monitor network performance
- E. it measures traffic to determine the reliability of a connection from a cisco router to a designated end device.

**Answer:** A E

**NO.526** Which two goals are reasons to implement private IPv4 addressing on your network choose two.

- A. Comply with PCL regulations reduce the size of the forwarding table on network routers.
- B. Conserve ipv4 addresses
- C. Comply with local law
- D. Reduce the risk of a network security breach.

**Answer:** B D

**NO.527** which configuration command can u apply to a HSRP router so that its local interface

becomes active if all other routers in the group fail?

- A. no additional config is required
- B. standby 1 track ethernet
- C. standby 1 preempt
- D. standby 1 priority 250

**Answer:** A

**NO.528** What are two advantages of dynamic routing? (Choose two)

- A. It produces minimal CPU load.
- B. It can load-balance traffic over multiple link without manual intervention
- C. It allows the network administrator to choose the best route.
- D. it can be implemented easily even in large environments.
- E. it can operate without a Layer 3 device

**Answer:** B D

Explanation

<http://www.ciscopress.com/articles/article.asp?p=2180210&seqNum=5>

**NO.529** Which two are advantages of static routing when compared to dynamic routing? (Choose two.)

- A. Configuration complexity decreases as network size increases.
- B. Security increases because only the network administrator may change the routing table.
- C. Route summarization is computed automatically by the router.
- D. Routing tables adapt automatically to topology changes.
- E. An efficient algorithm is used to build routing tables, using automatic updates.
- F. Routing updates are automatically sent to neighbors.
- G. Routing traffic load is reduced when used in stub network links.

**Answer:** B G

Explanation

Since static routing is a manual process, it can be argued that it is more secure (and more prone to human errors) since the network administrator will need to make changes to the routing table directly. Also, in stub networks where there is only a single uplink connection, the load is reduced as stub routers just need a single static default route, instead of many routes that all have the same next hop IP address.

**NO.530** After you configure the ip dns spoofing command globally on a device, under which two conditions is DNS spoofing enabled on the device? (Choose two)

- A. The ip dns spoofing command is disabled on the local interface
- B. The ip host command is disabled
- C. All configured IP name server addresses are removed
- D. The DNS server queue limit is disabled
- E. The no ip domain lookup command is configured

**Answer:** B D

Explanation

[https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipaddr\\_dns/configuration/15-mt/dns-15-mt-book/dns-config-d](https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipaddr_dns/configuration/15-mt/dns-15-mt-book/dns-config-d)

**NO.531** Which two tasks should you perform to begin troubleshooting a network problem? (Choose two)

- A. Gather all the facts.
- B. Monitor and verify the resolution
- C. Define the problem as a set of symptoms and causes
- D. Analyze the results.
- E. Implement an action plan

**Answer:** A E

**NO.532** Which IPsec security protocol should be used when confidentiality is required?

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

**Answer:** D

**NO.533** which three technical services support cloud computing ?

- A. network-monitored power sources
- B. layer 3 network routing
- C. ip localization
- D. redundant connections
- E. VPN connectivity
- F. extended SAN services

**Answer:** D E F

**NO.534**

SwitchA# **show mac-address-table**

< non-essential output omitted >

Destination Address	Address Type	VLAN	Destination Port
-----	-----	---	-----
00b0.d056.fe4d	Dynamic	1	FastEthernet0/3
00b0.d043.ac2e	Dynamic	1	FastEthernet0/4
00b0.d0fe.ac32	Dynamic	1	FastEthernet0/5
00b0.d0da.cb56	Dynamic	1	FastEthernet0/6

**Frame received by SwitchA:**

Source MAC	Destination MAC	Source IP	Destination IP
00b0.d056.fe4d	00b0.d0da.cb56	192.168.40.5	192.168.40.6

Refer to the exhibit. Which option describes how SwitchA will handle the frame just received?

- A. It will flood the frame out of all the ports except Fa0/3.
- B. It will drop the frame.
- C. It will flood the frame out all ports.
- D. It will forward the frame out of port Fa0/3 only.
- E. It will forward the frame out of port Fa0/6 only.

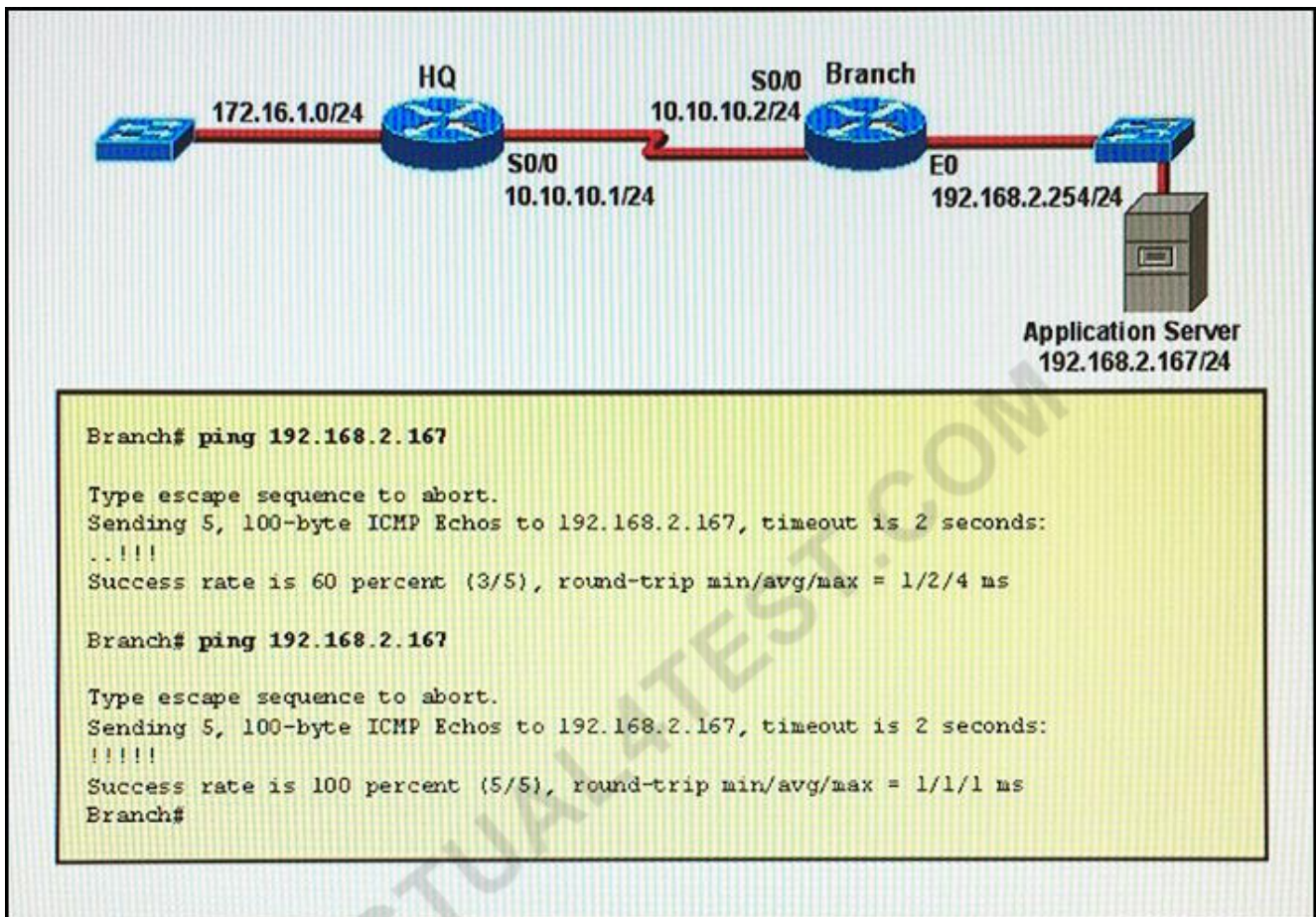
**Answer:** E

**NO.535** Which utility can you use to determine whether a switch can send echo requests and replies?

- A. SSH
- B. traceroute
- C. ping
- D. Telnet

**Answer:** C

**NO.536**



Refer to the exhibit. The network administrator is testing connectivity from the branch router to the newly installed application server. Which reason is the most likely for the first ping having a success rate of only 60 percent?

- A. The branch router LAN interface should be upgraded to FastEthernet.
- B. The branch router had to resolve the application server MAC address.
- C. The network is likely to be congested, with the result that packets are being intermittently dropped.
- D. There is a short delay while NAT translates the server IP address.

**Answer:** B

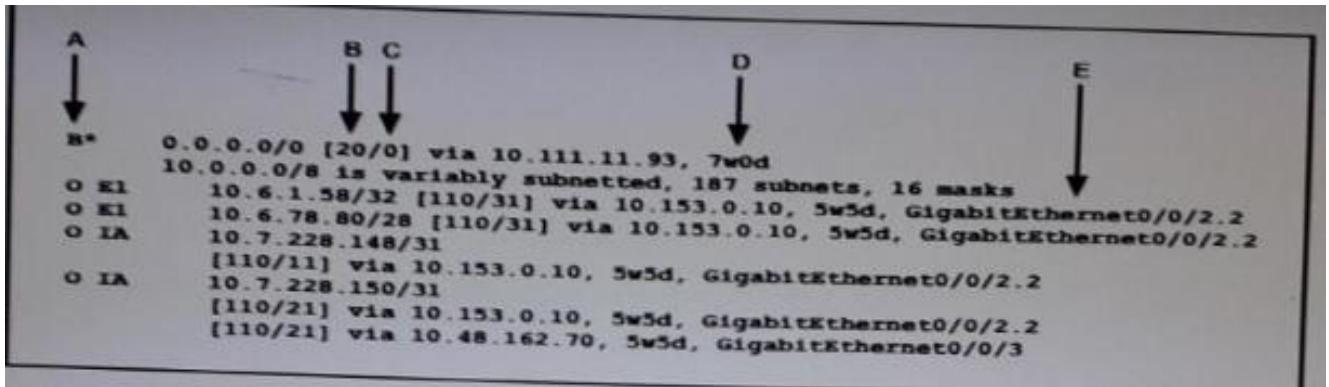
**NO.537** Which two statements correctly describe the ping utility?

- A. It can identify the source of an icmp time exceeded message
- B. It uses UDP
- C. It can verify connectivity to a remote device without identifying the path
- D. It can identify the path that a packet takes to a remote device
- E. It uses icmp

**Answer:** A E

**NO.538** Refer to the Exhibit.





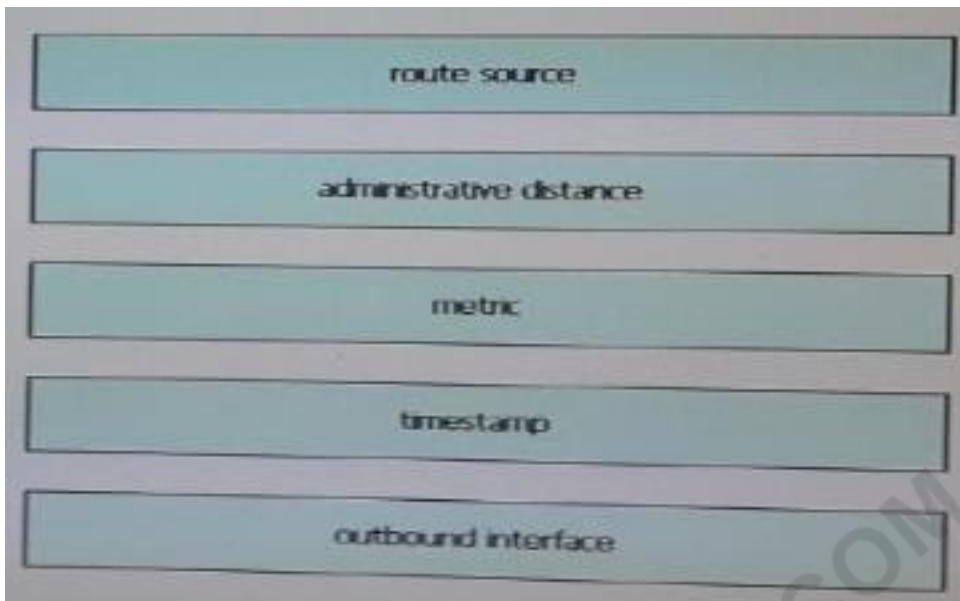
Drag and drop the routing table components on the left onto the corresponding letter from the exhibit on the right. Not all options are used.

administrative distance	A
metric	B
next-hop interface	C
outbound interface	D
route source	E
subnet mask	
timestamp	

**Answer:**

administrative distance	route source
metric	administrative distance
next-hop interface	metric
outbound interface	timestamp
route source	outbound interface
subnet mask	
timestamp	

Explanation

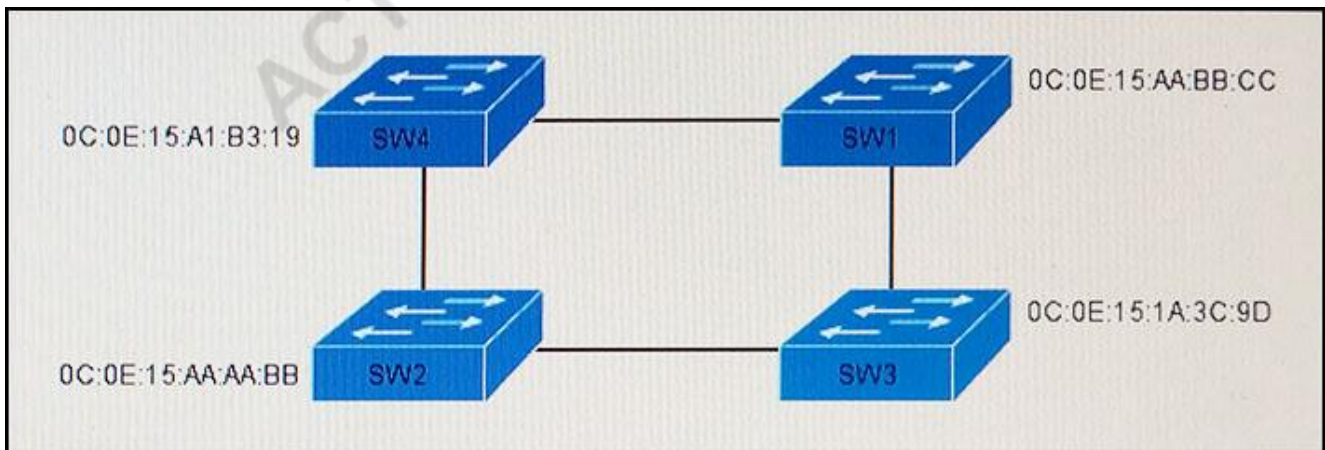


**NO.539** How many bits represent the network ID in IPv6?

- A. 32
- B. 48
- C. 64
- D. 128

**Answer:** C

**NO.540**



Refer to the exhibit. Which switch in this configuration becomes the root bridge?

- A. SW1
- B. SW2
- C. SW3
- D. SW4

**Answer:** C

**NO.541** Which WAN topology provides a direct connection from each site to all other sites on the network?

- A. single-homed

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

**Answer:** B

**NO.542** Refer to exhibit.

```
Router(config)# interface gigabitEthernet 0/1
Router(config)# ip address 192.168.1.1 255.255.255.0
Router(config)# speed 100
Router(config)# duplex full
```

Which command can you enter to verify link speed and duplex setting on the interface?

- A. router#show ip protocols
- B. router#show startup-config
- C. router#show line
- D. router#show interface gig 0/1

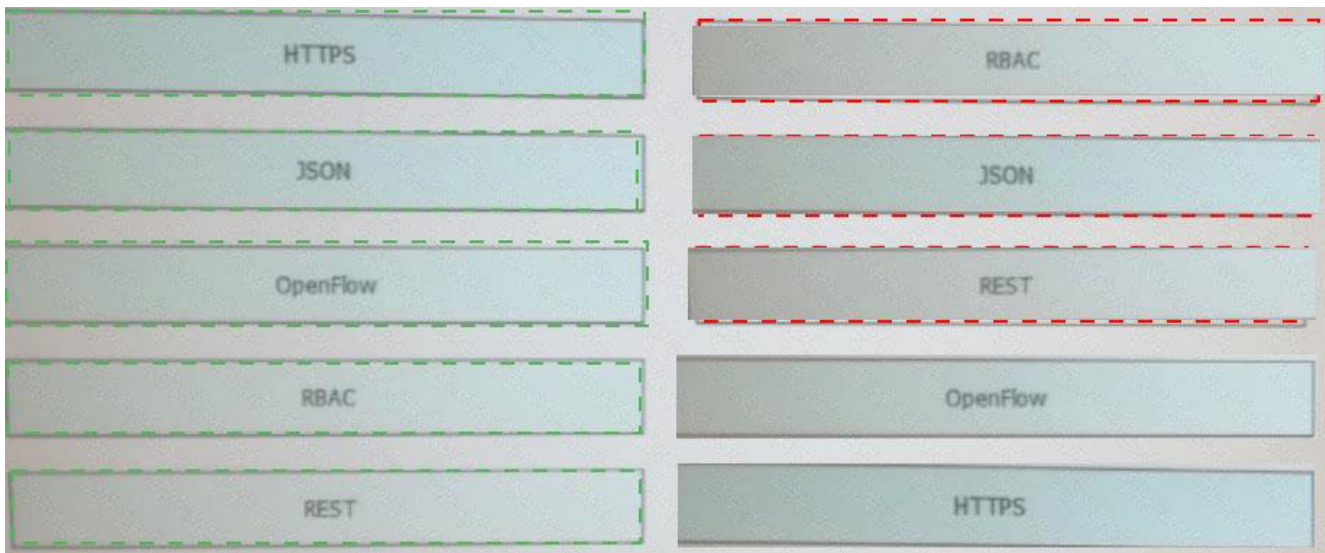
**Answer:** D

**NO.543** Drag and drop the network programmability features from the left onto the correct description on the right.

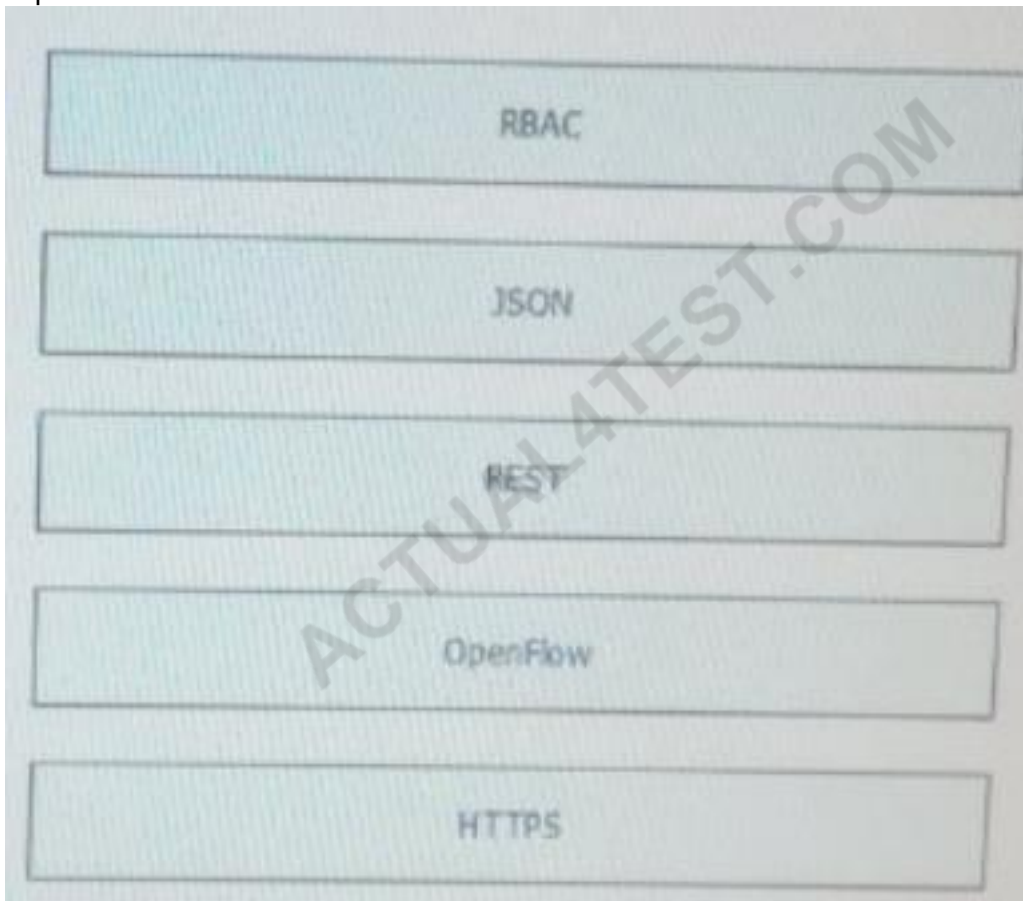
HTTPS	call to the APIC-EM API from a library
JSON	data-structure format that passes parameters for API calls
OpenFlow	northbound API
RBAC	southbound API
REST	token-based security mechanism

**Answer:**





Explanation



**NO.544** How does a router handle an incoming packet whose destination network is missing from the routing table?

- A.** it discards the packet.
- B.** it broadcasts the packet to each network on the router.
- C.** it routes the packet to the default route.
- D.** it broadcasts the packet to each interface on the router.

