

## Cisco 300-101 : Practice Test

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### Sections

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2. Topic 2: Layer 2 Technologies
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**Topic 1: Network Principles****QUESTION 1**

Which three problems result from application mixing of UDP and TCP streams within a network with no QoS? (Choose three.)

- A. starvation
- B. jitter
- C. latency
- D. windowing
- E. lower throughput

**Correct Answer:** ACE

**Section:** Topic 1: Network Principles

**Explanation**

**Explanation/Reference:**

**QUESTION 2**

Which statement about the use of tunneling to migrate to IPv6 is true?

- A. Tunneling is less secure than dual stack or translation.
- B. Tunneling is more difficult to configure than dual stack or translation.
- C. Tunneling does not enable users of the new protocol to communicate with users of the old protocol without dual-stack hosts.
- D. Tunneling destinations are manually determined by the IPv4 address in the low-order 32 bits of IPv4-compatible IPv6 addresses.

**Correct Answer:** C

**Section:** Topic 1: Network Principles

**Explanation**

**Explanation/Reference:**

**QUESTION 3**

Which two actions must you perform to enable and use window scaling on a router? (Choose two.)

- A. Execute the command `ip tcp window-size 65536`.
- B. Set window scaling to be used on the remote host.
- C. Execute the command `ip tcp queuemax`.
- D. Set TCP options to "enabled" on the remote host.

E. Execute the command `ip tcp adjust-mss`.

**Correct Answer:** AB

**Section: Topic 1: Network Principles**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 4**

A network administrator executes the command **clear ip route**. Which two tables does this command clear and rebuild? (Choose two.)

- A. IP routing
- B. FIB
- C. ARP cache
- D. MAC address table
- E. Cisco Express Forwarding table
- F. topology table

**Correct Answer:** AB

**Section: Topic 1: Network Principles**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 5**

Under which condition does UDP dominance occur?

- A. when TCP traffic is in the same class as UDP
- B. when UDP flows are assigned a lower priority queue
- C. when WRED is enabled
- D. when ACLs are in place to block TCP traffic

**Correct Answer:** A

**Section: Topic 1: Network Principles**

**Explanation**

**Explanation/Reference:**

**QUESTION 6**

Refer to the exhibit. A network administrator checks this adjacency table on a router. What is a possible for the incomplete marking?

Router#show adjacency		
Protocol	Interface	Address
IP	Serial0	192.168.209.130(2) (incomplete)
IP	Serial0	192.168.209.131(7)
IP	Ethernet0	192.168.201.1(7)

- A. incomplete ARP information
- B. incorrect ACL
- C. dynamic routing protocol failure
- D. serial link congestion

**Correct Answer:** A

**Section:** Topic 1: Network Principles

**Explanation**

**Explanation/Reference:**

**QUESTION 7**

Refer to the exhibit. Based on this FIB table, which statement is correct?

```
R2#show ip cef
```

Prefix	Next Hop	Interface
0.0.0.0/0	192.168.201.1	FastEthernet0/0
0.0.0.0/32	receive	
192.168.201.0/27	attached	FastEthernet0/0
192.168.201.0/32	receive	
192.168.201.1/32	192.168.201.1	FastEthernet0/0
192.168.201.2/32	receive	
192.168.201.31/32	receive	
224.0.0.0/4	drop	
224.0.0.0/24	receive	
255.255.255.255/32	receive	

- A. There is no default gateway.
- B. The IP address of the router on FastEthernet is 209.168.201.1.
- C. The gateway of last resort is 192.168.201.1.
- D. The router will listen for all multicast traffic.

**Correct Answer: C**

**Section: Topic 1: Network Principles**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 8**

Which three TCP enhancements can be used with TCP selective acknowledgments? (Choose three.)

- A. header compression
- B. explicit congestion notification
- C. keepalive
- D. time stamps
- E. TCP path discovery
- F. MTU window

**Correct Answer:** BCD

**Section:** Topic 1: Network Principles

**Explanation**

**Explanation/Reference:**

**QUESTION 9**

A network engineer notices that transmission rates of senders of TCP traffic sharply increase and decrease simultaneously during periods of congestion. Which condition causes this?