**Answer:** A

**NO.545** When is a routing table entry identified as directly connected?

- A. when the local router is in use as the network default gateway
- B. when the network resides on a remote router that is physically connected to the local router
- C. when an interface on the route is configured with an IP address and enabled
- D. when the route is statically assigned to reach a specific network

**Answer:** C

**NO.546** Which effect of the `copy tftp:flash:` command is true?

- A. It copies the startup configuration from a remote server to the local device.
- B. It copies the system image from the local device to a remote server.
- C. It copies the running configuration from the local device to a remote server.
- D. It copies the system image from a remote server to the local device.

**Answer:** D

**NO.547** What two actions can be taken 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. Enter an access list and apply it to the virtual terminal interfaces using the `access` command.
- E. Configure a virtual terminal password and login process.

**Answer:** D E

**NO.548** Which two commands can you use to verify an IP SLA?? (Choose two.)

- A. `show ip sla reaction-configuration`
- B. `show ip sla statistics`
- C. `show ip sla configuration`
- D. `show ip sla application`
- E. `show ip sla history`

**Answer:** C D

**NO.549** Which value is used to determine the active router in an HSRP default configuration ?

- A. router tracking number
- B. router IP address
- C. router priority
- D. router loopback address

**Answer:** C

**NO.550** Which command must you enter to enable OSPFv2 in an IPv4 network ?

- A. `ip ospf hello-interval seconds`
- B. `router ospfv2 process-id`
- C. `router ospf value`



D. router ospf process-id

**Answer:** D

**NO.551** Which two pieces of information are displayed with the show ipv6 ospf 5 multi-area command? (Choose two)

- A. Interface ID number
- B. reliability of each local interface
- C. local OSPF area
- D. number of interfaces in the area
- E. transmit and receive rates of each local interface

**Answer:** A D

**NO.552** Refer to the exhibit.

```
CiscoSwitch-MDF-1#configure terminal
CiscoSwitch-MDF-1#interface VLAN 1
CiscoSwitch-MDF-1(config-if)#ip address 192.168.2.2 255.255.255.0
CiscoSwitch-MDF-1(config-if)#end
```

What is the effect of the given configuration?

- A. It configures an inactive switch virtual interface.
- B. It configures an active management interface.
- C. It configures the native VLAN.
- D. It configures the default VLAN.

**Answer:** A

**NO.553** Which two commands should you enter to prevent a Cisco device from sharing information with upstream devices? (Choose two)

- A. R1(config)#no cdp enable
- B. R1(config-if)#no cdp run
- C. R1(config-if)#no cdp enable
- D. R1(config)#no cdp run
- E. R1(config)#no cdp advertise-v2

**Answer:** A E

**NO.554** Which two statements about Cisco Discovery Protocol are true? (Choose two )

- A. It is used to initiate a VTP server and client relationship.
- B. It uses SNMP to share device information to an external server
- C. It uses TLVs to share device information.
- D. It runs on the data link layer only
- E. It runs on the network layer and the data link layer.

**Answer:** C D

**NO.555** Which two pieces of information is displayed with the command? (Choose two)

- A. number of routes in the transmit queue of each EIGRP interface
- B. transmit and receive rates of each local EIGRP interface
- C. reliability of each EIGRP interface
- D. number of directly connected EIGRP neighbors on each EIGRP interface
- E. number of errors on each EIGRP interface

**Answer:** C D

**NO.556** Which statement about IPv6 link-local addresses is true ?

- A. they must be configured on all IPv6 interface
- B. They must be globally unique
- C. They must be manually configured
- D. They are advertised globally on the network

**Answer:** B

**NO.557** What are two benefits of private IPv4 IP addresses? (Choose two.)

- A. They can be assigned to devices not requiring Internet connections.
- B. They eliminate the necessity for NAT policies.
- C. They eliminate duplicate IP conflicts.
- D. They are routed to the Internet the same as public IP addresses.
- E. They are less costly than public IP addresses.

**Answer:** A E

**NO.558** Which WAN technology uses labels to make decisions about data forwarding?

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

**Answer:** C

**NO.559** Drag and drop the MAC address types from the left onto the correct descriptions on the right?

dynamic secure MAC address	cleared from the CAM table when the switch reboots
nonsecure MAC address	configured with the switchport port-security mac-address command
static secure MAC address	dynamically learned addresses that can be retained permanently
sticky MAC address	requires access VLAN configuration only

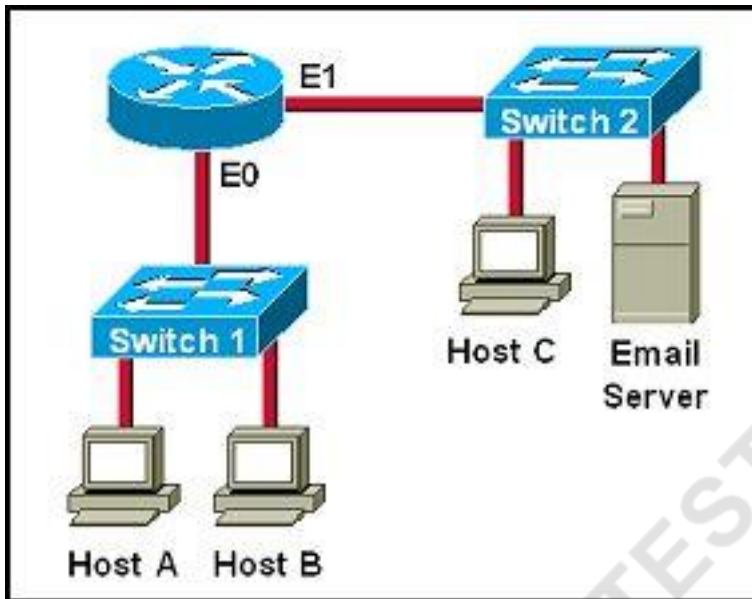
**Answer:**

dynamic secure MAC address	nonsecure MAC address
nonsecure MAC address	sticky MAC address
static secure MAC address	dynamic secure MAC address
sticky MAC address	static secure MAC address

**Explanation**

nonsecure MAC address
sticky MAC address
dynamic secure MAC address
static secure MAC address

**NO.560** Refer to exhibit:



Which two destination addresses will be used by Host A to send data to Host C? (Choose two.)

- A. the IP address of Switch 1
- B. the MAC address of Switch 1
- C. the IP address of Host C
- D. the MAC address of Host C
- E. the IP address of the router's E0 interface
- F. the MAC address of the router's E0 interface

**Answer:** C F

Explanation

While transferring data through many different networks, the source and destination IP addresses are not changed. Only the source and destination MAC addresses are changed. So in this case Host A will use the IP address of Host C and the MAC address of E0 interface to send data. When the router receives this data, it replaces the source MAC address with its own E1 interface's MAC address and replaces the destination MAC address with Host C's MAC address before sending to Host C.

**NO.561** Which two statements about stacking Cisco switches are true? (Choose two )

- A. Each switch manages its own MAC address table.
- B. It enables the administrator to manage multiple switches from a single management interface.
- C. When a new master switch is elected, it queries the previous master for its running configuration
- D. The administrator can create only one stack of switches in a network which is under the same administrative domain
- E. The administrator can add additional switches to the stack as demand increases ON

**Answer:** B C

**NO.562** Which tunneling mechanism embeds an IPv4 address within an IPv6 address?

- A. Teredo
- B. 6to4
- C. 4to6
- D. GRE

E. ISATAP

**Answer:** B

Explanation

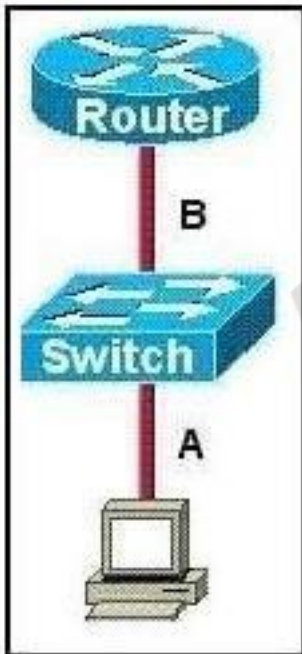
ref :<https://tools.ietf.org/html/rfc6052#section-2>

**NO.563** Which two statements about GRE tunnels are true? (Choose two)

- A. They allow multicast traffic to traverse WAN circuits.
- B. They encapsulate the payload
- C. They add 8 bytes to the IP header of each packet
- D. They provide privacy, integrity and authenticity
- E. They can operate in tunnel mode and transport mode.

**Answer:** A B

**NO.564** Refer to the exhibit.



The two connected ports on the switch are not turning orange or green. Which steps would be the most effective to troubleshoot this physical layer problem?

- A. Ensure the switch has power.
- B. Reseat all cables.
- C. Ensure cable A is plugged into a trunk port.
- D. Ensure that the Ethernet encapsulations match on the interconnected router and switch ports.
- E. Reboot all of the devices.
- F. Ensure that cables A and B are straight-through cables.

**Answer:** A B F

**NO.565** Which Ethernet interface command is present when you boot a new Cisco router for the first time?

- A. speed 100
- B. shutdown



C. ip address 192.168.1.1 255.255.255.0

D. duplex half

**Answer:** B

**NO.566** Which three options are switch port configuration, that can always avoid duplex mismatch errors between two switches? (Choose three)

A. Set one side of the connection to full duplex and the other side to half duplex.

B. Set both Sides of the connection to half duplex.

C. Set one side of the connection to auto-negotiate and the other side to half duplex

D. Set both sides of the connection to full duplex

E. Set one side of the connection to auto-negotiate and the other side to full duplex.

F. Set both sides of the connection to auto-negotiate.

**Answer:** B D F

**NO.567** Which LLDP extension provides additional support for VoIP?

A. LLDPv3

B. TLV

C. LLDP-VOIP

D. LLDP-MED

**Answer:** D

**NO.568** Which value is included in the initial TCP syn message?

A. a session ID

B. sequence number

C. a TTL number

D. an acknowledgment number

**Answer:** B

**NO.569** Which two protocols can detect native vlan mismatch errors?

A. STP

B. Cisco Discovery Protocol

C. VTP

D. DTP

E. PAgP

**Answer:** B C

**NO.570** Refer to the exhibit.

```
Switch1# show mac-address-table
```

```
Dynamic Addresses Count: 19
```

```
Secure Addresses (User-defined) Count: 0
```

```
Static Addresses (User-defined) Count: 0
```

```
System Self Addresses Count: 41
```

```
Total MAC addresses: 50
```

```
Non-static Address Table:
```

Destination Address	AddressType	VLAN	Destination Port
0010.0de0.e289	Dynamic	1	FastEthernet0/1
0010.7b00.1540	Dynamic	2	FastEthernet0/5
0010.7b00.1545	Dynamic	2	FastEthernet0/5
0060.5cf4.0076	Dynamic	1	FastEthernet0/1
0060.5cf4.0077	Dynamic	3	FastEthernet0/1
0060.5cf4.1315	Dynamic	1	FastEthernet0/1
0060.70cb.f301	Dynamic	2	FastEthernet0/1
0060.70cb.3f01	Dynamic	5	FastEthernet0/2
00e0.1e42.9978	Dynamic	4	FastEthernet0/1
00e0.1e9f.3900	Dynamic	3	FastEthernet0/1
0060.70cb.33f1	Dynamic	6	FastEthernet0/3
0060.70cb.103f	Dynamic	6	FastEthernet0/4

```
<output omitted>
```

```
Switch1# show cdp neighbors
```

```
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge  
S - Switch, H - Host, I - IGMP, r - Repeater
```

Device ID	Local Intrfce	Holdtime	Capability	Platform	Port ID
Switch2	Fas 0/1	157	S	2950-12	Fas 0/1
Switch3	Fas 0/2	143	S	2950-12	Fas 0/5

```
Switch1#
```

Which two statements are true of the interfaces on Switch1? (Choose two.)

- A. Multiple devices are connected directly to FastEthernet0/1.
- B. A hub is connected directly to FastEthernet0/5.
- C. FastEthernet0/1 is connected to a host with multiple network interface cards.
- D. FastEthernet0/5 has statically assigned MAC addresses.
- E. FastEthernet0/1 is configured as a trunk link.
- F. Interface FastEthernet0/2 has been disabled.

**Answer:** B E

Explanation

Carefully observe the information given after command show. Fa0/1 is connected to Switch2, seven MAC addresses correspond to Fa0/1, and these MAC are in different VLAN. From this we know that Fa0/1 is the trunk interface.

From the information given by show cdp neighbors we find that there is no Fa0/5 in CDP neighbor. However, F0/5 corresponds to two MAC addresses in the same VLAN. Thus we know that Fa0/5 is connected to a Hub.

Based on the output shown, there are multiple MAC addresses from different VLANs attached to the FastEthernet 0/1 interface. Only trunks are able to pass information from devices in multiple VLANs.

**NO.571** Which two facts about configuring eigrpv6 are true ?

- A. The variance command for eigrpv6 is independent of eigrpv4
- B. If you change the interface delay, the eigrpv4 delay remains unchanged
- C. You must configure neighboring devices with the same ipv6 hello-interval eigrp value
- D. The router id must be an ipv6 address
- E. If you change the interface bandwidth the eigrpv4 metric is affected.

**Answer:** C D

**NO.572** Which QoS tool can you use to optimize voice traffic on a network that is primarily intended for data traffic?

- A. WFQ
- B. PQ
- C. WRED
- D. FIFO

**Answer:** A

**NO.573** Which statement about using MPLS for WAN connectivity is true?

- A. it cannot be deployed using a single carrier.
- B. It can be deployed in redundant and nonredundant topologies.
- C. It can be deployed using LAN aggregation.
- D. It must be deployed in a redundant topology.

**Answer:** A

**NO.574** Which three functions are major components of a network virtualization architecture? (Choose three.)

- A. network access control
- B. virtual network services
- C. policy enforcement
- D. authentication services
- E. network resilience
- F. path isolation

**Answer:** A B F

Explanation

Network virtualization architecture has three main components: + Network access control and segmentation of classes of users: Users are authenticated and either allowed or denied into a logical partition. Users are segmented into employees, contractors and consultants, and guests, with respective access to IT assets. This component identifies users who are authorized to access the network and then places them into the appropriate logical partition. + Path isolation: Network isolation is preserved across the entire enterprise: from the edge to the campus to the WAN and back again. This component maintains traffic partitioned over a routed infrastructure and transports traffic over and between isolated partitions. The function of mapping isolated paths to VLANs and to virtual

services is also performed in component.+ Network Services virtualization:

This component provides access to shared or dedicated network services such as security, quality of service (QoS), and address management (Dynamic Host Configuration Protocol [DHCP] and Domain Name System

[DNS]). It also applies policy per partition and isolates application environments, if required.

Reference: <http://www.cisco.com/c/en/us>

/products/collateral/switches/catalyst-6500-series-switches/white\_paper\_c11-531522.pdf

**NO.575** CCNA.com has a small network that is using EIGRP as its IGP. All routers should be running an EIGRP AS number of 12.

Router MGT is also running static routing to the ISP.

CCNA.com has recently added the ENG router. Currently, the ENG router does not have connectivity to the ISP router.

All over interconnectivity and Internet access for the existing locations of the company are working properly.

The task is to identify the fault(s) and correct the router configuration(s) to provide full connectivity between the routers.

Access to the router CLI can be gained by clicking on the appropriate host.

All passwords on all routers are cisco

IP addresses are listed in the chart below.

MGT

Fa0/0 - 192.168.77.33

S1/0 - 198.0.18.6

S0/0 - 192.168.27.9

S0/1 - 192.168.50.21

ENG

Fa0/0 - 192.168.77.34

Fa1/0 - 192.168.12.17

Fa0/1 - 192.168.12.1

Parts1

Fa0/0 - 192.168.12.33

Fa0/1 - 192.168.12.49

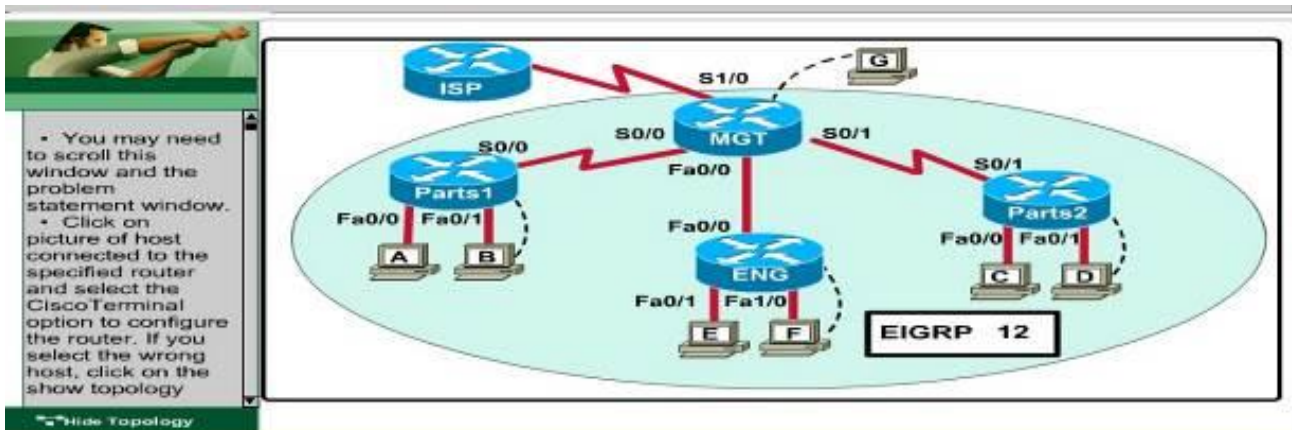
S0/0 - 192.168.27.10

Parts2

Fa0/0 - 192.168.12.65

Fa0/1 - 192.168.12.81

S0/1 - 192.168.50.22

**Answer:**

On the MGT Router:

Config t

Router eigrp 12

Network 192.168.77.0

**NO.576** Which utility can you use to identify redundant or shadow rules?

- A. the Cisco IWAN application
- B. the Cisco APIC-EM automation scheduler
- C. the ACL trace tool in Cisco APIC-EM
- D. the ACL analysis tool in Cisco APIC-EM

**Answer:** D

**NO.577** What is the correct statement below after examining the R1 routing table?

- A. Traffic that is destined to 10.10.10.0/24 from R1 LAN network uses static route instead RIPv2 Because the static route AD that is configured is less than the AD of RIPv2
- B. Traffic that is destined to 10.10.10.0/24 from R1 LAN network uses RIPv2 instead static route Because the static route AD that is configured is higher than the AD of RIPv2
- C. Traffic that is destined to 10.10.10.0/24 from R1 LAN network uses static route instead RIPv2 But the traffic is forwarded to the ISP instead of the internal network.
- D. Traffic that is destined to 10.10.10.0/24 from R1 LAN network uses RIPv2 instead static route Because the static route AD that is configured is 255

**Answer:** B

Explanation

Configuration are below for the answer.

```

R1
!
ip route 10.10.10.0 255.255.255.0 172.16.14.2 200
!

```

**NO.578** Drag and drop the IEEE standard Cable names from the left onto the correct cable types on the right?



10BASE-T
10GBASE-LR
10GBASE-T
100BASE-TX
1000BASE-LX
1000BASE-SC

Copper
Fiber

**Answer:**

10BASE-T
10GBASE-LR
10GBASE-T
100BASE-TX
1000BASE-LX
1000BASE-SC

Copper
10BASE-T
10GBASE-T
100BASE-TX
Fiber
10GBASE-LR
1000BASE-LX
1000BASE-SC

Explanation



**NO.579** Which NAT term is defined as a group of addresses available for NAT use?

- A. NAT pool
- B. dynamic NAT
- C. static NAT
- D. one-way NAT

**Answer:** A

**NO.580** Which command can you enter to troubleshoot the failure of address assignments?

- A. show ip dhcp pool
- B. show ip dhcp database
- C. show ip dhcp import
- D. clear ip dhcp server statistics

**Answer:** A

**NO.581** The router has an OSPF area 0 adjacency with the device at 10.82.4.42

- A. The router has two eigrp neighbors and one OSPF neighbor
- B. The router is learning external OSPF and eigrp routes

- C. At least two EGP routing protocols are running on the router
- D. At least three EGP routing protocols are running on the router.

**Answer:** C D

**NO.582** Which command can you enter to display duplicate IP addresses that the DHCP server assigns?

- A. show ip dhcp database 10.0.2.12
- B. show ip dhcp server statistics
- C. show ip dhcp conflict 10.0.2.12
- D. show ip dhcp binding 10.0.2.12

**Answer:** D

**NO.583** In which three ways is an IPv6 header simpler than an IPv4 header? (Choose three.)

- A. Unlike IPv4 headers, IPv6 headers have a fixed length.
- B. IPv6 uses an extension header instead of the IPv4 Fragmentation field.
- C. IPv6 headers eliminate the IPv4 Checksum field.
- D. IPv6 headers use the Fragment Offset field in place of the IPv4 Fragmentation field.
- E. IPv6 headers use a smaller Option field size than IPv4 headers.
- F. IPv6 headers use a 4-bit TTL field, and IPv4 headers use an 8-bit TTL field.

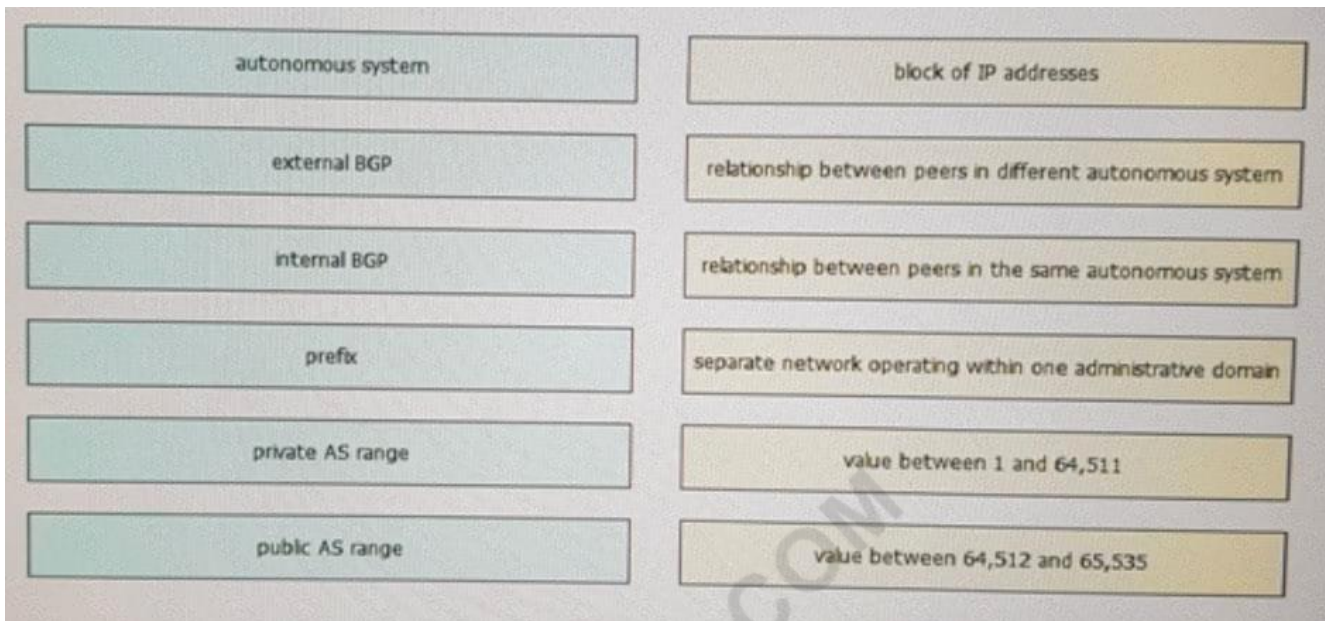
**Answer:** A B C

**NO.584** Which statement describes the effect of the overload keyword in the ip nat inside source list 90 interface ethernet 0/0 overload command?

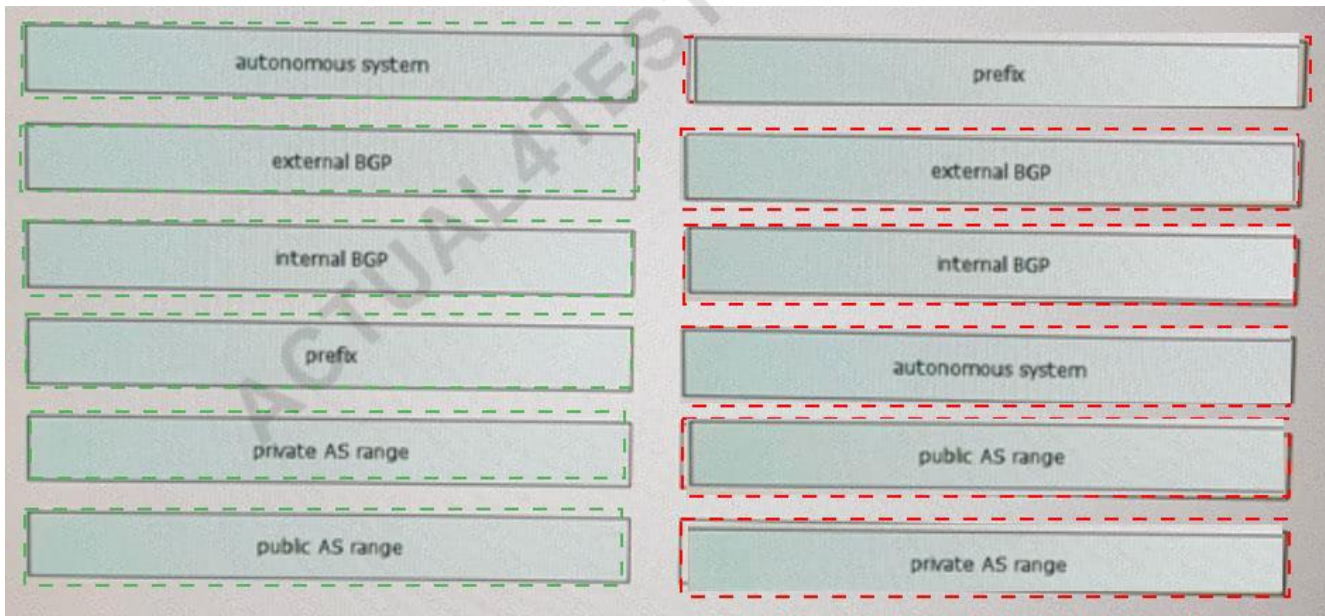
- A. Addresses that match access list inside are translated to the IP address of the Ethernet 0/0 interface.
- B. Hosts that match access list inside are translated to an address in the Ethernet 0/0 network.
- C. Hosts on the Ethernet 0/0 LAN are translated to the address pool in access list 90.
- D. Addresses that match access list 90 are translated through PAT to the IP address of the Ethernet 0/0 interface.

**Answer:** D

**NO.585** Drag and drop the BGP terms from the left onto the correct descriptions on the right



**Answer:**



**Explanation**

external BGP = peers are in different autonomous systems (AS)

internal BGP = peers are in the same autonomous systems

Autonomous System = separate network operating within one administrative domain

Private autonomous system (AS) = numbers which range from 64512 to 65535

Public AS = between 1 and 64511

Prefix = block of ip addresses

**NO.586** Refer to the exhibit.

```

R1# show ip route
      172.31.0.0/16 is variably subnetted, 3 subnets, 2 masks
S       172.31.3.16/28 [1/0] via 172.31.123.3
S       172.31.3.0/28 [1/0] via 172.31.123.3
S       172.31.2.0/24 [1/0] via 172.31.123.2
  
```

Which two statements about the route 172.61.3.16/28 are true? (Choose two)

- A. It has a metric of 1
- B. It is less preferred than dynamically learned routes
- C. It is preferred over dynamically learned routes
- D. It was learned from a remote router
- E. It has a default administrative distance of 1

**Answer:** C E

**NO.587** Which of the port is not part of STP protocol.?

- A. Listening
- B. Learning
- C. Forwarding
- D. Discarding

**Answer:** D

**NO.588** Which two pieces of information can you determine from the output of the show ntp status command?

(Choose two.)

- A. whether the clock is synchronized
- B. the NTP version number of the peer
- C. the IP address of the peer to which the clock is synchronized
- D. whether the NTP peer is statically configured ntp servers
- E. the configured NTP servers

**Answer:** A C

**NO.589** Which command do use we to see SNMP version

- A. show snmp pending
- B. show snmp engineID
- C. snmp-server something

**Answer:** A

Explanation

ref:

[https://www.cisco.com/c/en/us/td/docs/ios/12\\_2/configfun/command/reference/ffun\\_r/frf014.html#wp1053304](https://www.cisco.com/c/en/us/td/docs/ios/12_2/configfun/command/reference/ffun_r/frf014.html#wp1053304)

**NO.590** Which protocol speeds up the MAC aging process?

- A. 802.1D
- B. OSPF
- C. RIP
- D. RSTP

**Answer:** D

**NO.591** Which two QoS tools can you use to guarantee minimum bandwidth to certain traffic? (Choose two)



- A. WFQ
- B. RSVP
- C. LLC
- D. FIFO
- E. CBWFQ

**Answer:** A E

**NO.592** Which adverse situation can occur if an Ethernet cable is too long?

- A. late collisions
- B. giants
- C. interface resets
- D. runts

**Answer:** A

**NO.593** Which VLAN bridge priority value is assigned by the set spantree root command?

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

**Answer:** A

**NO.594** Which two features can mitigate spanning tree issues that are caused by broken fiber cables on interswitch links? (Choose Two)

- A. root guard
- B. DTP
- C. UDLD
- D. BPDU guard
- E. loop guard

**Answer:** D E

**NO.595** Which options are requirements for configuring RIPv2 on an IPv4 network router? (Choose two.)

- A. enabling RIP on the router
- B. allowing unicast updates for RIP
- C. enabling RIP authentication
- D. connecting RIP to a WAN interface
- E. enabling automatic route summarization

**Answer:** A B

**NO.596** Which command can you enter to block HTTPS traffic from the whole class A private network range to a host?

- A. R1(config)#access-list 105 deny tcp 10.1.0.0 0.0.255.255 40.0.0.2 0.0.0.0 eq 443
- B. R1(config)#access-list 105 deny tcp 10.1.0.0 0.0.255.255 40.0.0.2 0.0.0.0 eq 53

- C. R1(config)#access-list 105 deny tcp 10.0.0.0 0.255.255.255 40.0.0.2 0.0.0.0 eq 53  
D. R1(config)#access-list 105 deny tcp 10.0.0.0 0.255.255.255 40.0.0.2 0.0.0.0 eq 443

**Answer:** D

**NO.597** Which task do you need to perform first when you configure IP SLA to troubleshoot a network connectivity issue?

- A. Verify the ICMP echo operation
- B. Specify the test frequency
- C. Enable the ICMP echo operation.
- D. Schedule the ICMP echo operation.

**Answer:** C

**NO.598** Which adverse circumstance can occur when you connect full-duplex devices to a shared Ethernet hub?

- A. alignment errors
- B. a duplex mismatch
- C. native VLAN mismatches
- D. excessive collisions

**Answer:** B

**NO.599** Which command can you enter to display the operational status of the network ports on a router?

- A. show interface status
- B. show ip interface brief
- C. show running-config interface fastethernet 0/1
- D. show interface switchport

**Answer:** B

**NO.600** Which statement about spanning-tree root-bridge election is true?

- A. Every root bridge must reside on the same root switch
- B. it is always performed automatically.
- C. Every VLAN must use the same root bridge.
- D. Each VLAN must have its own root bridge.

**Answer:** D

**NO.601** which address prefix does OSPFv3 use when multiple IPv6 address are configured on a single interface ?

- A. all prefix on the interface
- B. the prefix that the administrator configure for OSPFv3 use
- C. the lowest prefix on the interface
- D. the highest prefix on the interface

**Answer:** A

Reference:

[http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute\\_ospf/configuration/15-sy/iro-15-sy-book/ip6-routeospfv3.html#GUID-05F3F09C-FE3E-41D6-9845-111FB17AD030](http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_ospf/configuration/15-sy/iro-15-sy-book/ip6-routeospfv3.html#GUID-05F3F09C-FE3E-41D6-9845-111FB17AD030)

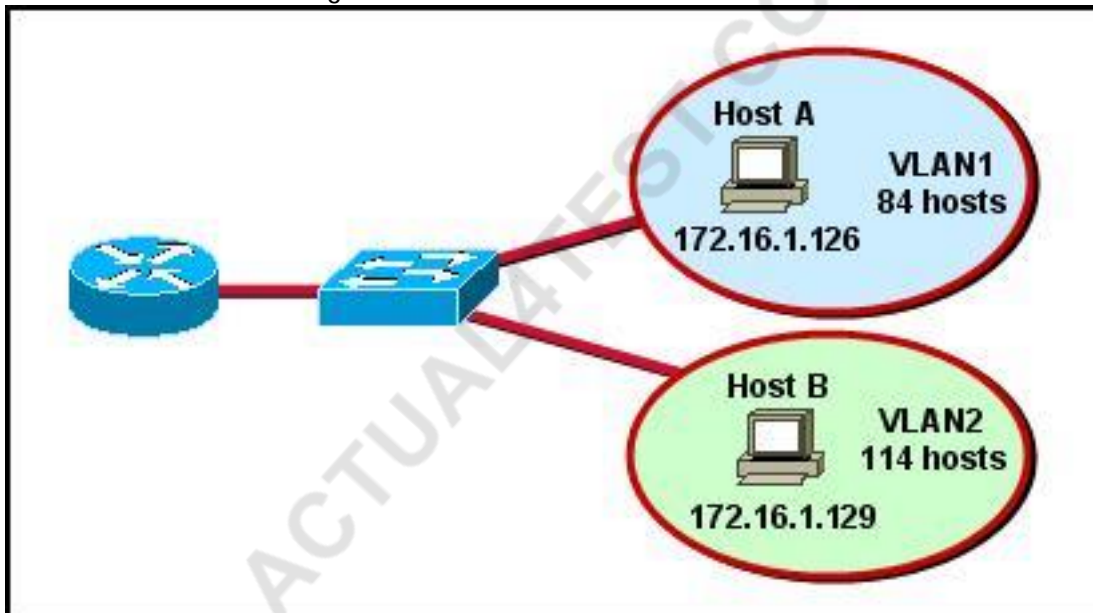
"In IPv6, you can configure many address prefixes on an interface. In OSPFv3, all address prefixes on an interface are included by default. You cannot select some address prefixes to be imported into OSPFv3; either all address prefixes on an interface are imported, or no address prefixes on an interface are imported."

**NO.602** Which two statements about an Ethernet frame source address are true?

- A. The leftmost bit is always 1.
- B. The address is 6 bytes long
- C. The address is 4 bits long
- D. The address is 4 bytes long
- E. The leftmost bit is always 0

**Answer:** B D

**NO.603** Refer to the diagram.



All hosts have connectivity with one another. Which statements describe the addressing scheme that is in use in the network? (Choose three.)

- A. The subnet mask in use is 255.255.255.192.
- B. The subnet mask in use is 255.255.255.128.
- C. The IP address 172.16.1.25 can be assigned to hosts in VLAN1
- D. The IP address 172.16.1.205 can be assigned to hosts in VLAN1
- E. The LAN interface of the router is configured with one IP address.
- F. The LAN interface of the router is configured with multiple IP addresses.

**Answer:** B C F

Explanation

The subnet mask in use is 255.255.255.128: This is subnet mask will support up to 126 hosts, which is needed.

The IP address 172.16.1.25 can be assigned to hosts in VLAN1: The usable host range in this subnet is 172.16.1.1-172.16.1.126

The LAN interface of the router is configured with multiple IP addresses: The router will need 2 subinterfaces for the single physical interface, one with an IP address that belongs in each VLAN.

**NO.604** Which three statements about IPv6 address fd14:920b:f83d:4079::/64 are true? (Choose three)

- A. The subnet ID is 14920bf83d.
- B. The subnet ID is 4079.
- C. The global ID is 14920bf83d.
- D. The address is a link-local address.
- E. The global ID is 4079.
- F. The address is a unique local address.

**Answer:** B C F

Explanation

[https://www.ripe.net/participate/member-support/lir-basics/ipv6\\_reference\\_card.pdf](https://www.ripe.net/participate/member-support/lir-basics/ipv6_reference_card.pdf)

**NO.605** What is the maximum number of switches that stackwise can support in one stack?

- A. 6
- B. 8
- C. 9
- D. 10

**Answer:** C

**NO.606** Which two statements about RIPv2 are true? (Choose two )

- A. It uses the Bellman-Ford routing algorithm
- B. It sends periodic updates via broadcast
- C. It stores RIP neighbor adjacency information in a neighbor table
- D. It does not support clear text authentication, similar to RIPv1.
- E. It supports CIDR and VLSM.

**Answer:** A E

**NO.607** Which two conditions can StackWise use to determine the master of the stack? (Choose two )

- A. the lowest member priority
- B. the lowest system MAC address
- C. the greatest number of configured VLANs
- D. the highest system MAC address
- E. the highest member priority

**Answer:** B E

**NO.608** Which feature can you use to restrict SNMP queries to a specific OID tree?

- A. server group
- B. a community
- C. a view record

D. an access group

**Answer:** C

**NO.609** Which technique can you use to route IPv6 traffic over an IPv4 infrastructure?

A. NAT

B. 6to4 tunneling

C. L2TPv3

D. dual-stack

**Answer:** B

**NO.610** Which purpose of the network command in OSPF configuration mode is true?

A. It defines a wildcard mask to identify the size of the network.

B. It defines the area ID.

C. It defines the network by its classful entry.

D. It defines which networks are used for virtual links.

**Answer:** A

**NO.611** Where does a switch maintain DHCP snooping information?

A. in the CAM table

B. in the VLAN database

C. in the DHCP binding database

D. in the MAC address table

**Answer:** C

**NO.612** Which three commands can you use to set a router boot image? (Choose three.)

A. Router(config)#boot system flash c4500-p-mz .121-20.bin

B. Router(config)#boot flash:c180x-adventerprisek9-mz-124-6T.bin

C. Router>noot flash:c180-adventerprisek9-mz-124-6t.bin

D. Router(confi)#boot bootldr bootflash:c4500-jk9s-mz.122-23f.bin

E. Router(config)#boot system tftp c7300-js-mz.122-33.SB8a.bin

F. Router(Configure)#boot system rom c7301-adviservicek9-mz.124-24.T4.bin

**Answer:** A F

**NO.613** Which feature automatically disables Cisco Express Forwarding when it is enabled?

A. multicast

B. IP redirects

C. RIB

D. ACL logging

**Answer:** D

Explanation

If you enable Cisco Express Forwarding and then create an access list that uses the log keyword, the packets that match the access list are not Cisco Express Forwarding switched. They are process switched. Logging disables Cisco Express Forwarding.



**NO.614** The command `ip route 192.168.100.160 255.255.255.224 192.168.10.2` was issued on a router. No routing protocols or other static routes are configured on the router. Which statement is true about this command?

- A. The interface with IP address 192.168.10.2 is on this router.
- B. The command sets a gateway of last resort for the router.
- C. Packets that are destined for host 192.168.100.160 will be sent to 192.168.10.2.
- D. The command creates a static route for all IP traffic with the source address 192.168.100.160.