- A. global synchronization
- B. tail drop
- C. random early detection
- D. queue management algorithm

**Correct Answer:** A

**Section:** Topic 1: Network Principles

**Explanation**

**Explanation/Reference:**

## Topic 2: Layer 2 Technologies

### QUESTION 1

A corporate policy requires PPPoE to be enabled and to maintain a connection with the ISP, even if no interesting traffic exists. Which feature can be used to accomplish this task?

- A. TCP Adjust
- B. Dialer Persistent
- C. PPPoE Groups
- D. half-bridging
- E. Peer Neighbor Route

**Correct Answer: B**

**Section: Topic 2: Layer 2 Technologies**

**Explanation**

**Explanation/Reference:**

### QUESTION 2

Prior to enabling PPPoE in a virtual private dialup network group, which task must be completed?

- A. Disable CDP on the interface.
- B. Execute the vpdn enable command.
- C. Execute the no switchport command.
- D. Enable QoS FIFO for PPPoE support.

**Correct Answer: B**

**Section: Topic 2: Layer 2 Technologies**

**Explanation**

**Explanation/Reference:**

### QUESTION 3

Which protocol uses dynamic address mapping to request the next-hop protocol address for a specific connection?

- A. Frame Relay inverse
- B. static DLCI mapping
- C. Frame Relay broadcast queue

D. dynamic DLCI mapping

**Correct Answer:** A

**Section:** Topic 2: Layer 2 Technologies

**Explanation**

**Explanation/Reference:**

**QUESTION 4**

PPPoE is composed of which two phases?

- A. Active Authentication Phase and PPP Session Phase
- B. Passive Discovery Phase and PPP Session Phase
- C. Active Authorization Phase and PPP Session Phase
- D. Active Discovery Phase and PPP Session Phase

**Correct Answer:** D

**Section:** Topic 2: Layer 2 Technologies

**Explanation**

**Explanation/Reference:**



### Topic 3: Layer 3 Technologies

#### QUESTION 1

What is the default OSPF hello interval on a Frame Relay point-to-point network?

- A. 10
- B. 20
- C. 30
- D. 40

**Correct Answer:** A

**Section:** Topic 3: Layer 3 Technologies

**Explanation**

**Explanation/Reference:**

#### QUESTION 2

A router with an interface that is configured with ipv6 address autoconfig also has a link- local address assigned. Which message is required to obtain a global unicast address when a router is present?

- A. DHCPv6 request
- B. router-advertisement
- C. neighbor-solicitation
- D. redirect

**Correct Answer:** B

**Section:** Topic 3: Layer 3 Technologies

**Explanation**

**Explanation/Reference:**

#### QUESTION 3

For security purposes, an IPv6 traffic filter was configured under various interfaces on the local router. However, shortly after implementing the traffic filter, OSPFv3 neighbor adjacencies were lost. What caused this issue?

- A. The traffic filter is blocking all ICMPv6 traffic.
- B. The global anycast address must be added to the traffic filter to allow OSPFv3 to work properly.
- C. The link-local addresses that were used by OSPFv3 were explicitly denied, which caused the neighbor relationships to fail.

D. IPv6 traffic filtering can be implemented only on SVIs.

**Correct Answer: C**

**Section: Topic 3: Layer 3 Technologies**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 4**

Router A and Router B are configured with IPv6 addressing and basic routing capabilities using OSPFv3. The networks that are advertised from Router A do not show up in Router B's routing table. After debugging IPv6 packets, the message "not a router" is found in the output. Why is the routing information not being learned by Router B?

- A. OSPFv3 timers were adjusted for fast convergence.
- B. The networks were not advertised properly under the OSPFv3 process.
- C. An IPv6 traffic filter is blocking the networks from being learned via the Router B interface that is connected to Router A.
- D. IPv6 unicast routing is not enabled on Router A or Router B.

**Correct Answer: D**

**Section: Topic 3: Layer 3 Technologies**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 5**

After you review the output of the command show ipv6 interface brief, you see that several IPv6 addresses have the 16-bit hexadecimal value of "FFFF" inserted into the address.

Based on this information, what do you conclude about these IPv6 addresses?

- A. IEEE EUI-64 was implemented when assigning IPv6 addresses on the device.
- B. The addresses were misconfigured and will not function as intended.
- C. IPv6 addresses containing "FFFF" indicate that the address is reserved for multicast.
- D. The IPv6 universal/local flag (bit 7) was flipped.
- E. IPv6 unicast forwarding was enabled, but IPv6 Cisco Express Forwarding was disabled.

**Correct Answer: A**

**Section: Topic 3: Layer 3 Technologies**

**Explanation**

**Explanation/Reference:****QUESTION 6**

An engineer has configured a router to use EUI-64, and was asked to document the IPv6 address of the router. The router has the following interface parameters:

mac address C601.420F.0007 subnet 2001:DB8:0:1::/64

Which IPv6 addresses should the engineer add to the documentation?

- A. 2001:DB8:0:1:C601:42FF:FE0F:7
- B. 2001:DB8:0:1:FFFF:C601:420F:7
- C. 2001:DB8:0:1:FE80:C601:420F:7
- D. 2001:DB8:0:1:C601:42FE:800F:7

**Correct Answer:** A

**Section:** Topic 3: Layer 3 Technologies

**Explanation**

**Explanation/Reference:****QUESTION 7**

Which prefix is matched by the command ip prefix-list name permit 10.8.0.0/16 ge 24 le 24?

- A. 10.9.1.0/24
- B. 10.8.0.0/24
- C. 10.8.0.0/16
- D. 10.8.0.0/23

**Correct Answer:** B

**Section:** Topic 3: Layer 3 Technologies

**Explanation**

**Explanation/Reference:****QUESTION 8**

A packet capture log indicates that several router solicitation messages were sent from a local host on the IPv6 segment. What is the expected

acknowledgment and its usage?

- A. Router acknowledgment messages will be forwarded upstream, where the DHCP server will allocate addresses to the local host.
- B. Routers on the IPv6 segment will respond with an advertisement that provides an external path from the local subnet, as well as certain data, such as prefix discovery.
- C. Duplicate Address Detection will determine if any other local host is using the same IPv6 address for communication with the IPv6 routers on the segment.
- D. All local host traffic will be redirected to the router with the lowest ICMPv6 signature, which is statically defined by the network administrator.

**Correct Answer: B**

**Section: Topic 3: Layer 3 Technologies**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 9**

Refer to the exhibit.

```
access-list 1 permit 1.0.0.0
0.255.255.255
access-list 2 permit 1.2.3.0
0.0.0.255
!
router rip
```

Which command only announces the 1.2.3.0/24 network out of FastEthernet 0/0?

- A. distribute list 1 out
- B. distribute list 1 out FastEthernet0/0
- C. distribute list 2 out
- D. distribute list 2 out FastEthernet0/0

**Correct Answer: D**

**Section: Topic 3: Layer 3 Technologies**

**Explanation**

**Explanation/Reference:**



#### Topic 4: VPN Technologies

##### QUESTION 1

Which encapsulation supports an interface that is configured for an EVN trunk?

- A. 802.1Q
- B. ISL
- C. PPP
- D. Frame Relay
- E. MPLS
- F. HDLC

**Correct Answer:** A

**Section:** Topic 4: VPN Technologies

**Explanation**

**Explanation/Reference:**

##### QUESTION 2

Which Cisco IOS VPN technology leverages IPsec, mGRE, dynamic routing protocol, NHRP, and Cisco Express Forwarding?

- A. FlexVPN
- B. DMVPN
- C. GETVPN
- D. Cisco Easy VPN

**Correct Answer:** B

**Section:** Topic 4: VPN Technologies

**Explanation**

**Explanation/Reference:**

##### QUESTION 3

A network engineer executes the show crypto ipsec sa command. Which three pieces of information are displayed in the output? (Choose three.)

- A. inbound crypto map
- B. remaining key lifetime
- C. path MTU

- D. tagged packets
- E. untagged packets
- F. invalid identity packets

**Correct Answer:** ABC

**Section: Topic 4: VPN Technologies**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 4**

Which three characteristics are shared by subinterfaces and associated EVNs? (Choose three.)

- A. IP address
- B. routing table
- C. forwarding table
- D. access control lists
- E. NetFlow configuration

**Correct Answer:** ABC

**Section: Topic 4: VPN Technologies**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 5**

A user is having issues accessing file shares on a network. The network engineer advises the user to open a web browser, input a prescribed IP address, and follow the instructions. After doing this, the user is able to access company shares. Which type of remote access did the engineer enable?