**Answer:** C

**NO.615** Which two server types are used to support DNS lookup? (Choose two.)

- A. web server
- B. ESX host
- C. authoritative name server
- D. file transfer server
- E. name resolver

**Answer:** A C

**NO.616** If three devices are plugged into one port on a switch and two devices are plugged into a different port, how many collision domains are on the switch?

- A. 2
- B. 4
- C. 5
- D. 6

**Answer:** C

**NO.617** Which port security violation mode allows traffic from valid mac address to pass but block traffic from invalid mac address?

- A. protect
- B. shutdown
- C. shutdown vlan
- D. restrict

**Answer:** A

**NO.618** Which IP address can send traffic to all hosts on network 10.101.0.0/16?

- A. 10.101.0.1
- B. 10.101.254.254
- C. 10.101.255.255
- D. 224.0.0.1

**Answer:** A

**NO.619** Which protocol does ipv6 use to discover other ipv6 nodes on the same segment?

- A. CLNS

- B. TCPv6
- C. NHRP
- D. NDP
- E. ARP

**Answer:** D

Explanation

ref : <https://tools.ietf.org/html/rfc4861>

**NO.620** During which phase of PPPoE is PPP authentication performed?

- A. the PPP Session phase
- B. Phase 2
- C. the Active Discovery phase
- D. the Authentication phase
- E. Phase 1

**Answer:** A

**NO.621** Which statement about unique local IPv6 addresses is true?

- A. Summarization is not supported.
- B. They require all prefixes to be unique.
- C. Their global IDs are assigned sequentially.
- D. They are routable to the public Internet.

**Answer:** B

**NO.622** Drag and drop the switching concepts from the left onto the correct descriptions on the right.

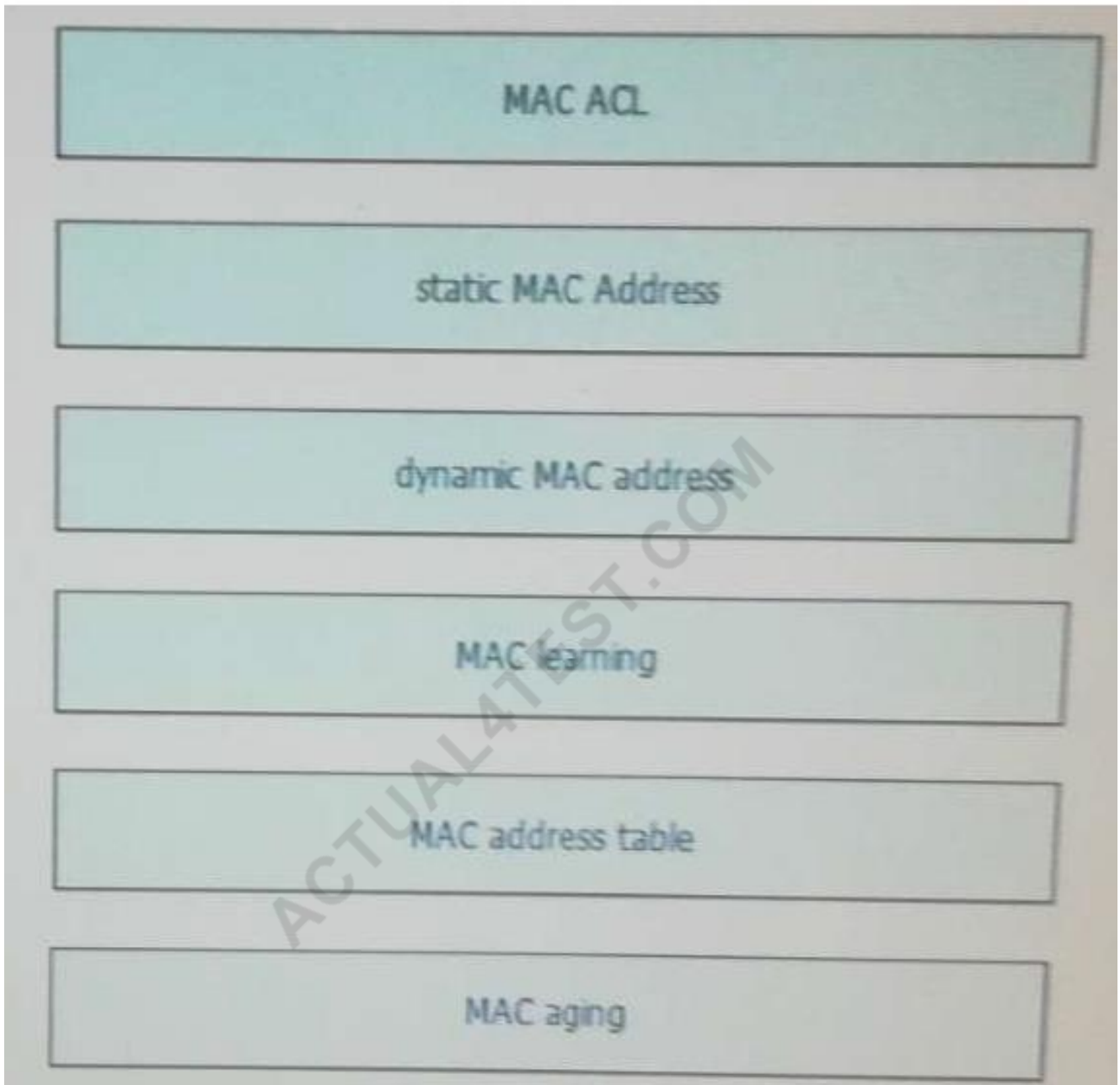
dynamic MAC address	feature that determines whether incoming traffic will be allowed
MAC ACL	MAC address that remains in the MAC table after a reboot
MAC address table	MAC address that is learned by the switch through normal traffic flows
MAC aging	adding a previously unknown MAC address to the address table
MAC learning	associates a learned MAC address with its connected interface
static MAC Address	removing an inactive MAC address from the address table after a specified period

**Answer:**



Explanation

ACTUAL4TEST.COM



**NO.623** What is the most efficient subnet mask for a point to point ipv6 connection?

- A. /127
- B. /128
- C. /64
- D. /48
- E. /32

**Answer:** B

Explanation

ref : <https://tools.ietf.org/html/rfc6164>

**NO.624** When a router is unable to find a known route in the routing table, how does it handle the packet?

- A. It discards the packet
- B. It sends the packet over the route with the best metric
- C. It sends the packet to the next hop address
- D. It sends the packet to the gateway of last resort

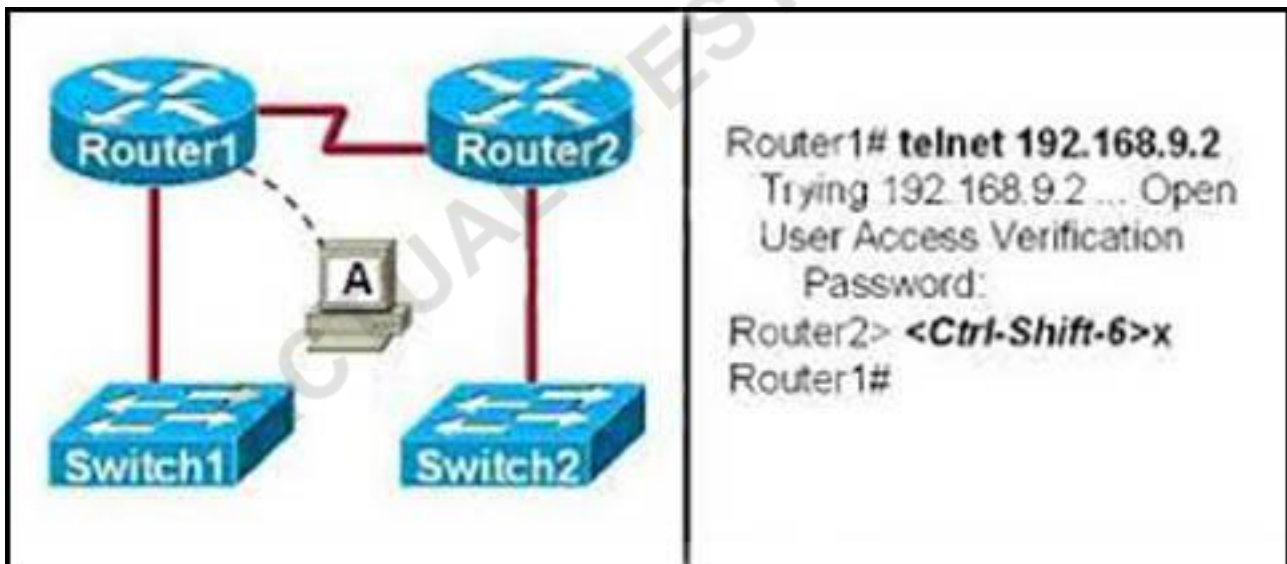
**Answer:** D

**NO.625** Which two benefits are provided by cloud resources to an enterprise network?

- A. Easy access with low security
- B. Flexibility
- C. Complexity at higher cost
- D. Full control of infrastructure
- E. On-demand scalability

**Answer:** B E

**NO.626** Refer to the exhibit.



If the resume command is entered after the sequence that is shown in the exhibit, which router prompt will be displayed?

- A. Router2#
- B. Router2>
- C. Router1#
- D. Router1>

**Answer:** B

**NO.627** Which two networking standards use copper cable? (Choose two)

- A. 100BASE-LX
- B. 10BASE-T
- C. 802.11ac
- D. 802.3d
- E. 802.3

**Answer:** A B



**NO.628** In which two formats can the IPv6 address fd15:0db8:0000:0000:0700:0003:400F:572B be written? (Choose two.)

- A. fd15:0db8:0000:0000:700:3:400F:527B
- B. fd15::db8::700:3:400F:527B
- C. fd15:db8:0::700:3:4F:527B
- D. fd15:0db8::7:3:4F:527B
- E. fd15:db8::700:3:400F:572B

**Answer:** A E

**NO.629** Which HSRP Feature was new in HSRPv2 ?

- A. Virtual MAC Address
- B. Preemption
- C. Tracking
- D. VLAN Group Numbers that are greater than 255

**Answer:** D

**NO.630** Which type of secure MAC address must be configured manually?

- A. static
- B. dynamic
- C. sticky
- D. bia

**Answer:** A

**NO.631** Central Florida Widgets recently installed a new router in their office.

Complete the network installation by performing the initial router configurations and configuring R1PV2 routing using the router command line interface (CLI) on the RC.

Configure the router per the following requirements:

Name of the router is R2

Enable. secret password is cisco

The password to access user EXEC mode using the console is cisco2

The password to allow telnet access to the router is cisco3

IPV4 addresses must be configured as follows:

Ethernet network 209.165.201.0/27 - router has fourth assignable host address in subnet  
Serial network is 192.0.2.176/28 - router has last assignable host address in the subnet.

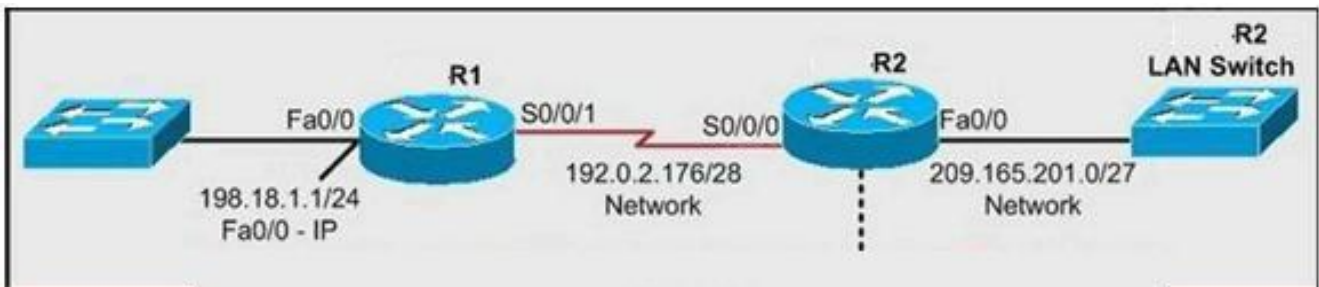
Interfaces should be enabled.

Router protocol is RIPV2

Attention:

In practical examinations, please note the following, the actual information will prevail.

1. Name of the router is xxx
2. Enable. secret password is xxx
3. Password In access user EXEC mode using the console is xxx
4. The password to allow telnet access to the router is xxx
5. IP information

**Answer:**

```

Router>enable
Router#config terminal
Router(config)#hostname R2
R2(config)#enable secret Cisco 1
R2(config)#line console 0
R2(config-line)#password Cisco 2
R2(config-line)#exit
R2(config)#line vty 0 4
R2(config-line)#password Cisco 3
R2(config-line)#login
R2(config-line)#exit
R2(config)#interface fa0/0
R2(config-if)#ip address 209.165.201.4 255.255.255.224
R2(config)#interface s0/0/0
R2(config-if)#ip address 192.0.2.190 255.255.255.240
R2(config-if)#no shutdown
R2(config-if)#exit
R2(config)#router rip
R2(config-router)#version 2
R2(config-router)#network 209.165.201.0
R2(config-router)#network 192.0.2.176
R2(config-router)#end
R2#copy run start

```

**NO.632** Refer to the exhibit.

```

Port Security           : Enabled
Port Status             : Secure-shutdown
Violation Mode          : Shutdown
Aging Time              : 0 mins
Aging Type              : Absolute
SecureStatic Address Aging : Disabled
Maximum MAC Addresses   : 2
Total MAC Addresses     : 2
Configured MAC Addresses : 0
Sticky MAC Addresses    : 2
Last Source Address:Vlan : 0001.0fAA.33BB:1
Security Violation Count : 1

```

Which two statements about the interface that generated the output are true? (Choose two.)

- A. The interface is error-disabled.
- B. The interface dynamically learned two secure MAC addresses.
- C. An SNMP trap is generated when the maximum number of secure MAC addresses is reached on the interface.
- D. A syslog message is generated when the maximum number of secure MAC addresses is reached on the interface.
- E. Two secure MAC address are manually configured on the interface

**Answer:** C E

**NO.633** Which type of routing protocol operates by exchanging the entire routing information?

- A. distance vector protocols
- B. link state protocols
- C. path vector protocols
- D. exterior gateway protocols

**Answer:** A

**NO.634** Which two facts must you take into account when you deploy PPPoE? (Choose two.)

- A. IPPPoE supports a maximum of 10 clients per customer premises equipment
- B. You must manually configure IP addresses on the PPPoE interface.
- C. DDR is not supported.
- D. An individual PVC can support one PPPoE client
- E. DDR idle timers must be configured to supported VPDN logging.

**Answer:** A D

**NO.635** Which command can you enter on a router to identify the path a packet takes to a remote device?

- A. trace path
- B. ping
- C. debug Ip packet

D. traceroute

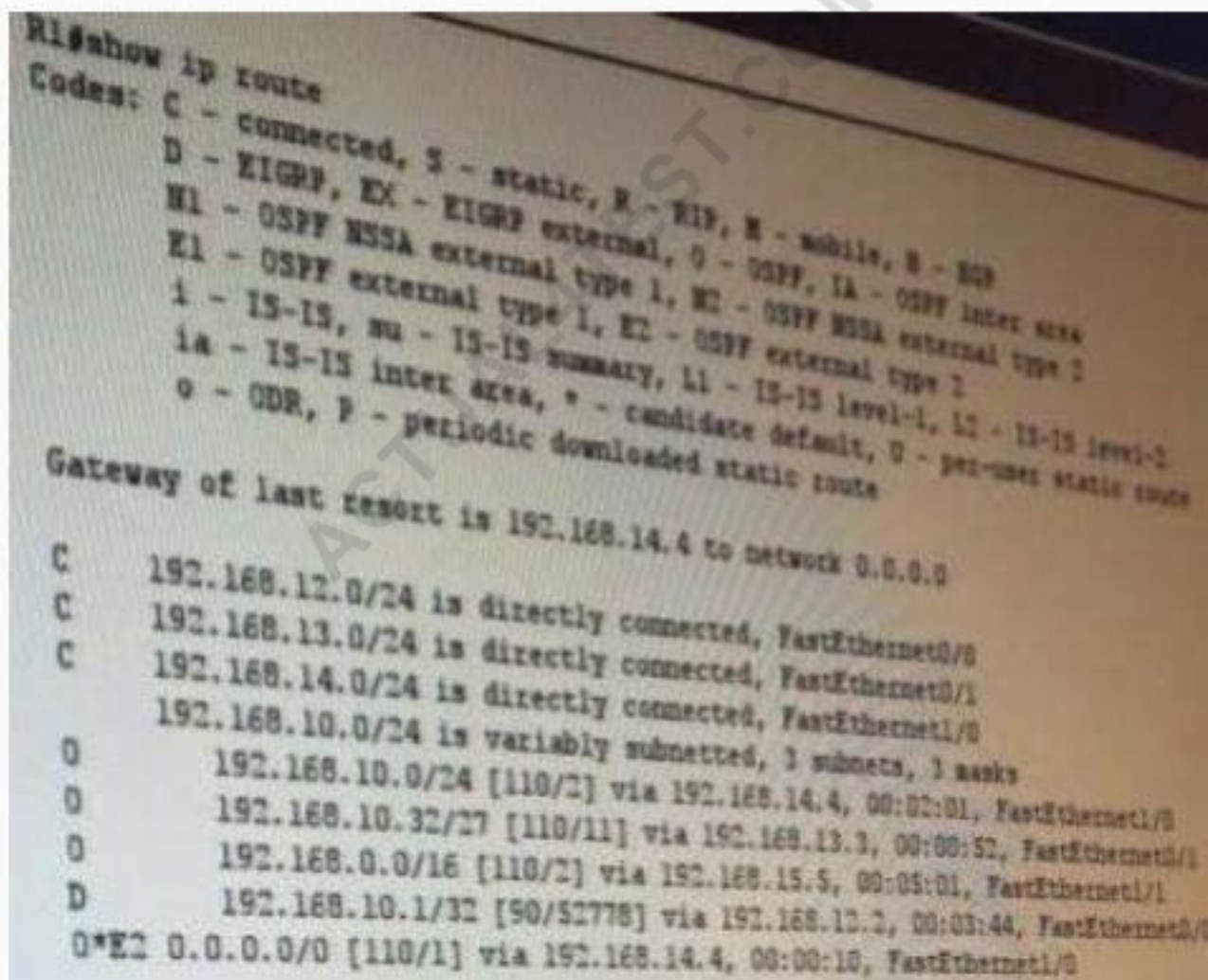
**Answer:** D

**NO.636** Which statement describes the effect of the copy run start command on a router in enable mode?

- A. The running configuration of the router is saved to NVRAM and used during the boot process.
- B. The router reboots and loads the last saved running configuration.
- C. A copy of the running configuration of the router is sent by FTP to a designated server.
- D. A new running configuration is loaded from flash memory to the router.

**Answer:** A

**NO.637** Refer to the exhibit.



If R1 receives a packet destined to 172.16.1.1, to which IP address does it send the packet ?

- A. 192.168.14.4
- B. 192.168.12.2
- C. 192.168.13.3
- D. 192.168.15.5

**Answer:** A

**NO.638** Which command can you enter on a switch to display the IP addresses associated with connected devices?

- A. show cdp interface
- B. show cdp neighbors detail
- C. show cdp neighbors
- D. show cdp traffic

**Answer:** B

**NO.639** Which two pieces of information can be shared with LLDP TLVs? (Choose two)

- A. device management address
- B. device type
- C. spanning-tree topology
- D. routing configuration
- E. access-list configuration

**Answer:** A B

Explanation

TLV advertises a single type of information such as its device ID, type or management addresses.

**NO.640** Which two results occur when the ipv6 enable command is entered? (Choose two)

- A. An IPv6 EUI-64 interface ID is configured automatically on the interface.
- B. IPv6 is enabled on a single interface.
- C. An IPv6 link-local unicast address is configured automatically on the interface.
- D. The administrator is prompted to configure an IP address on the interface
- E. IPv6 is enabled globally on the device.