- A. EZVPN
- B. IPsec VPN client access
- C. VPDN client access
- D. SSL VPN client access

**Correct Answer:** D

**Section: Topic 4: VPN Technologies**

**Explanation**

**Explanation/Reference:**

**QUESTION 6**

Which common issue causes intermittent DMVPN tunnel flaps?

- A. a routing neighbor reachability issue
- B. a suboptimal routing table
- C. interface bandwidth congestion
- D. that the GRE tunnel to hub router is not encrypted

**Correct Answer:** A

**Section:** Topic 4: VPN Technologies

**Explanation**

**Explanation/Reference:**



## Topic 5: Infrastructure Security

### QUESTION 1

Refer to the following command:

```
router(config)# ip http secure-port 4433
```

Which statement is true?

- A. The router will listen on port 4433 for HTTPS traffic.
- B. The router will listen on port 4433 for HTTP traffic.
- C. The router will never accept any HTTP and HTTPS traffic.
- D. The router will listen to HTTP and HTTP traffic on port 4433.

**Correct Answer:** A

**Section:** Topic 5: Infrastructure Security

**Explanation**

**Explanation/Reference:**

### QUESTION 2

What are the three modes of Unicast Reverse Path Forwarding?

- A. strict mode, loose mode, and VRF mode
- B. strict mode, loose mode, and broadcast mode
- C. strict mode, broadcast mode, and VRF mode
- D. broadcast mode, loose mode, and VRF mode

**Correct Answer:** A

**Section:** Topic 5: Infrastructure Security

**Explanation**

**Explanation/Reference:**

### QUESTION 3

What does the following access list, which is applied on the external interface FastEthernet 1/0 of the perimeter router, accomplish?

```
router(config)#access-list 101 deny ip 10.0.0.0 0.255.255.255 any log  
router (config)#access-list 101 deny ip 192.168.0.0 0.0.255.255 any log
```

```
router (config)#access-list 101 deny ip 172.16.0.0 0.15.255.255 any log
router (config)#access-list 101 permit ip any any
router (config)#interface fastEthernet 1/0
router (config-if)#ip access-group 101 in
```

- A. It prevents incoming traffic from IP address ranges 10.0.0.0-10.0.0.255, 172.16.0.0- 172.31.255.255, 192.168.0.0-192.168.255.255 and logs any intrusion attempts.
- B. It prevents the internal network from being used in spoofed denial of service attacks and logs any exit to the Internet.
- C. It filters incoming traffic from private addresses in order to prevent spoofing and logs any intrusion attempts.
- D. It prevents private internal addresses to be accessed directly from outside.

**Correct Answer: C**

**Section: Topic 5: Infrastructure Security**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 4**

Refer to the following access list.

```
access-list 100 permit ip any any log
```

After applying the access list on a Cisco router, the network engineer notices that the router CPU utilization has risen to 99 percent. What is the reason for this?.

- A. A packet that matches access-list with the "log" keyword is Cisco Express Forwarding switched.
- B. A packet that matches access-list with the "log" keyword is fast switched.
- C. A packet that matches access-list with the "log" keyword is process switched.
- D. A large amount of IP traffic is being permitted on the router

**Correct Answer: C**

**Section: Topic 5: Infrastructure Security**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 5**

For troubleshooting purposes, which method can you use in combination with the "debug ip packet" command to limit the amount of output data?

- A. You can disable the IP route cache globally.
- B. You can use the KRON scheduler.
- C. You can use an extended access list.
- D. You can use an IOS parser.
- E. You can use the RITE traffic exporter.

**Correct Answer: C**

**Section: Topic 5: Infrastructure Security**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 6**

Which traffic does the following configuration allow?

```
ipv6 access-list cisco
permit ipv6 host 2001:DB8:0:4::32 any eq ssh
line vty 0 4
ipv6 access-class cisco in
```

- A. all traffic to vty 0 4 from source 2001:DB8:0:4::32
- B. only ssh traffic to vty 0 4 from source all
- C. only ssh traffic to vty 0 4 from source 2001:DB8:0:4::32
- D. all traffic to vty 0 4 from source all

**Correct Answer: C**

**Section: Topic 5: Infrastructure Security**

**Explanation**

**Explanation/Reference:**

## Topic 6: Infrastructure Services

### QUESTION 1

Which NetFlow component is applied to an interface and collects information about flows?

- A. flow monitor
- B. flow exporter
- C. flow sampler
- D. flow collector

**Correct Answer:** A

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

### QUESTION 2

A network engineer is configuring a solution to allow failover of HSRP nodes during maintenance windows, as an alternative to powering down the active router and letting the network respond accordingly. Which action will allow for manual switching of HSRP nodes?

- A. Track the up/down state of a loopback interface and shut down this interface during maintenance.
- B. Adjust the HSRP priority without the use of preemption.
- C. Disable and enable all active interfaces on the active HSRP node.
- D. Enable HSRPv2 under global configuration, which allows for maintenance mode.

**Correct Answer:** A

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

### QUESTION 3

An organization decides to implement NetFlow on its network to monitor the fluctuation of traffic that is disrupting core services. After reviewing the output of NetFlow, the network engineer is unable to see OUT traffic on the interfaces. What can you determine based on this information?

- A. Cisco Express Forwarding has not been configured globally.
- B. NetFlow output has been filtered by default.
- C. Flow Export version 9 is in use.

D. The command ip flow-capture fragment-offset has been enabled.

**Correct Answer:** A

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

#### **QUESTION 4**

When using SNMPv3 with NoAuthNoPriv, which string is matched for authentication?

- A. username
- B. password
- C. community-string
- D. encryption-key

**Correct Answer:** A

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

#### **QUESTION 5**

A network engineer finds that a core router has crashed without warning. In this situation, which feature can the engineer use to create a crash collection?

- A. secure copy protocol
- B. core dumps
- C. warm reloads
- D. SNMP
- E. NetFlow

**Correct Answer:** B

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

**QUESTION 6**

A network engineer executes the show ip flow export command. Which line in the output indicates that the send queue is full and export packets are not being sent?

- A. output drops
- B. enqueueing for the RP
- C. fragmentation failures
- D. adjacency issues

**Correct Answer:** A

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

**QUESTION 7**

A network engineer is notified that several employees are experiencing network performance related issues, and bandwidth-intensive applications are identified as the root cause. In order to identify which specific type of traffic is causing this slowness, information such as the source/destination IP and Layer 4 port numbers is required. Which feature should the engineer use to gather the required information?

- A. SNMP
- B. Cisco IOS EEM
- C. NetFlow
- D. Syslog
- E. WCCP

**Correct Answer:** C

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

**QUESTION 8**

A network engineer is asked to configure a "site-to-site" IPsec VPN tunnel. One of the last things that the engineer does is to configure an access list (access-list 1 permit any) along with the command ip nat inside source list 1 int s0/0 overload. Which functions do the two commands serve in this scenario?

- A. The command access-list 1 defines interesting traffic that is allowed through the tunnel.

- B. The command `ip nat inside source list 1 int s0/0 overload` disables "many-to-one" access for all devices on a defined segment to share a single IP address upon exiting the external interface.
- C. The command `access-list 1 permit any` defines only one machine that is allowed through the tunnel.
- D. The command `ip nat inside source list 1 int s0/0 overload` provides "many-to-one" access for all devices on a defined segment to share a single IP address upon exiting the external interface.

**Correct Answer:** D

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

#### QUESTION 9

A network engineer initiates the `ip sla responder tcp-connect` command in order to gather statistics for performance gauging. Which type of statistics does the engineer see?

- A. connectionless-oriented
- B. service-oriented
- C. connection-oriented
- D. application-oriented

**Correct Answer:** C

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

#### QUESTION 10

After a recent DoS attack on a network, senior management asks you to implement better logging functionality on all IOS-based devices. Which two actions can you take to provide enhanced logging results? (Choose two.)

- A. Use the `msec` option to enable service time stamps.
- B. Increase the logging history
- C. Set the logging severity level to 1.
- D. Specify a logging rate limit.
- E. Disable event logging on all noncritical items.

**Correct Answer:** AB

**Section: Topic 6: Infrastructure Services****Explanation****Explanation/Reference:****QUESTION 11**

Which two functions are completely independent when implementing NAT64 over NAT-PT? (Choose two.)