**Answer:** B C

**NO.641** Which two statements about late collisions are true? (Choose two.)

- A. They may indicate a duplex mismatch.
- B. By definition, they occur after the 512th bit of the frame has been transmitted.
- C. They indicate received frames that did not pass the FCS match.
- D. They are frames that exceed 1518 bytes.
- E. They occur when CRC errors and interference occur on the cable.

**Answer:** A B

**NO.642**



## Instructions

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

## Scenario

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

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

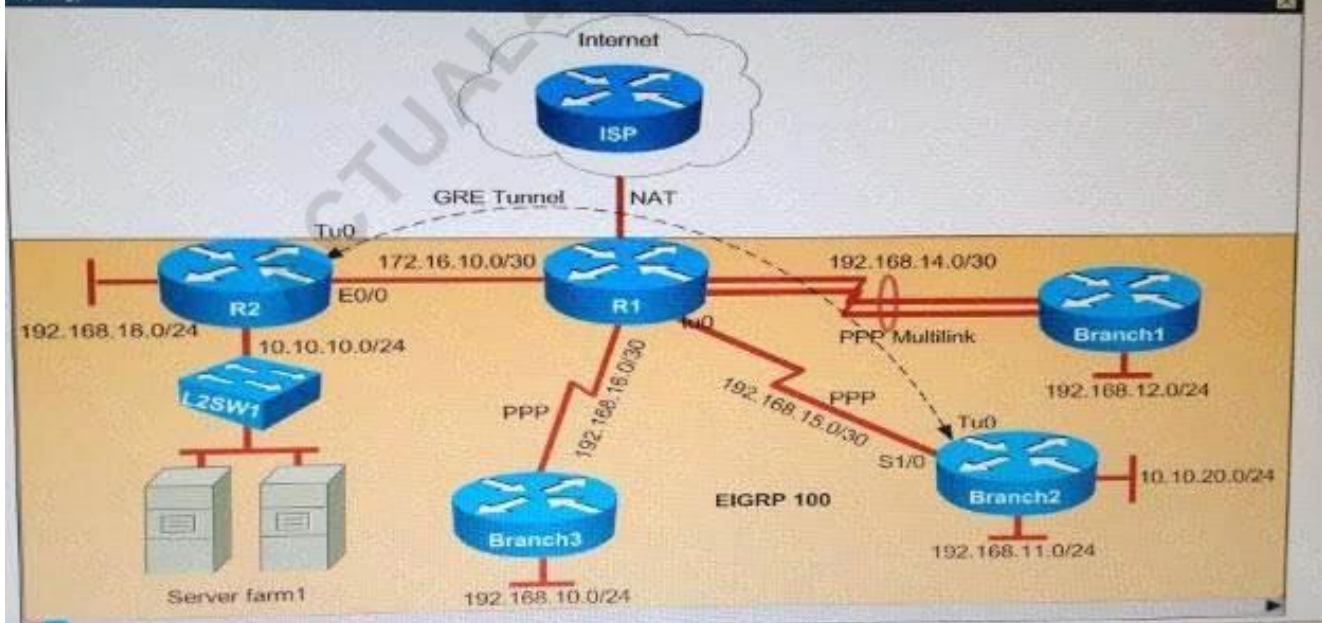
Routers Branch1, Branch2, and Branch3 connect to Router R1 in the main office over serial links.

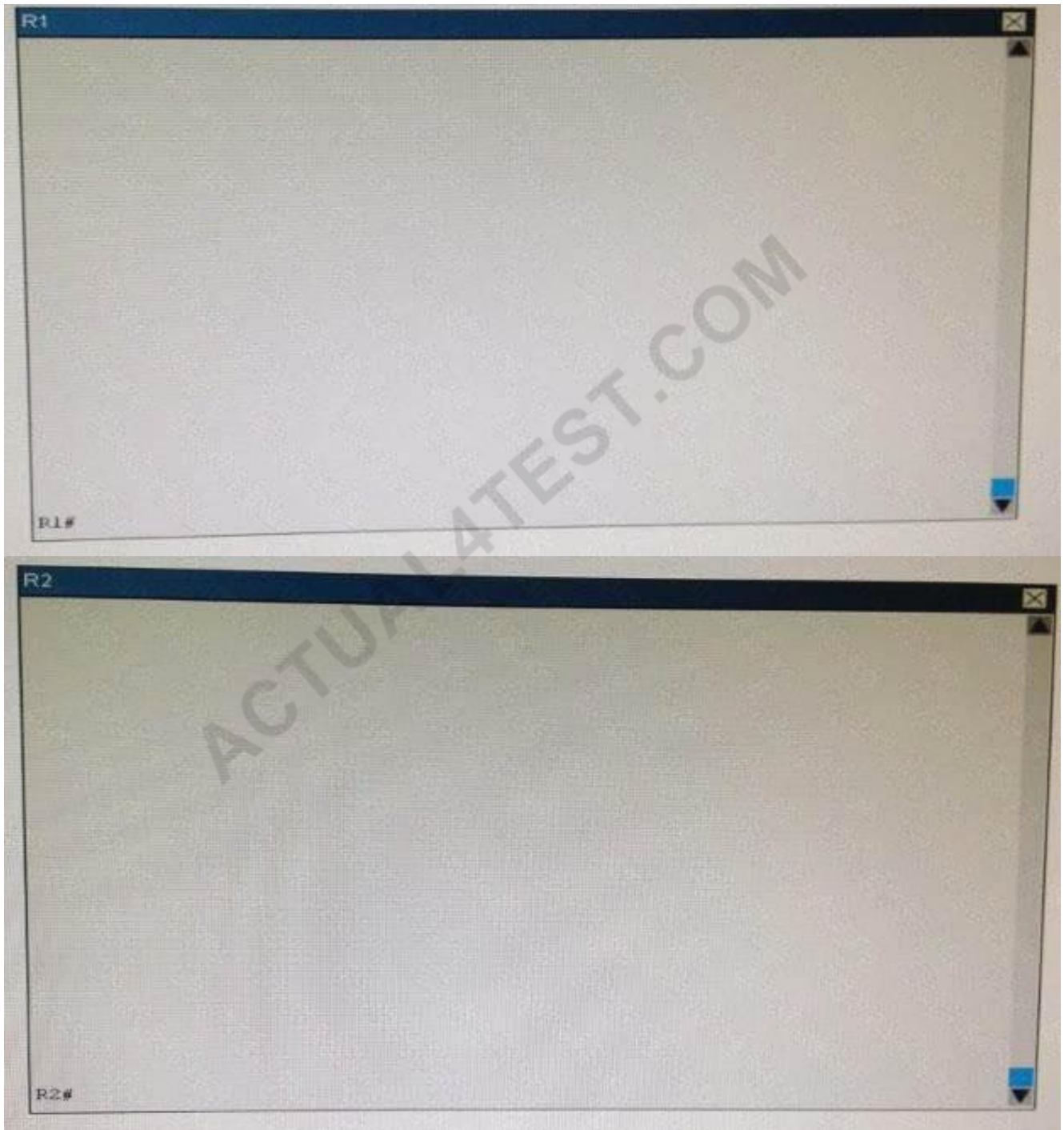
PPP multilink implementation is recommended between R1 and Branch1 routers.

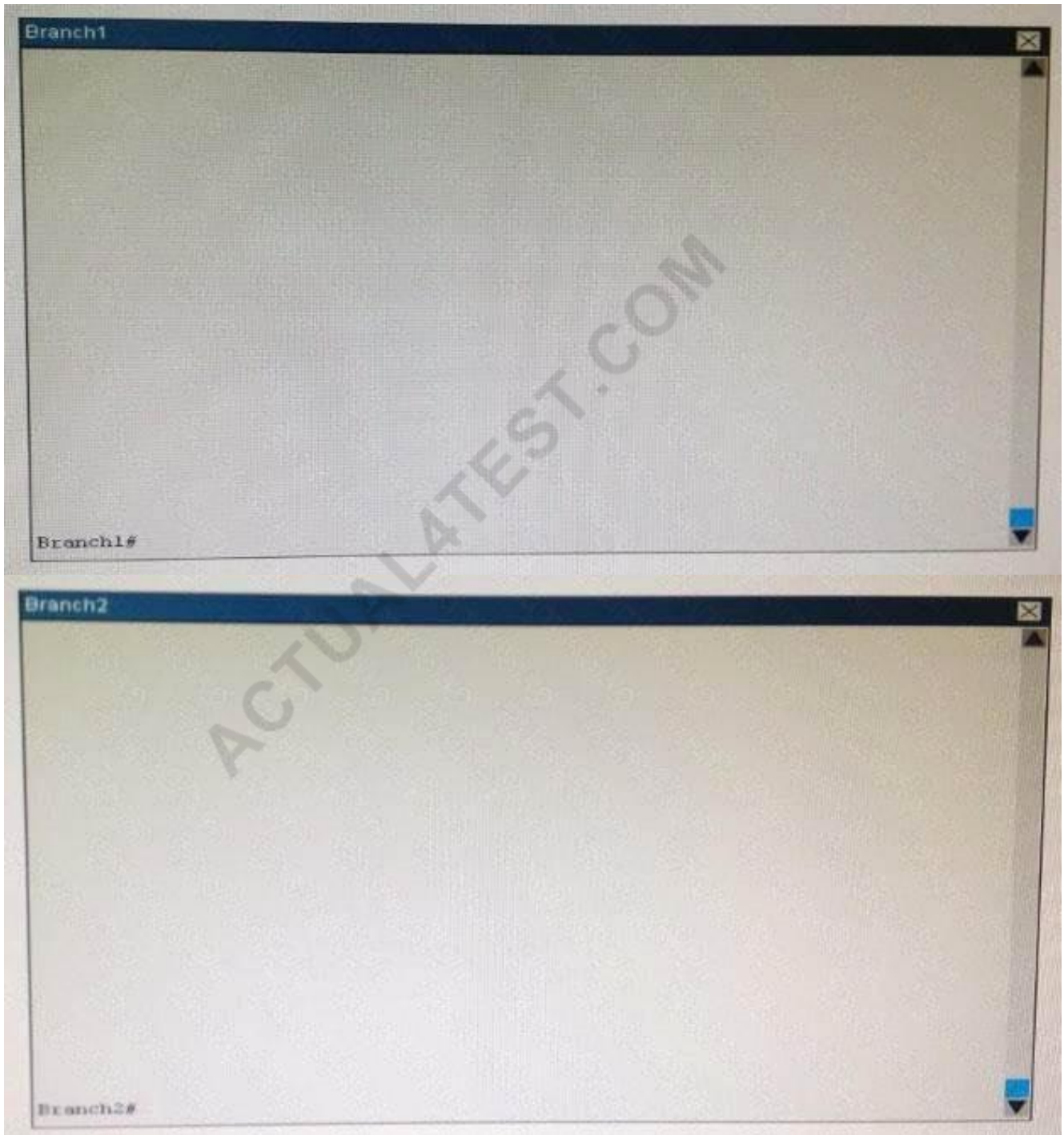
The GRE tunnel is configured between R2 and Branch2 routers, and traffic between Server farm1 10.10.10.0/24 network and Branch2 LAN 10.10.20.0/24 network is routed over GRE tunnel using static route.

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

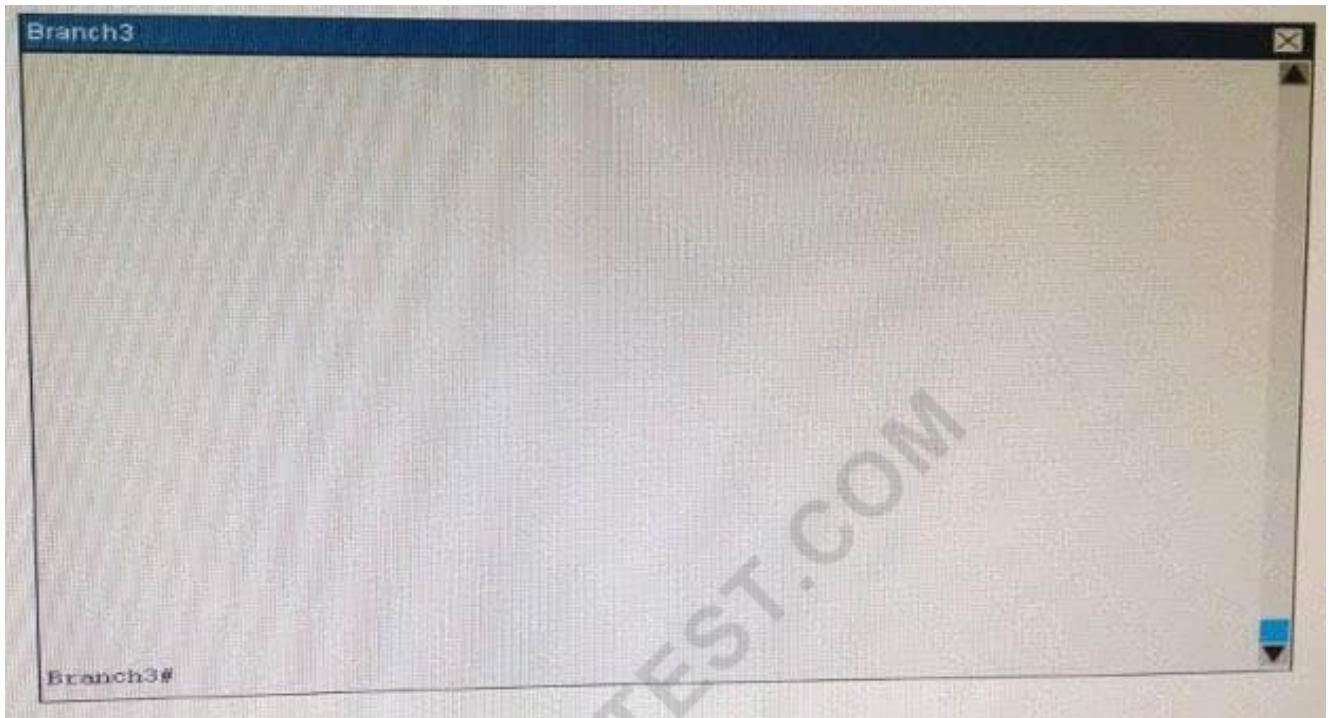
## Topology











Which statement about the router configurations is correct?

- A. PPP PAP is authentication configured between Branch2 and R1.
- B. Tunnel keepalives are not configured for the tunnel0 interface on Branch2 and R2.
- C. The Branch2 LAN network 192.168.11 0/24 is not advertised into the EIGRP network.
- D. The Branch3 LAN network 192.168.10.0/24 is not advertised into the EIGRP network.
- E. PPP CHAP is authentication configured between Branch1 and R1.

**Answer:** D

Explanation

When we check Branch3 router we notice that "network 192.168.10.0" command is missing under "router eigrp 100"

```
Branch3#show running-config
<output omitted>
!
router eigrp 100
  network 192.168.16.0
!
```

**NO.643** Which switching method checks for CRC errors?

- A. Store-and forward
- B. Layer 3
- C. Fragment-free
- D. Cut-through

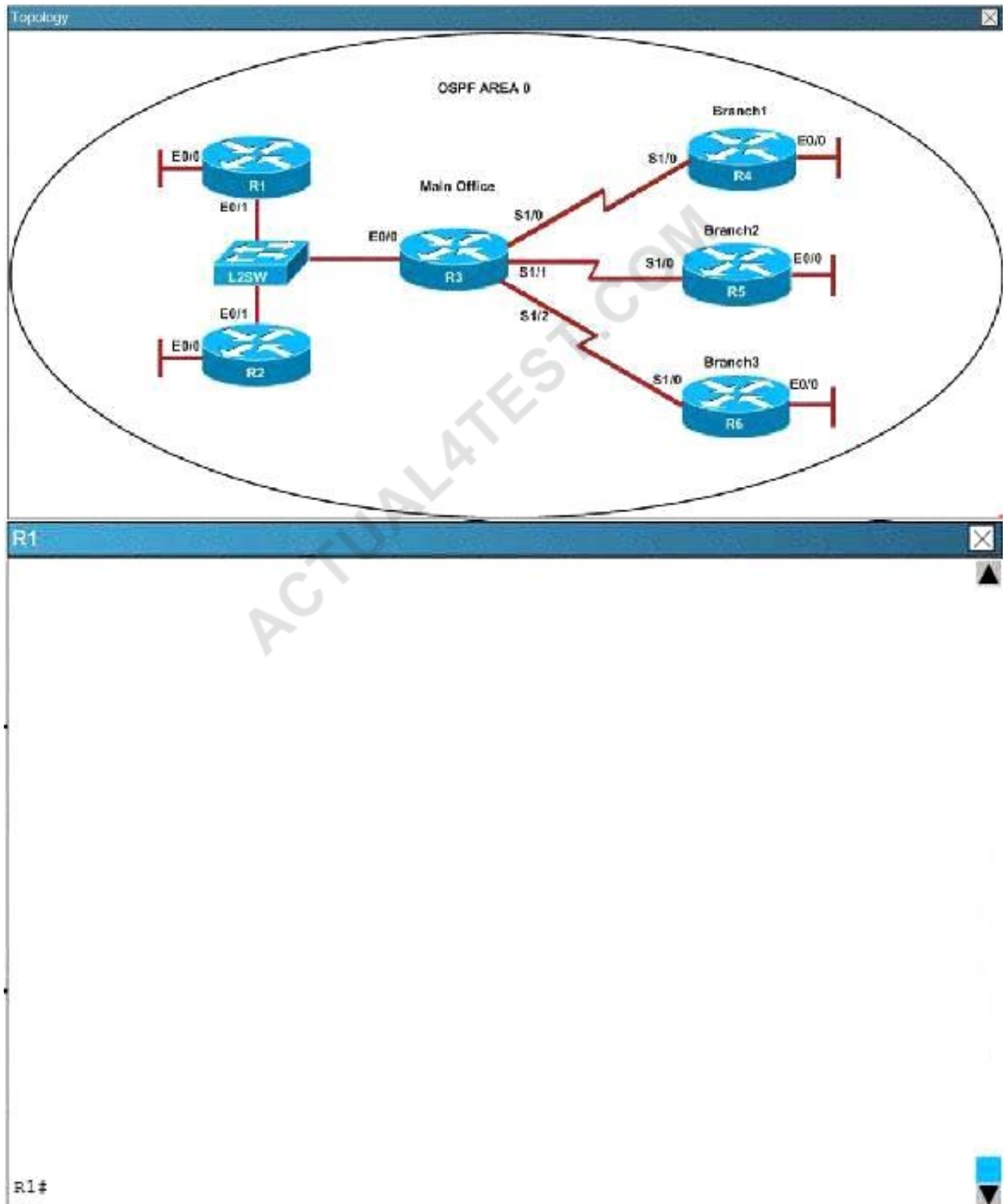
**Answer:** A

**NO.644** Scenario

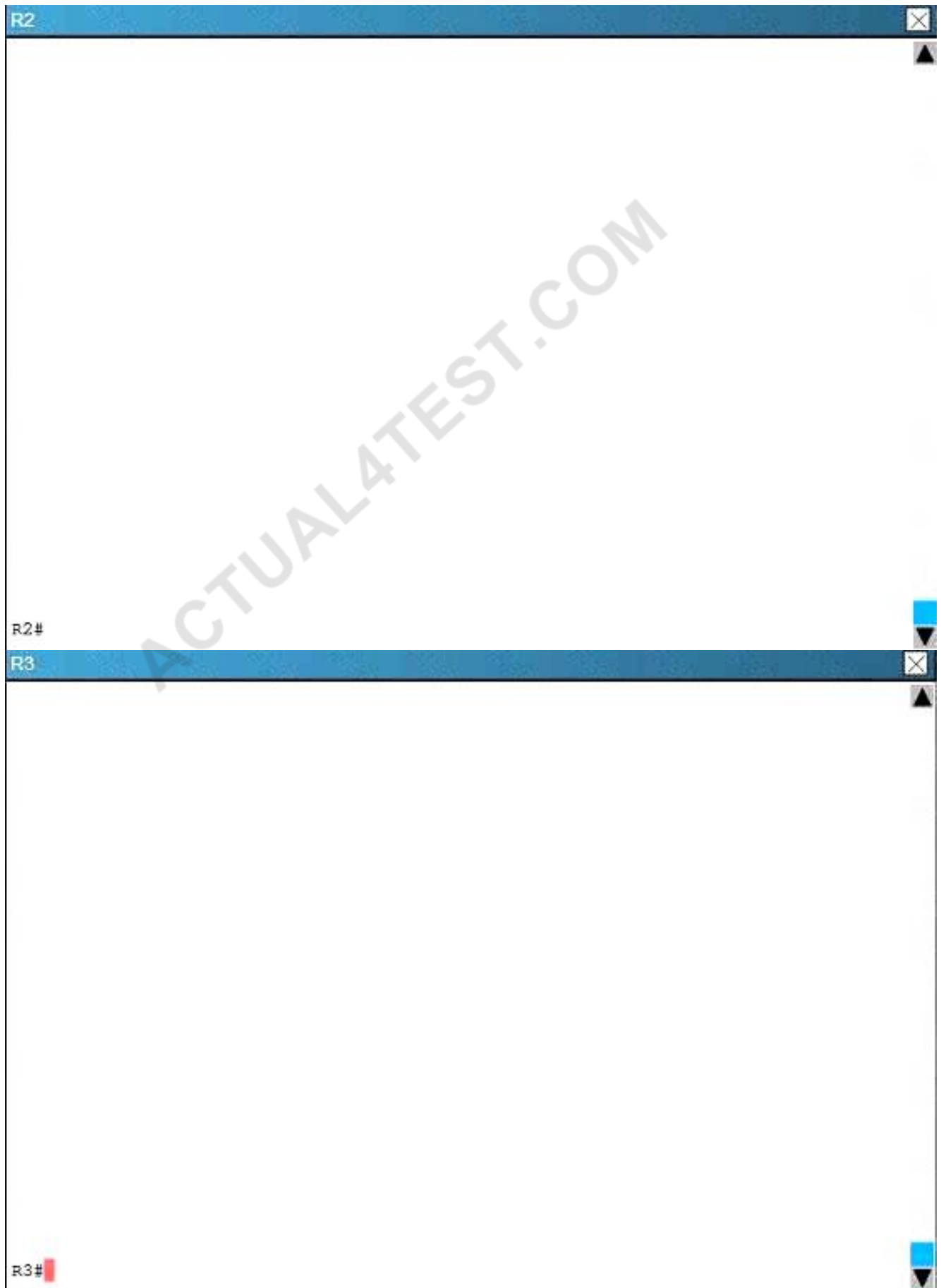
Refer to the topology. Your company has decided to connect the main office with three other remote

branch offices using point-to-point serial links.

You are required to troubleshoot and resolve OSPF neighbor adjacency issues between the main office and the routers located in the remote branch offices.







R4



R4#



R5



R5#



R6



R6#

L2SW



L2SW#



An OSPF neighbor adjacency is not formed between R3 in the main office and R6 in the Branch3

office. What is causing the problem?

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

**Answer:** D

Explanation

Using the show running-config command we see that R6 has been incorrectly configured with the same router ID as R3 under the router OSPF process.

R3	R6
<pre> ip address 10.10.240.5 255.255.255.252 encapsulation ppp ip ospf hello-interval 50 ip ospf 3 area 0 ppp authentication chap serial restart-delay 0 ! interface Serial1/2 description ***Connected to R6-Branch3 office*** ip address 10.10.240.9 255.255.255.252 encapsulation ppp ip ospf 3 area 0 ppp authentication chap serial restart-delay 0 ! interface Serial1/3 no ip address shutdown serial restart-delay 0 ! router ospf 3 router-id 192.168.3.3 ! ip forward-protocol nd ! </pre>	<pre> no ip address shutdown serial restart-delay 0 ! interface Serial1/2 no ip address shutdown serial restart-delay 0 ! interface Serial1/3 no ip address shutdown serial restart-delay 0 ! router ospf 6 router-id 192.168.3.3 ! ip forward-protocol nd ! no ip http server no ip http secure-server ! ! </pre>

**NO.645** Which two statements about northbound and southbound APIs are true? (Choose two.)

- A. Only southbound APIs allow program control of the network.
- B. Both northbound and southbound APIs allow program control of the network.
- C. Both northbound and southbound API interlaces use a Service Abstraction Layer.
- D. Only northbound APIs allow program control of the network.
- E. Only southbound API interlaces use a Service Abstraction Layer.
- F. Only northbound API interfaces use a Service Abstraction Layer.

**Answer:** D E

**NO.646** which command can you enter in a network switch configuration so that learned mac addresses are saved in configuration as they connect ?

- A. Switch(config-if)#Switch port-security
- B. Switch(config-if)#Switch port-security Mac-address sticky
- C. Switch(config-if)#Switch port-security maximum 10
- D. Switch(config-if)#Switch mode access

**Answer:** B

**NO.647** Which symbol in the APIC -EM path trace tool output indicates that an ACL is present and might deny packets?

A)



B)



C)



D)



A. Option A

B. Option B

C. Option C

D. Option D

**Answer:** C

**NO.648** Which RPVST+ port state is excluded from all STP operations?

A. learning

B. forwarding

C. blocking

D. disabled

**Answer:** D

**NO.649** Which condition that defines a DMVPN cloud is most important?

A. It is a Layer 2 MPLS cloud that includes devices in different physical locations.

B. It uses point-to-point links to connect hub pairs

C. It uses point-to-point links to connect the hub and spoke routers.

D. It uses mGRE tunnels to interconnect the hub and spoke routers.

**Answer:** D

**NO.650** Which two statements describe the operation of the CSMA/CD access method? (Choose two.)

A. After a collision, all stations run a random backoff algorithm. When the backoff delay period has expired, all stations have equal priority to transmit data.

B. In a CSMA/CD collision domain, multiple stations can successfully transmit data simultaneously.

C. After a collision, the station that detected the collision has first priority to resend the lost data.

D. The use of hubs to enlarge the size of collision domain is one way to improve the operation of the CSMA/CD access method.

E. After a collision, all stations involved run an identical backoff algorithm and then synchronize with



each other prior to transmitting data.

**F.** In a CSMA/CD collision domain, stations must wait until media is not in use before transmitting.

**Answer:** A F

**NO.651** Which two facts about configuring EIGRPv6 are true? (Choose two)

**A.** If you change the interface delay, the EIGRPv4 delay remains unchanged.

**B.** The router ID must be an IPv6 address.

**C.** If you change the interface bandwidth, the EIGRPv4 metric is affected

**D.** You must configure neighboring devices with the same ipv6 hello-interval eigrp value

**E.** The variance command for EIGRPv6 is independent of EIGRPv4.

**Answer:** B C

**NO.652** Refer to the exhibit.

```
ACL 102
access-list 102 deny tcp 172.21.1.1 0.0.0.255 any eq 80
access-list 102 deny ip any any

RouterA#sho ip int
FastEthernet0/0 is up, line protocol is up
Internet address is 192.168.1.144/20
Broadcast address is 255.255.255.255
Address determined by DHCP
MTU is 1500 bytes
Helper address is not set
Directed broadcast forwarding is enabled
Outgoing access list is 102
Inbound access list is not set
Proxy ARP is enabled
```

An attempt to deny web access to a subnet blocks all traffic from the subnet. Which interface command immediately removes the effect of ACL 102?

**A.** no ip access-class 102 in

**B.** no ip access-class 102 out

**C.** no ip access-group 102 in

**D.** no ip access-group 102 out

**E.** no ip access-list 102 in

**Answer:** D

Explanation

The "ip access-group" is used to apply an ACL to an interface. From the output shown, we know that the ACL is applied to outbound traffic, so "no ip access-group 102 out" will remove the effect of this ACL.

**NO.653** Which three checks must you perform when troubleshooting EIGRPv6 adjacencies? (Choose

three.)

- A. Verify that IPv6 enabled.
- B. Verify that thenetworkcommand has been configured.
- C. Verify that auto summary is enabled.
- D. Verify that the interface is up.
- E. Verify that an IPv4 address has been configured.
- F. Verify that the router ID has been configured.

**Answer:** A D F

**NO.654** Which Cisco SDN controller supports existing enterprise network devices?

- A. APIC-EM
- B. OpenFlow
- C. Open SDN
- D. ACI

**Answer:** C

**NO.655** Which two statements about IPv6 and routing protocols are true? (Choose two.)

- A. Link-local addresses are used to form routing adjacencies.
- B. OSPFv3 was developed to support IPv6 routing.
- C. EIGRP, OSPF, and BGP are the only routing protocols that support IPv6.
- D. Loopback addresses are used to form routing adjacencies.
- E. EIGRPv3 was developed to support IPv6 routing.

**Answer:** A B

**NO.656** which command can you enter to re enable cisco discovery protocol on a local router after it has been disabled ?

- A. Router (config)# cdp run
- B. Router (config-if)# cdp run
- C. Router (config)# cdp enable
- D. Router (config-if)# cdp enable

**Answer:** A

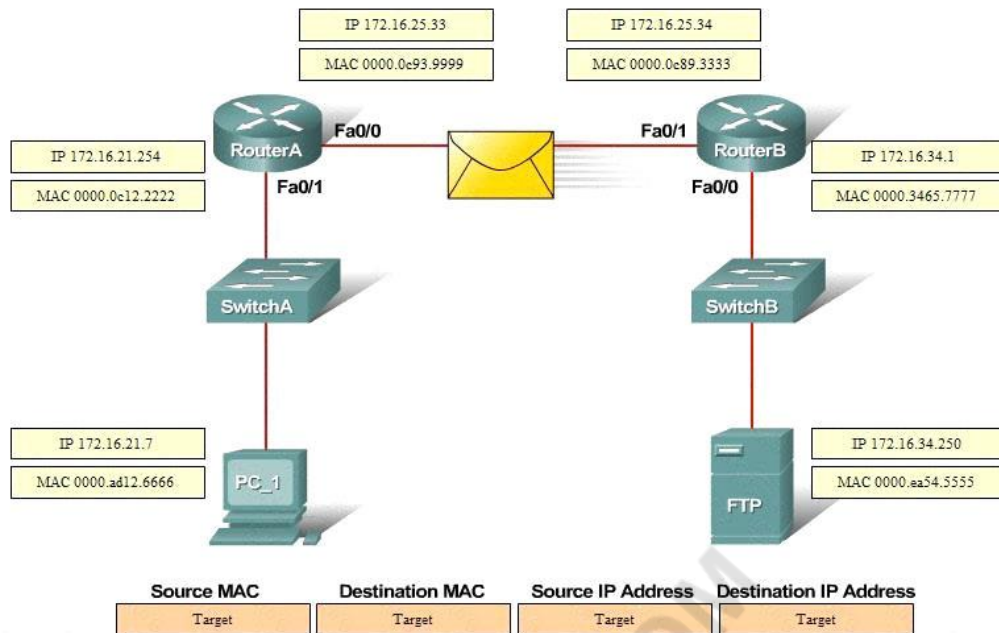
**NO.657** Which configuration enables OSPF for network 192.168.1.0/24?

- A. router ospf router-id 192.168.1.0
- B. router ospf 1 network 192.168.1.0 255.255.255.0 area 0
- C. router ospf 1 neighbor 192.168.1.0
- D. router ospf 1 area 0 virtual-link 192.168.1.0

**Answer:** B

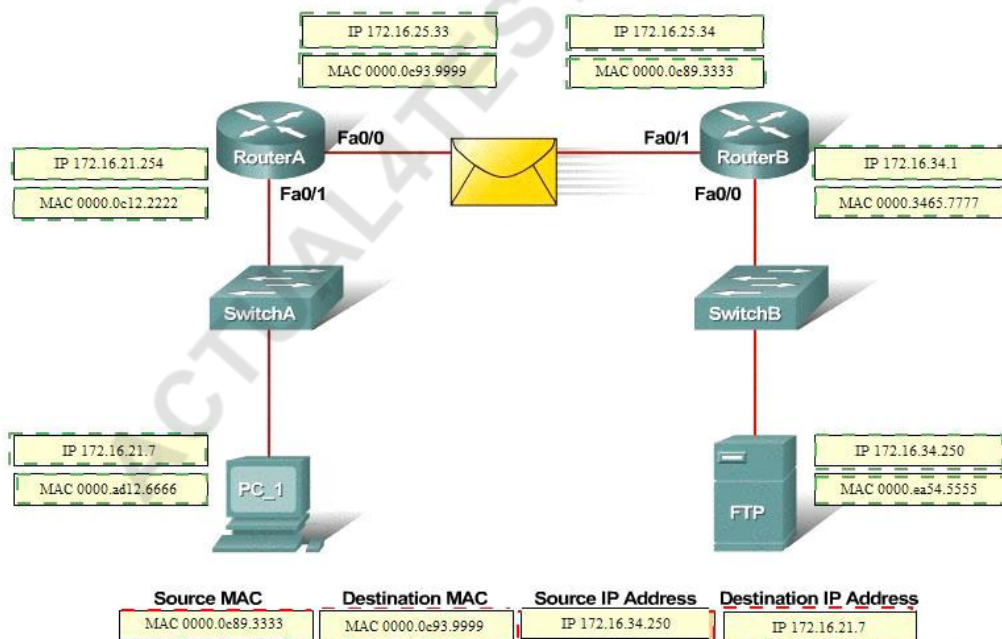
**NO.658** Refer to the exhibit. PC\_1 is exchanging packets with the FTP server. Consider the packets as they leave RouterB interface Fa0/1 towards RouterA. Drag the correct frame and packet addresses to their place in the table.

Refer to the exhibit. PC\_1 is exchanging packets with the FTP server. Consider the packets as they leave RouterB interface Fa0/1 towards RouterA. Drag the correct frame and packet addresses to their place in the table.



### Answer:

Refer to the exhibit. PC\_1 is exchanging packets with the FTP server. Consider the packets as they leave RouterB interface Fa0/1 towards RouterA. Drag the correct frame and packet addresses to their place in the table.



### Explanation

Source Mac AddressDestination Mac AddressSource IP addressDestination IP address  
 0000.0c89.3333MAC 0000.0c89.9999 IP 172.16.34.250IP 172.16.21.7

**NO.659** Which definition of default route is true?

- A. A route that is manually configured.
- B. A route used when a destination route is missing.

- C. A route to the exact /32 destination address
- D. Dynamic route learned from the server.

**Answer:** C

**NO.660** Which two statements about floating static routers are true? (Choose two)

- A. They are used when a route to the destination network is missing.
- B. They are used as backup routes when the primary route goes down.
- C. They are dynamic routes that are learned from a server.
- D. They have a higher administrative distance than the default static route administrative distance.
- E. They are routes to the exact /32 destination address.

**Answer:** B D

**NO.661** Which IPv6 header field is equivalent to the TTL?

- A. Hop Limit
- B. Scan Timer
- C. Hop Count
- D. Flow Label
- E. TTD

**Answer:** A

**NO.662** Which 2 statements about extended traceroute command is true?

- A. it can send packets from specified interface or ip address
- B. it can use a specified TTL value.
- C. it can validate the reply data.
- D. it can use a specified TOS.
- E. it can repeated automatically to a specified interval.

**Answer:** A B

Reference:

[http://www.cisco.com/c/en/us/support/docs/ip/routing-information-protocol-rip/13730-extpingtrace.html#ext\\_troute](http://www.cisco.com/c/en/us/support/docs/ip/routing-information-protocol-rip/13730-extpingtrace.html#ext_troute)

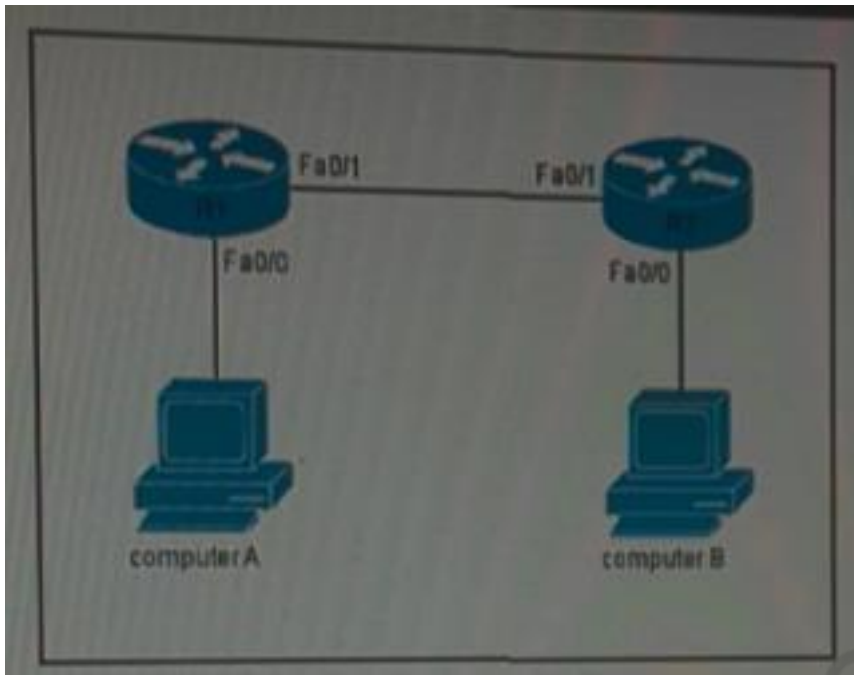
"This table lists the traceroute command field descriptions:

Source address: The interface or IP address of the router to use as a source address for the probes. The router normally picks the IP address of the outbound interface to use.

Minimum Time to Live [1]: The TTL value for the first probes. The default is 1, but it can be set to a higher value to suppress the display of known hops.

Maximum Time to Live [30]: The largest TTL value that can be used. The default is 30. The traceroute command terminates when the destination is reached or when this value is reached.

**NO.663** Refer to Exhibit.



If Computer A is sending traffic to computer B, which option is the source ip address when a packet leaves R1 on interface F0/1?

- A. IP address of the R2 interface F0/1
- B. Ip address of computer B
- C. Ip address of R1 interface F0/1
- D. Ip address of Computer A

**Answer:** C

**NO.664** Which APIC-EM tool allows an administrator to verify ACLs throughout the network?

- A. Cisco Intelligent WAN application
- B. traceroute
- C. Network Topology
- D. Path Trace

**Answer:** D

Explanation

One of the most important features of the APIC-EM controller is the capability to manage policies across the entire network. APIC-EM ACL Analysis and Path Trace provide tools to allow the administrator to analyze and understand ACL policies and configurations. Administrators are hesitant to change ACLs, for fear of breaking them and causing new problems. Together, ACL Analysis and Path Trace enable the administrator to easily visualize traffic flows and discover any conflicting, duplicate, or shadowed ACL entries.

**NO.665** A national retail chain needs to design an IP addressing scheme to support a nationwide network. The company needs a minimum of 300 sub-networks and a maximum of 50 host addresses per subnet. Working with only one Class B address, which of the following subnet masks will support an appropriate addressing scheme? (Choose two.)

- A. 255.255.255.0
- B. 255.255.255.128



- C. 255.255.252.0
- D. 255.255.255.224
- E. 255.255.255.192
- F. 255.255.248.0

**Answer:** B E

Explanation

Subnetting is used to break the network into smaller more efficient subnets to prevent excessive rates of Ethernet packet collision in a large network. Such subnets can be arranged hierarchically, with the organization's network address space (see also Autonomous System) partitioned into a tree-like structure.

Routers are used to manage traffic and constitute borders between subnets.

A routing prefix is the sequence of leading bits of an IP address that precede the portion of the address used as host identifier. In IPv4 networks, the routing prefix is often expressed as a "subnet mask", which is a bit mask covering the number of bits used in the prefix. An IPv4 subnet mask is frequently expressed in quad-dotted decimal representation, e.g., 255.255.255.0 is the subnet mask for the 192.168.1.0 network with a 24-bit routing prefix (192.168.1.0/24).