- A. DNS
- B. NAT
- C. port redirection
- D. stateless translation
- E. session handling

**Correct Answer:** AB

**Section: Topic 6: Infrastructure Services****Explanation****Explanation/Reference:****QUESTION 12**

What is the result of the command `ip flow-export destination 10.10.10.1 5858`?

- A. It configures the router to export cache flow information to IP 10.10.10.1 on port UDP/5858.
- B. It configures the router to export cache flow information about flows with destination IP 10.10.10.1 and port UDP/5858.
- C. It configures the router to receive cache flow information from IP 10.10.10.1 on port UDP/5858.
- D. It configures the router to receive cache flow information about flows with destination IP 10.10.10.1 and port UDP/5858.

**Correct Answer:** A

**Section: Topic 6: Infrastructure Services****Explanation****Explanation/Reference:****QUESTION 13**

A network engineer is trying to implement broadcast-based NTP in a network and executes the `ntp broadcast client` command. Assuming that an NTP



server is already set up, what is the result of the command?

- A. It enables receiving NTP broadcasts on the interface where the command was executed.
- B. It enables receiving NTP broadcasts on all interfaces globally.
- C. It enables a device to be an NTP peer to another device.
- D. It enables a device to receive NTP broadcast and unicast packets.

**Correct Answer:** A

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

#### QUESTION 14

Refer to the exhibit.

**Sampler : mysampler, id : 1, packets matched : 10, mode :  
random sampling mode**

Which statement about the output of the show flow-sampler command is true?

- A. The sampler matched 10 packets, each packet randomly chosen from every group of 100 packets.
- B. The sampler matched 10 packets, one packet every 100 packets.
- C. The sampler matched 10 packets, each one randomly chosen from every 100-second interval.
- D. The sampler matched 10 packets, one packet every 100 seconds.

**Correct Answer:** A

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

#### QUESTION 15

A company's corporate policy has been updated to require that stateless, 1-to-1, and IPv6 to IPv6 translations at the Internet edge are performed. What is the best solution to ensure compliance with this new policy?

- A. NAT64
- B. NAT44
- C. NATv6
- D. NPTv4
- E. NPTv6

**Correct Answer:** E

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

#### **QUESTION 16**

A network engineer executes the “ipv6 flowset” command. What is the result?

- A. Flow-label marking in 1280-byte or larger packets is enabled.
- B. Flow-set marking in 1280-byte or larger packets is enabled.
- C. IPv6 PMTU is enabled on the router.
- D. IPv6 flow control is enabled on the router.

**Correct Answer:** A

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

#### **QUESTION 17**

A network engineer is configuring SNMP on network devices to utilize one-way SNMP notifications. However, the engineer is not concerned with authentication or encryption.

Which command satisfies the requirements of this scenario?

- A. router(config)#snmp-server host 172.16.201.28 traps version 2c CISCORO
- B. router(config)#snmp-server host 172.16.201.28 informs version 2c CISCORO
- C. router(config)#snmp-server host 172.16.201.28 traps version 3 auth CISCORO
- D. router(config)#snmp-server host 172.16.201.28 informs version 3 auth CISCORO

**Correct Answer:** A

**Section:** Topic 6: Infrastructure Services

**Explanation****Explanation/Reference:****QUESTION 18**

A network engineer has left a NetFlow capture enabled over the weekend to gather information regarding excessive bandwidth utilization. The following command is entered:

**switch#show flow exporter Flow\_Exporter-1**

What is the expected output?

- A. configuration of the specified flow exporter
- B. current status of the specified flow exporter
- C. status and statistics of the specified flow monitor
- D. configuration of the specified flow monitor

**Correct Answer:**

**Section: Topic 6: Infrastructure Services**

**Explanation****Explanation/Reference:****QUESTION 19**

Which type of traffic does DHCP snooping drop?

- A. discover messages
- B. DHCP messages where the source MAC and client MAC do not match
- C. traffic from a trusted DHCP server to client
- D. DHCP messages where the destination MAC and client MAC do not match

**Correct Answer:**

**Section: Topic 6: Infrastructure Services**

**Explanation****Explanation/Reference:****QUESTION 20**

Which two methods of deployment can you use when implementing NAT64? (Choose two.)