**NO.666** Which command can you use to test whether a switch supports secure connections and strong authentication?

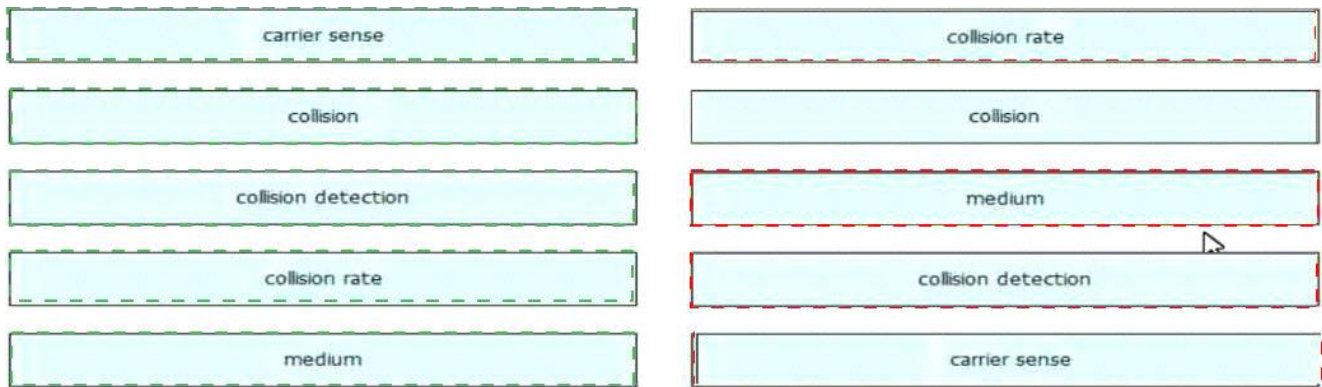
- A. Switch>ssh -v 1-I admin 10.1.1.1
- B. Router#ssh -v1 -I admin 10.1.1.1
- C. Router>ssh -V2 -I admin 10.1.1.1
- D. Switch#ssh -I admin 10.1.1.1

**Answer:** C

**NO.667** Drag and drop the Ethernet terms from the left onto the correct descriptions on the right.

carrier sense	calculated value that can increase when a new station is added to a network
collision	ability of an end device to determine that another device is communicating on a shared link
collision detection	link used to transport data between a source and a destination
collision rate	potential conflict when more than one end device attempts to send traffic over the same link
medium	use of CSMA to ensure that devices on a shared link can communicate without interfering with one another

**Answer:**

**Explanation**

Calculated value that can increase when a new station is added to a network Ability of an end device to determine that another device is communicating on a shared link Link used to transport data between a source and a destination

**NO.668** Which two steps must you perform on each device that is configured for ipv4 routing before you implement OSPFv3? (choose two)

- A. configure an autonomous system number
- B. configure a loopback interface
- C. configure a router ID
- D. enable IPv6 on an interface
- E. enable IPv6 unicast routing

**Answer:** C E

**NO.669** When troubleshooting client DNS issues, which two tasks must you perform? (Choose two.)

- A. Ping a public website IP address.
- B. Determine whether a DHCP address has been assigned.
- C. Determine whether the hardware address is correct.
- D. Ping the DNS server.
- E. Determine whether the name servers have been configured.

**Answer:** C D

**NO.670** which command can you enter to create a NAT Pool of 6 addresses ?

- A. Router(config)#ip nat pool test 175.17.12.69 175.17.12.74 prefix-length 24
- B. Router(config)#ip nat pool test 175.17.12.66 175.17.12.72 prefix-length 8
- C. Router(config)#ip nat pool test 175.17.12.69 175.17.12.74 prefix-length 16
- D. Router(config)#ip nat pool test 175.17.12.69 175.17.12.76 prefix-length 8

**Answer:** B

**NO.671** Which DTP switch port mode allows the port to create a trunk link if the neighboring port is in trunk mode, dynamic desirable mode, or desirable auto mode?

- A. trunk
- B. access
- C. dynamic desirable

D. dynamic auto

**Answer:** C

**NO.672** For which two reasons might you choose chassis aggregation instead of stacking switches? (Choose two)

- A. to avoid the use of a centralized configuration manager
- B. to increase the maximum port count
- C. to increase the number of devices in use
- D. to allow hot-swapping modules
- E. to avoid relying solely on Ethernet interfaces

**Answer:** B C

**NO.673** Which command allows you to set the administrative distance for EIGRP for IPv6?

- A. metric weights
- B. ipv6 summary-address eigrp
- C. ipv6 next-hop-self eigrp
- D. ipv6 bandwidth-percent eigrp

**Answer:** B

**NO.674** Which command must you enter to configure a DHCP relay?

- A. ip dhcp relay
- B. ip address dhcp
- C. ip helper-address
- D. ip dhcp pool

**Answer:** C

**NO.675** Scenario:

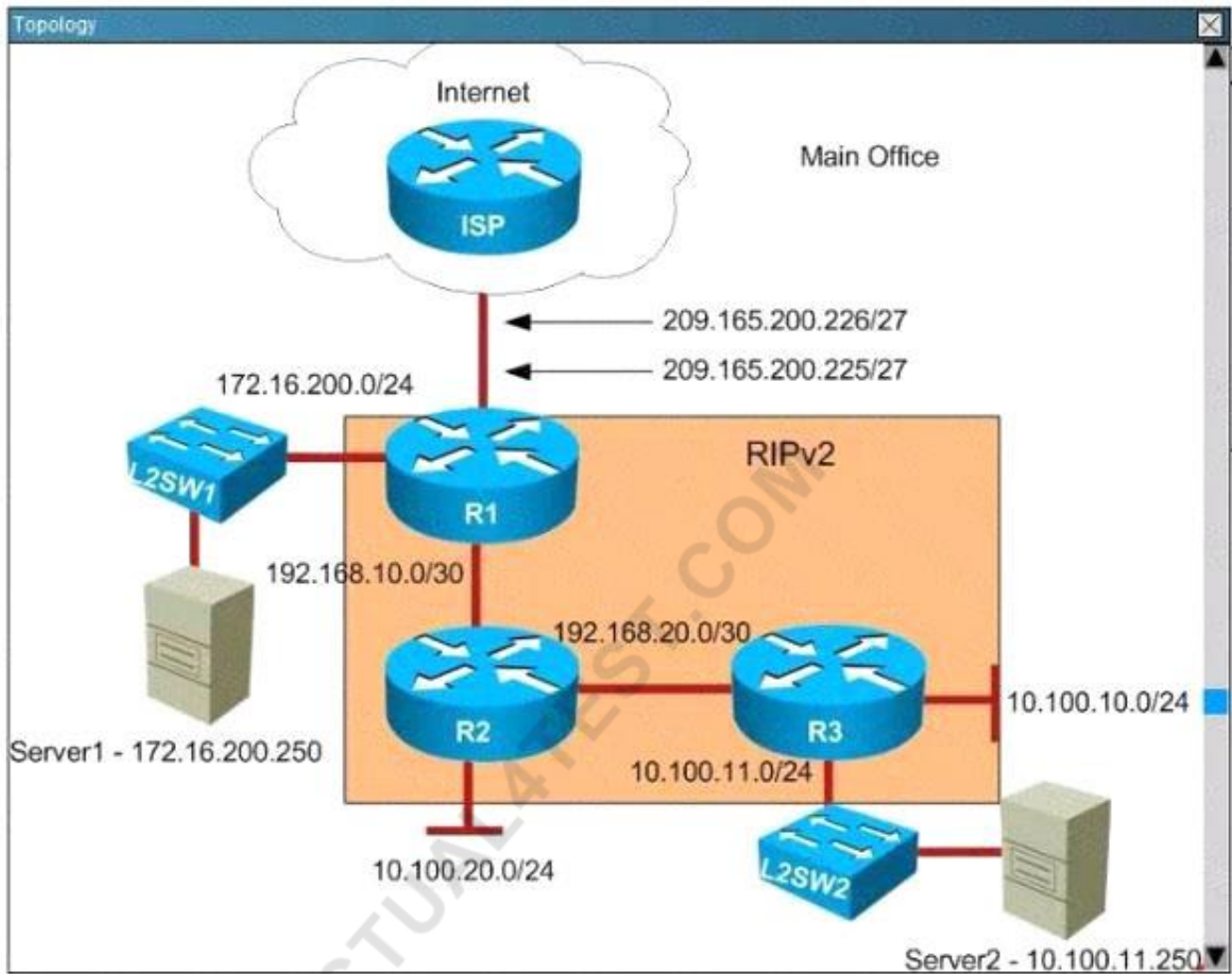
You are a junior network engineer for a financial company, and the main office network is experiencing network issues. Troubleshoot the network issues.

Router R1 connects the main office to the internet, and routers R2 and R3 are internal routers. NAT is enabled on router R1.

The routing protocol that is enabled between routers R1, R2 and R3 is RIPv2.

R1 sends the default route into RIPv2 for the internal routers to forward internet traffic to R1.

You have console access on R1, R2 and R3 devices. Use only show commands to troubleshoot the issues.



```
R1
Current configuration : 1651 bytes
!
! No configuration change since last restart
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
--- More (105) ---
```

```
R1
ip cef
no ipv6 cef
!
multilink bundle-name authenticated

redundancy

--- More (79) ---
```





```
R1
ip access-list extended LOCAL
 permit ip host 127.0.0.1 any
!
!
!
control-plane
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
!
ntp server 209.165.200.226
!
end
R1#

R2
Building configuration...

Current configuration : 1243 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
--- More (92) ---
```





R3

```

!
interface Loopback0
 ip address 192.168.250.3 255.255.255.255
!
interface Ethernet0/0
 description ***Link to LAN***
 ip address 10.100.10.1 255.255.255.0
!
interface Ethernet0/1
 description ***Link to R2***
 ip address dhcp
!
interface Ethernet0/2
 description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0

```

R3

```

description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0
 network 192.168.250.0
 no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
control-plane
!

```



```
R3
network 192.168.250.0
no auto-summary
!
ip forward-protocol nd
!
no ip http server
no ip http secure-server
!
!
control-plane
!
!
!
!
line con 0
logging synchronous
line aux 0
line vty 0 4
--- More (5) ---
R3#
```

```
R3
no ip http server
no ip http secure-server
!
!
control-plane
!
!
!
!
line con 0
logging synchronous
line aux 0
line vty 0 4
login
transport input all
!
end
R3#
```

Why applications that are installed on PC's in R2 LAN network 10.100.20.0/24 are unable to

communicate with server1?

- A.** A standard ACL statement that is configured on R1 is blocking the traffic sourced from Server1 network.
- B.** A standard ACL statement that is configured on R2 is blocking the traffic sourced from Setver1 network.
- C.** A standard ACL statement that is configured on R2 is blocking the traffic sourced from R2 LAN network.
- D.** A standard ACL statement that is configured on R1 is blocking the traffic sourced from R2 LAM network

**Answer:** B

Explanation

Check the below now:

<pre> R2 ! ip access-list standard SERVER1BLOCK deny 172.16.200.0 0.0.0.255 permit any ! </pre>	<pre> R2 ! ! ! ! interface Loopback0 ip address 192.168.250.2 255.255.255.255 ! interface Ethernet0/0 description ***Link to R3*** ip address 192.168.20.1 255.255.255.255 ! interface Ethernet0/1 no ip address ! interface Ethernet0/2 description ***Link to R1*** ip address 192.168.10.2 255.255.255.252 ip access-group SERVER1BLOCK in ! ! </pre>
---	--

**NO.676** Which statement is a Cisco best practice for switch port security?

- A.** Vacant switch ports must be shut down.
- B.** Empty ports must be enabled in VLAN 1.
- C.** VLAN 1 must be configured as the native VLAN.
- D.** Err-disabled ports must be configured to automatically re-enable.

**Answer:** A

**NO.677** A network engineer wants to allow a temporary entry for a remote user with a specific username and password so that the user can access the entire network over the Internet. Which ACL can be used?

- A.** dynamic

- B. standard
- C. extended
- D. reflexive

**Answer:** A

Explanation

We can use a dynamic access list to authenticate a remote user with a specific username and password. The authentication process is done by the router or a central access server such as a TACACS+ or RADIUS server.

The configuration of dynamic ACL can be read here:

[https://www.cisco.com/en/US/tech/tk583/tk822/technologies\\_tech\\_note09186a0080094524.shtml](https://www.cisco.com/en/US/tech/tk583/tk822/technologies_tech_note09186a0080094524.shtml)

**NO.678** Which feature can validate address requests and filter out invalid messages?

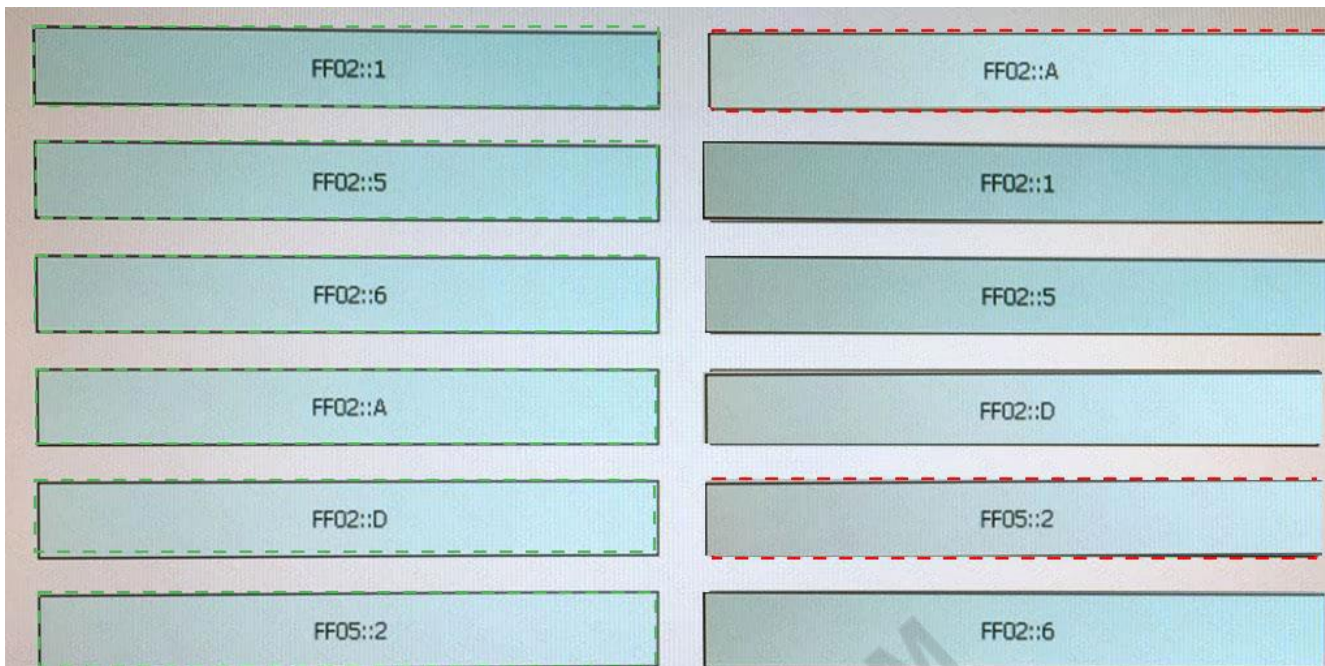
- A. IP Source Guard
- B. port security
- C. DHCP snooping
- D. dynamic ARP inspection

**Answer:** C

**NO.679** Drag each IPv6 prefix on the left to its use on the right.

FF02::1	all EIGRPv6 routers
FF02::5	all link-local nodes on a segment
FF02::6	all OSPFv3 routers
FF02::A	all PIM routers
FF02::D	all site-local routers
FF05::2	OSPFv3 designated routers

**Answer:**

**Explanation**

FF02::1 = All link-local nodes on a segment

FF02::5 = all OSPFv3 routers

FF02::6 = OSPFv3 designated routers

FF02::A = all EIGRPv6 routers

FF02::D = All PIM routers

FF05::2 = all site local routers

**NO.680** Which two services can be provided by a wireless controller?

- A. mitigating threats from the Internet
- B. issuing IP addresses to wired devices
- C. Layer 3 routing between wired and wireless devices
- D. Providing authentication services to users
- E. managing interface in a dense network

**Answer:** B D

**NO.681** Which three statements about HSRP operation are true? (Choose three.)

- A. The virtual IP address and virtual MAC 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:** A B F

**NO.682** Which two statements about private addresses are true? (Choose two)



- A. They can be used without tracking or registration
- B. They are used on a home network, they must be translated before they can connect to the Internet
- C. They can traverse the Internet when an outbound ACL is applied.
- D. The IP address authority issues them in conjunction with an autonomous system number
- E. An individual enterprise network can use up to 65,536 private addresses

**Answer:** A B

**NO.683** Drag and drop the BGP components from the left onto the correct descriptions on the right.

autonomous system number	device that is running BGP
BGP Speaker	neighbor device that shares the same AS number as the local device.
eBGP Peer	neighbor that located outside of administrative domain of the local device.
BGP Peer	Value that identifies an administrative domain
Prefix	value that is advertised with the network keyword.

**Answer:**

autonomous system number	BGP Speaker
BGP Speaker	BGP Peer
eBGP Peer	eBGP Peer
BGP Peer	autonomous system number
Prefix	Prefix

**Explanation**

BGP speaker: device that is running BGP

+ Prefix = Value that is advertised with the network keyword.

eBGP Peer = neighbor that located outside of administrative domain of the local device.

BGP Peer = neighbor device that shares the same AS number as the local device.

Autonomous system number = Value that identifies an administrative domain

**NO.684** Which command can you enter to configure a local username with an encrypted password and EXEC mode user privileges?

- A. Router(config)#username jdane privilege 15 password 0 PASSWORD1
- B. Router(config)#username jdane privilege 1 password 7 08314d5d1aa8
- C. Router(config)#username jdane privilege 1 password 7 PASSWORD1
- D. Router(config)#username jdane privilege 15 password 0 08314D5D1A48

**Answer:** B

**NO.685** when you troubleshoot an IPv4 connectivity issue on a router, which three router configuration checks you must perform?

- A. Verify that the router interface IP address IP address is correct.
- B. Verify that the DNS is configured correctly.
- C. Verify that the router and the host use the same subnet mask.



- D. Verify that the router firmware is up-to-date.
- E. Verify that a default route is configured.
- F. Verify that the route appears in the routing table

**Answer:** A B F

**NO.686** Which MAC protocol sets a random timer to reattempt communication?

- A. IEEE 802.1x
- B. RARP
- C. CSMA/CA
- D. CSMA/CD

**Answer:** D

**NO.687** Which feature can cause a port to shut down immediately after a switch reboot?

- A. COPP
- B. PortFast
- C. port security
- D. DTP

**Answer:** C

**NO.688** Which feature enables a router to pass DHCP OFFER messages to other interfaces on the same router?

- A. DHCP server address exclusions
- B. DNS helper addresses
- C. DHCP smart-relay
- D. DHCP server boot files

**Answer:** C

**NO.689** Drag and Drop the descriptions of IP protocol transmissions from the left onto the correct IP traffic types on the right.

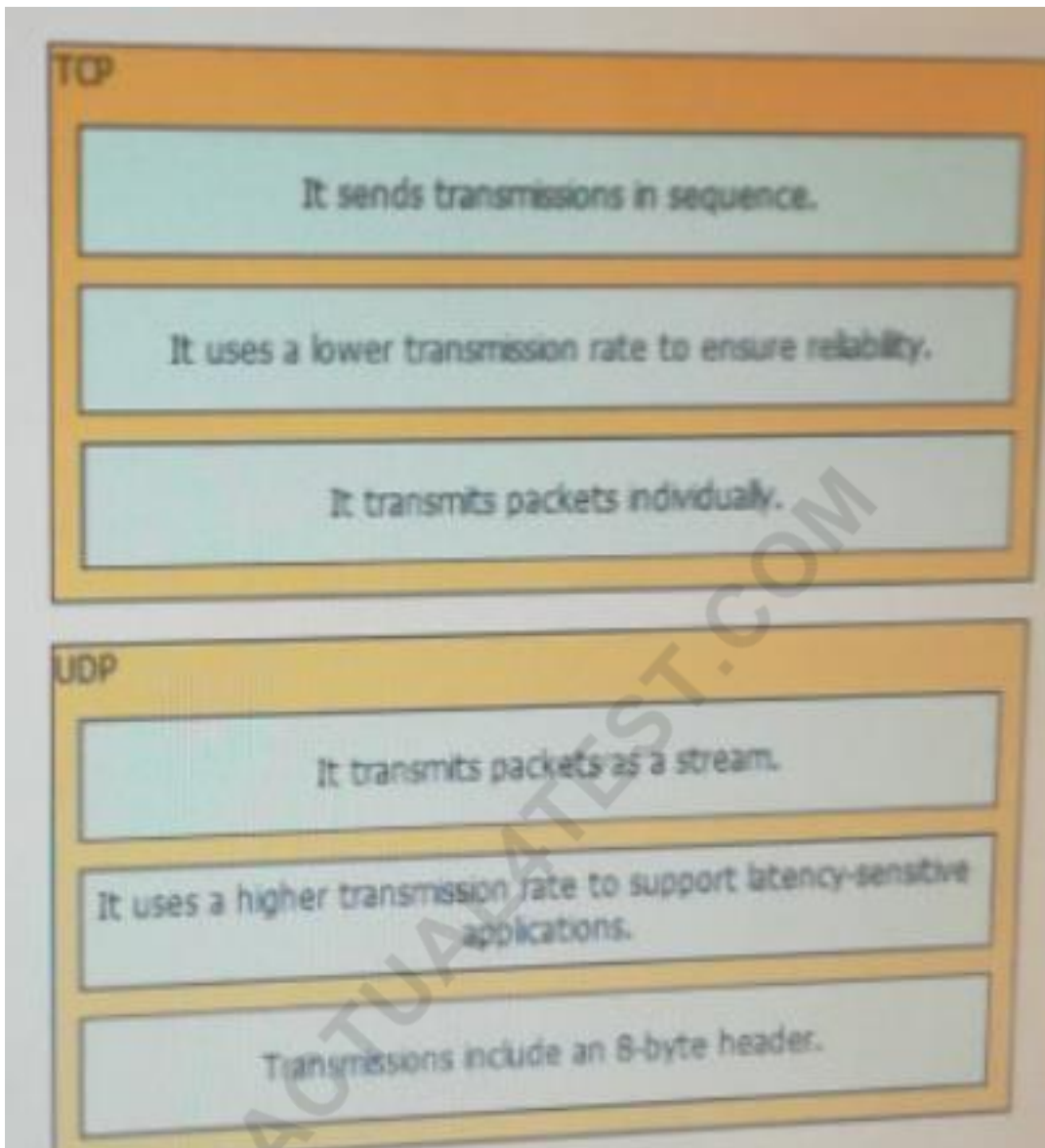
	TCP
It transmits packets individually.	
It sends transmissions in sequence.	
It transmits packets as a stream.	
It uses a lower transmission rate to ensure reliability.	
It uses a higher transmission rate to support latency-sensitive applications.	
Transmissions include an 8-byte header.	

	UDP
It transmits packets individually.	
It sends transmissions in sequence.	
It transmits packets as a stream.	
It uses a lower transmission rate to ensure reliability.	
It uses a higher transmission rate to support latency-sensitive applications.	
Transmissions include an 8-byte header.	

**Answer:**

	TCP
It transmits packets individually.	It sends transmissions in sequence.
It sends transmissions in sequence.	It uses a lower transmission rate to ensure reliability.
It transmits packets as a stream.	It transmits packets individually.
It uses a lower transmission rate to ensure reliability.	It transmits packets as a stream.
It uses a higher transmission rate to support latency-sensitive applications.	It uses a higher transmission rate to support latency-sensitive applications.
Transmissions include an 8-byte header.	Transmissions include an 8-byte header.

**Explanation**



**NO.690** Which API uses HTTP messages to transfer data to applications residing on different hosts?

- A. OpFlex
- B. OpenStack
- C. REST
- D. OpenFlow

**Answer:** C

**NO.691** Under which two circumstances is network traffic most likely to use an Exterior Gateway Routing Protocol?

(Choose two)

- A. When an employee connects to an employer branch office in a different city.
- B. When network traffic is routing to a different building on a corporate campus.
- C. When an employee is browsing the public internet.
- D. When an employee checks email while working onsite at the data center.
- E. When a user browsing the web site of a business partner.

**Answer:** A D

**NO.692** Which two statements about stateful firewalls in an enterprise network are true? (Choose two )

- A. They can filter HTTP and HTTPS traffic in the inbound direction only.
- B. They can use information about previous packets to make decisions about future packets.
- C. They are most effective when placed in front of the router connected to the Internet.
- D. They are more susceptible to DoS attacks than stateless firewalls.
- E. They can track the number of active TCP connections.

**Answer:** C E

**NO.693** On a Cisco switch, which protocol determines if an attached VoIP phone is from Cisco or from another vendor?

- A. CDP
- B. RTP
- C. UDP
- D. TCP

**Answer:** A

**NO.694** Which two actions must you take to configure a PAgP EthernetChannel between two switches, S1 and S2?  
(Choose two.)

- A. Configure thechannel-group 1 mode autocommand on S1.
- B. Configure thechannel-group1 mode desirablecommand on S2.
- C. Configure thechannel-group 1 mode activecommand on S2.
- D. Configure thechannel-group 1 mode oncommand on S2.
- E. Configure thechannel-group 1 mode activecommand on S1.

**Answer:** A B

**NO.695** You have configured a router with an OSPF router. ID, but its IP address still the physical interface. Which action can you take to correct the problem in the least disruptive way?

- A. Reload the OSPF process.
- B. Reload the router.
- C. Specify the router.
- D. Save the router configuration.

**Answer:** A

**NO.696** Which NTP concept indicates the distance between a device and the reliable time source?

- A. clock offset
- B. stratum
- C. reference
- D. dispersion

**Answer:** B

**NO.697** which six-byte field in a basic ethernet frame must be an individual address ?

- A. FCS
- B. SOF
- C. SA
- D. DA

**Answer:** C

**NO.698** Which two statements describe characteristics of IPv6 unicast addressing? (Choose two.)

- A. Global addresses start with 2000::/3.
- B. Link-local addresses start with FE00::/12.
- C. Link-local addresses start with FF00::/10.
- D. There is only one loopback address and it is ::1.
- E. If a global address is assigned to an interface, then that is the only allowable address for the interface.

**Answer:** A D

Explanation

Below is the list of common kinds of IPv6 addresses:

<b>Loopback address</b>	::1
<b>Link-local address</b>	FE80::/10
<b>Site-local address</b>	FEC0::/10
<b>Global address</b>	2000::/3
<b>Multicast address</b>	FF00::/8

**NO.699** Which three options are types of slow VLAN connectivity? (Choose three.)

- A. slow broadcast domain connectivity
- B. slow routing domain connectivity
- C. slow default gateway connectivity
- D. slow application domain connectivity
- E. slow collision domain connectivity
- F. slow inter-VLAN connectivity

**Answer:** A D E

**NO.700** What is the default Syslog facility level?

- A. local4
- B. local5
- C. local7
- D. local6

**Answer:** C



**NO.701** Which technology can provide security when connection multiple sites across the internet?

- A. EBGp
- B. DMVPN
- C. Site-to-site vpn
- D. MPLS

**Answer:** B

**NO.702** How many primary IPv4 addresses can be assigned to an interface?

- A. unlimited
- B. 8
- C. 2
- D. 1

**Answer:** A

Explanation

Cisco IOS software supports multiple IP addresses per interface. You can specify an unlimited number of secondary addresses.

**NO.703** Which two values can identify a switch stack on the network? (Choose two )

- A. the bridge ID
- B. the spanning tree priority
- C. the switch BIA
- D. the switch priority
- E. the management IP address of the device

**Answer:** A D

**NO.704** For which two reasons was RFC 1918 address space define (Choose two)

- A. to preserve public IPv4 address space
- B. to reduce the occurrence of overlapping IP addresses
- C. to preserve public IPv6 address space
- D. reduce the size of ISP routing tables
- E. to support the NAT protocol

**Answer:** A E

**NO.705** Why would a network administrator configure port security on a switch?

- A. to limit the number of Layer 2 broadcasts on a particular switch port
- B. to prevent unauthorized Telnet access to a switch port
- C. to prevent unauthorized hosts from accessing the LAN
- D. block unauthorized access to the switch management interfaces

**Answer:** C

**NO.706** Drag and drop the QoS features from the left onto the correct descriptions on the right

best effort	service level that provides basic connectivity without differentiation
CAR	service level that provides preferred handling
hard QoS	service level that provides reserved network resources
NBAR	identification tool ideal for handling web applications
PBR	polices traffic based on its bandwidth allocation
soft QoS	uses route maps to match traffic criteria

**Answer:**

best effort	best effort
CAR	soft QoS
hard QoS	hard QoS
NBAR	NBAR
PBR	CAR
soft QoS	PBR

**Explanation**

Best effort = service level that provides basic connectivity without differentiation  
 CAR = Polices traffic based on its bandwidth allocation  
 Hard Qos = service level that provides reserved network resources  
 NBAR = identification tool ideal for handling web application  
 PBR = uses route maps to match traffic criteria  
 Soft Qos = service level that provides preferred handling

[http://docwiki.cisco.com/wiki/Quality\\_of\\_Service\\_Networking#CAR:\\_Setting\\_IP\\_Precedence](http://docwiki.cisco.com/wiki/Quality_of_Service_Networking#CAR:_Setting_IP_Precedence)

**NO.707** Refer to the exhibit.

```
RTR01(config)#router eigrp 103
RTR01(config-router)#network 10.4.3.0
RTR01(config-router)#network 172.16.4.0
RTR01(config-router)#network 192.168.2.0
RTR01(config-router)#auto-summary
```

If RTR01 as configured as shown, which three addresses will be received by other routers that are running EIGRP on the network? (Choose three.)

- A. 172.16.4.0
- B. 10.0.0.0
- C. 172.16.0.0
- D. 192.168.2.0
- E. 192.168.0.0
- F. 10.4.3.0

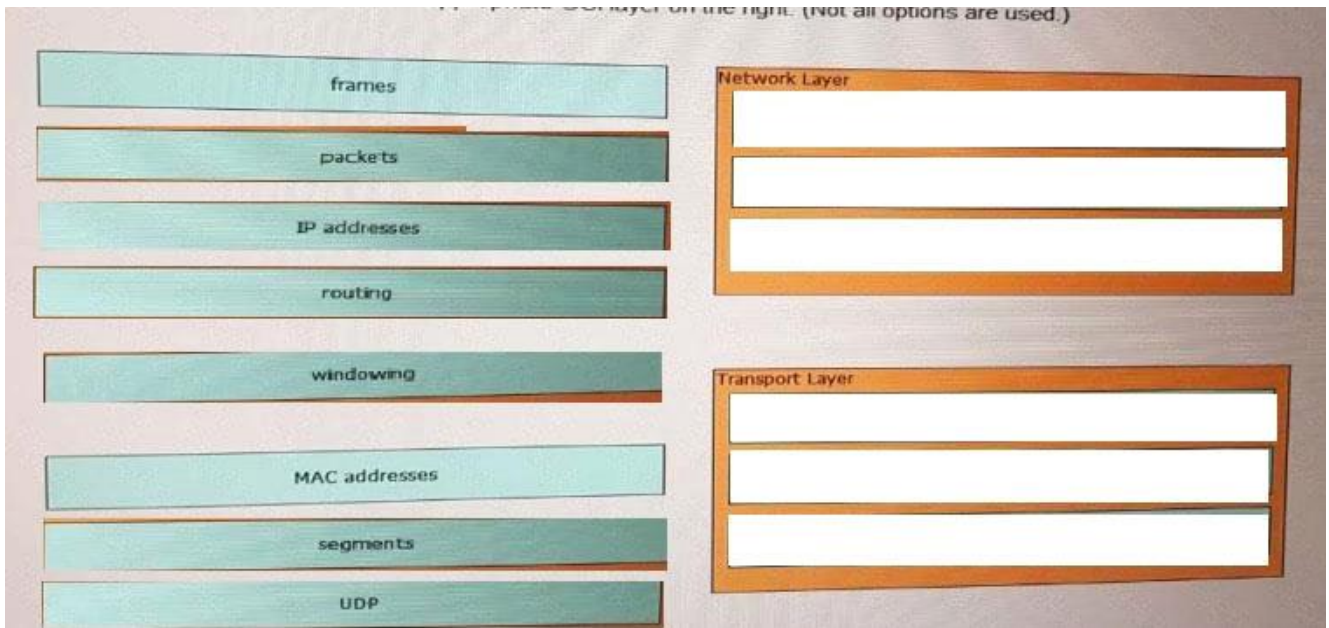
**Answer:** A C D

**NO.708** Which two statements about ipv6 any cast addresses are true ?

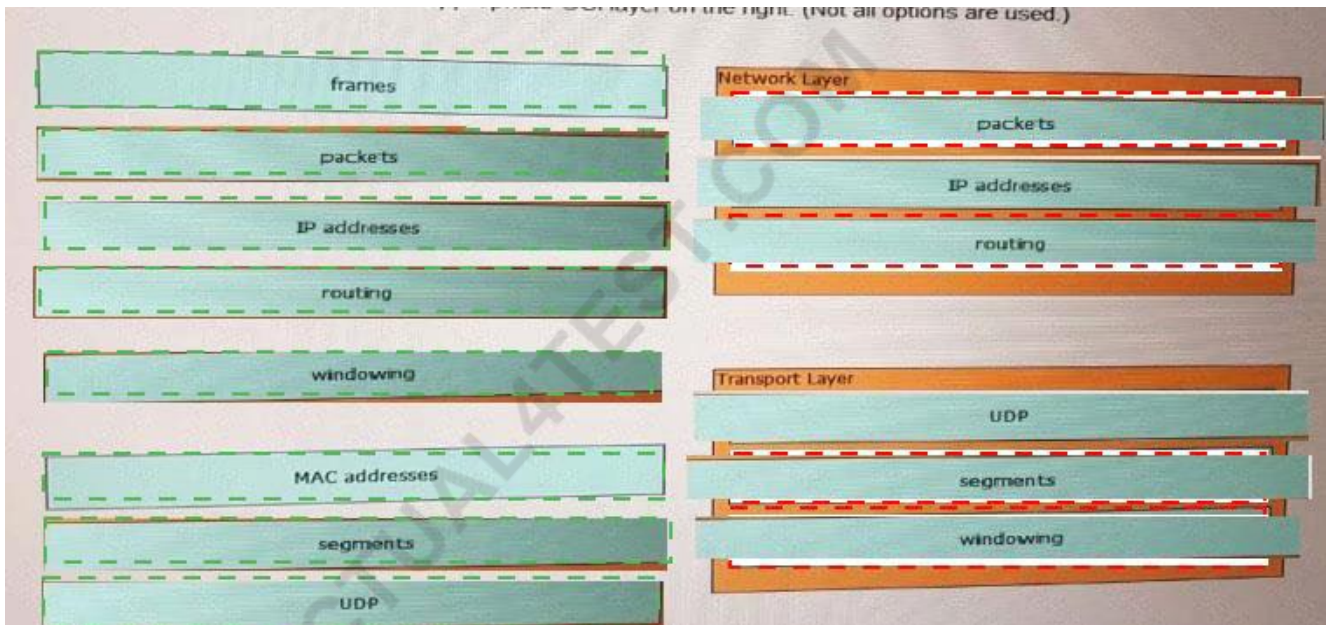
- A. They receive packets on the closest interface that is dissolved by the routing protocol
- B. They are used in conjunction with source specific multicast for ipv6
- C. They are allocated from the ipv6 broadcast address space
- D. They are allocated from the ipv6 unicast address space
- E. They use the prefix fC00: /8

**Answer:** A D

**NO.709** Match the terms on the left with the appropriate OSI layer on the right. (Not all options are used)

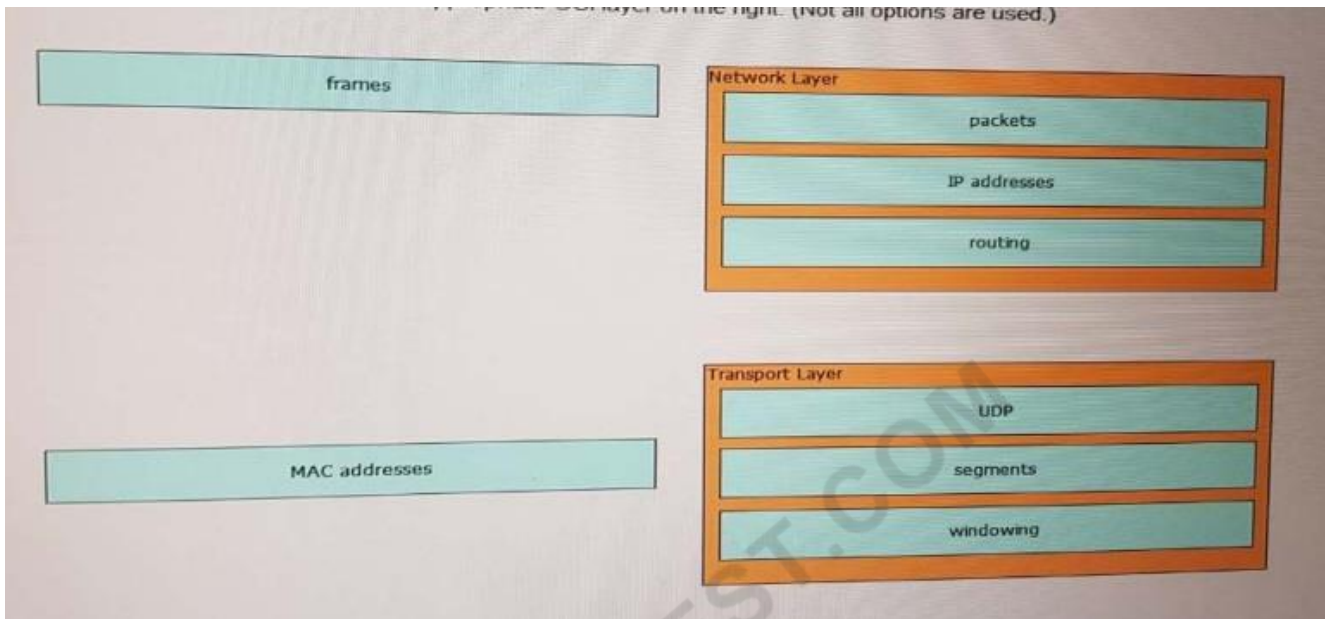


**Answer:**



**Explanation**





**NO.710** How does a Cisco IP phone handle untagged traffic that it receives from an attached PC?

- A. It drops the traffic.
- B. It allows the traffic to pass through unchanged.
- C. It tags the traffic with the default VLAN
- D. It tags the traffic with the native VLAN.

**Answer:** B

Explanation

Untagged data traffic from the device attached to the Cisco IP phone passes through the Cisco IP phone unchanged, regardless of the trust state of the access port on the Cisco IP phone.

[https://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst6500/ios/12-2SY/configuration/guide/sy\\_swcg/voip](https://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst6500/ios/12-2SY/configuration/guide/sy_swcg/voip).

**NO.711** When you deploy multilink PPP on your network, where must you configure the group IP Address on each device?

- A. In the global configuration
- B. Under serial interface
- C. Under the routing protocol
- D. Under the multilink interface

**Answer:** D

**NO.712** Which configuration can be used with PAT to allow multiple inside address to be translated to a single outside address ?

- A. Dynamic Routing
- B. DNS
- C. Preempt
- D. overload

**Answer:** D

**NO.713** Which two values must you specify to define a static route? (Choose two)



- A. next-hop address or exit interface
- B. incoming interface
- C. source network and mask
- D. administrative distance of the route
- E. destination network and mask

**Answer:** A D

**NO.714** If you configure syslog messages without specifying the logging trap level, which log messages will the router send?

- A. error conditions only
- B. warning and error conditions only
- C. normal but significant conditions only
- D. all levels except debugging
- E. informational messages only

**Answer:** E

**NO.715** Which two statements about unique local IPv6 addresses are true?

- A. They are identical to IPv4 private addresses.
- B. They are defined by RFC 1884.
- C. They use the prefix FEC0::/10
- D. They use the prefix FC00::/7
- E. They can be routed on the IPv6 global internet.

**Answer:** A D

**NO.716** Which two commands back up a configuration to a remote server? (Choose two)

- A. copy tftp running-config
- B. copy tftp startup-config
- C. copy running-config tftp
- D. copy startup-config tftp
- E. copy running-config startup-config

**Answer:** C E

**NO.717** Which command should you enter on an interface in a vendor-neutral EtherChannel so that it will be selected first to transmit packets?

- A. lacp system-priority 1024
- B. pagp port-priority 1024
- C. lacp port-priority 1024
- D. pagp system-priority 1024

**Answer:** A