- A. stateless
- B. stateful
- C. manual
- D. automatic
- E. static
- F. functional
- G. dynamic

**Correct Answer:** AB

**Section:** Topic 6: Infrastructure Services

**Explanation**

**Explanation/Reference:**

**Topic 7: Mix Questions****QUESTION 1**

Which PPP authentication method sends authentication information in cleartext?

- A. MS CHAP
- B. CDPCP
- C. CHAP
- D. PAP

**Correct Answer: D**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

**QUESTION 2**

An engineer is configuring a GRE tunnel interface in the default mode. The engineer has assigned an IPv4 address on the tunnel and sourced the tunnel from an Ethernet interface. Which option also is required on the tunnel interface before it is operational?

- A. tunnel destination address
- B. keepalives
- C. IPv6 address
- D. tunnel protection

**Correct Answer: A**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

**QUESTION 3**

Which type of handshake does CHAP authentication use to establish a PPP link?

- A. one-way
- B. two-way
- C. three-way
- D. four-way

**Correct Answer:** C

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

#### **QUESTION 4**

The following configuration is applied to a router at a branch site:

```
ipv6 dhcp pool dhcp-pool
dns-server 2001:DB8:1:B::1
dns-server 2001:DB8:3:307C::42
domain-name example.com
!
```

If IPv6 is configured with default settings on all interfaces on the router, which two dynamic IPv6 addressing mechanisms could you use on end hosts to provide end-to-end connectivity? (Choose two.)

- A. EUI-64
- B. SLAAC
- C. DHCPv6
- D. BOOTP

**Correct Answer:** AB

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

#### **QUESTION 5**

Which two statements about AAA implementation in a Cisco router are true? (Choose two.)

- A. RADIUS is more flexible than TACACS+ in router management.
- B. RADIUS and TACACS+ allow accounting of commands.
- C. RADIUS and TACACS+ encrypt the entire body of the packet.
- D. RADIUS and TACACS+ are client/server AAA protocols.
- E. Neither RADIUS nor TACACS+ allow for accounting of commands.

**Correct Answer:** BD  
**Section:** Topic 7: Mix Questions  
**Explanation**

**Explanation/Reference:**

#### **QUESTION 6**

A router receives a routing advertisement for the same prefix and subnet from four different routing protocols. Which advertisement is installed in the routing table?

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

**Correct Answer:** D  
**Section:** Topic 7: Mix Questions  
**Explanation**

**Explanation/Reference:**

#### **QUESTION 7**

Which two commands would be used to troubleshoot high memory usage for a process? (Choose two.)

- A. router#show memory allocating-process table
- B. router#show memory summary
- C. router#show memory dead
- D. router#show memory events
- E. router#show memory processor statistics

**Correct Answer:** AB  
**Section:** Topic 7: Mix Questions  
**Explanation**

**Explanation/Reference:**

#### **QUESTION 8**

In IPv6, SLAAC provides the ability to address a host based on a network prefix that is advertised from a local network router. How is the prefix

advertised?

- A. routing table
- B. router advertisements
- C. routing protocol
- D. routing type

**Correct Answer:** B

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

#### **QUESTION 9**

Which three benefits does the Cisco Easy Virtual Network provide to an enterprise network? (Choose three.)

- A. simplified Layer 3 network virtualization
- B. improved shared services support
- C. enhanced management, troubleshooting, and usability
- D. reduced configuration and deployment time for dot1q trunking
- E. increased network performance and throughput
- F. decreased BGP neighbor configurations

**Correct Answer:** ABC

**Section:** Topic 7: Mix Questions

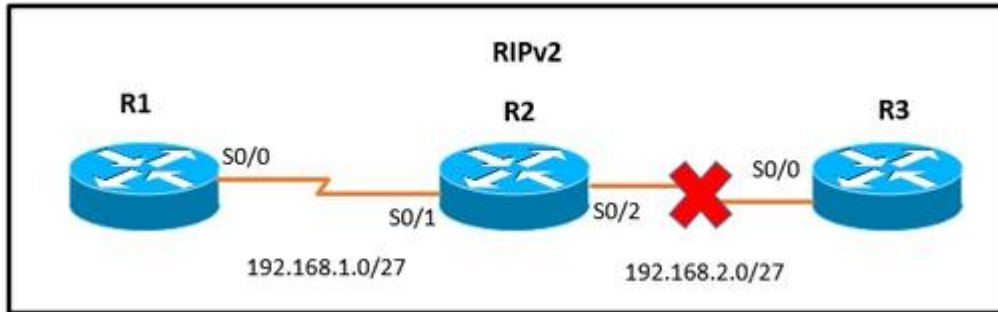
**Explanation**

**Explanation/Reference:**

#### **QUESTION 10**

Refer to the exhibit. The network setup is running the RIP routing protocol. Which two events will occur following link failure between R2 and R3? (Choose two.)





- A. R2 will advertise network 192.168.2.0/27 with a hop count of 16 to R1.
- B. R2 will not send any advertisements and will remove route 192.168.2.0/27 from its routing table.
- C. R1 will reply to R2 with the advertisement for network 192.168.2.0/27 with a hop count of 16.
- D. After communication fails and after the hold-down timer expires, R1 will remove the 192.168.2.0/27 route from its routing table.
- E. R3 will not accept any further updates from R2, due to the split-horizon loop prevention mechanism.

**Correct Answer:** AC

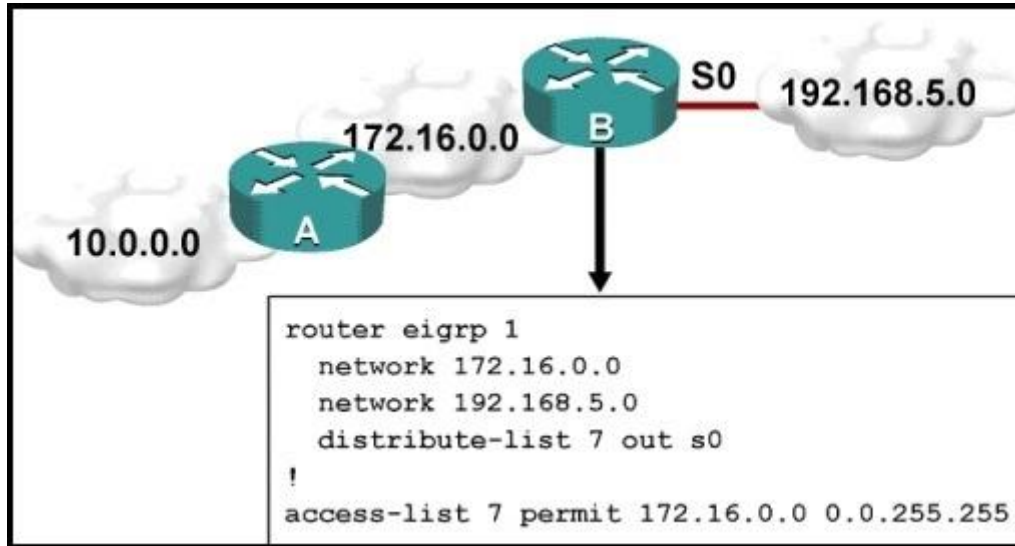
**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

#### QUESTION 11

Refer to the exhibit. Which statement is true?



- A. Traffic from the 172.16.0.0/16 network will be blocked by the ACL.
- B. The 10.0.0.0/8 network will not be advertised by Router B because the network statement for the 10.0.0.0/8 network is missing from Router B.
- C. The 10.0.0.0/8 network will not be in the routing table on Router B.
- D. Users on the 10.0.0.0/8 network can successfully ping users on the 192.168.5.0/24 network, but users on the 192.168.5.0/24 cannot successfully ping users on the 10.0.0.0/8 network.
- E. Router B will not advertise the 10.0.0.0/8 network because it is blocked by the ACL.

**Correct Answer:**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

#### QUESTION 12

Which outbound access list, applied to the WAN interface of a router, permits all traffic except for http traffic sourced from the workstation with IP address 10.10.10.1?

- A. ip access-list extended 200  
deny tcp host 10.10.10.1 eq 80 any  
permit ip any any
- B. ip access-list extended 10

deny tcp host 10.10.10.1 any eq 80  
permit ip any any

- C. ip access-list extended NO\_HTTP  
deny tcp host 10.10.10.1 any eq 80
- D. ip access-list extended 100  
deny tcp host 10.10.10.1 any eq 80  
permit ip any any

**Correct Answer: D**

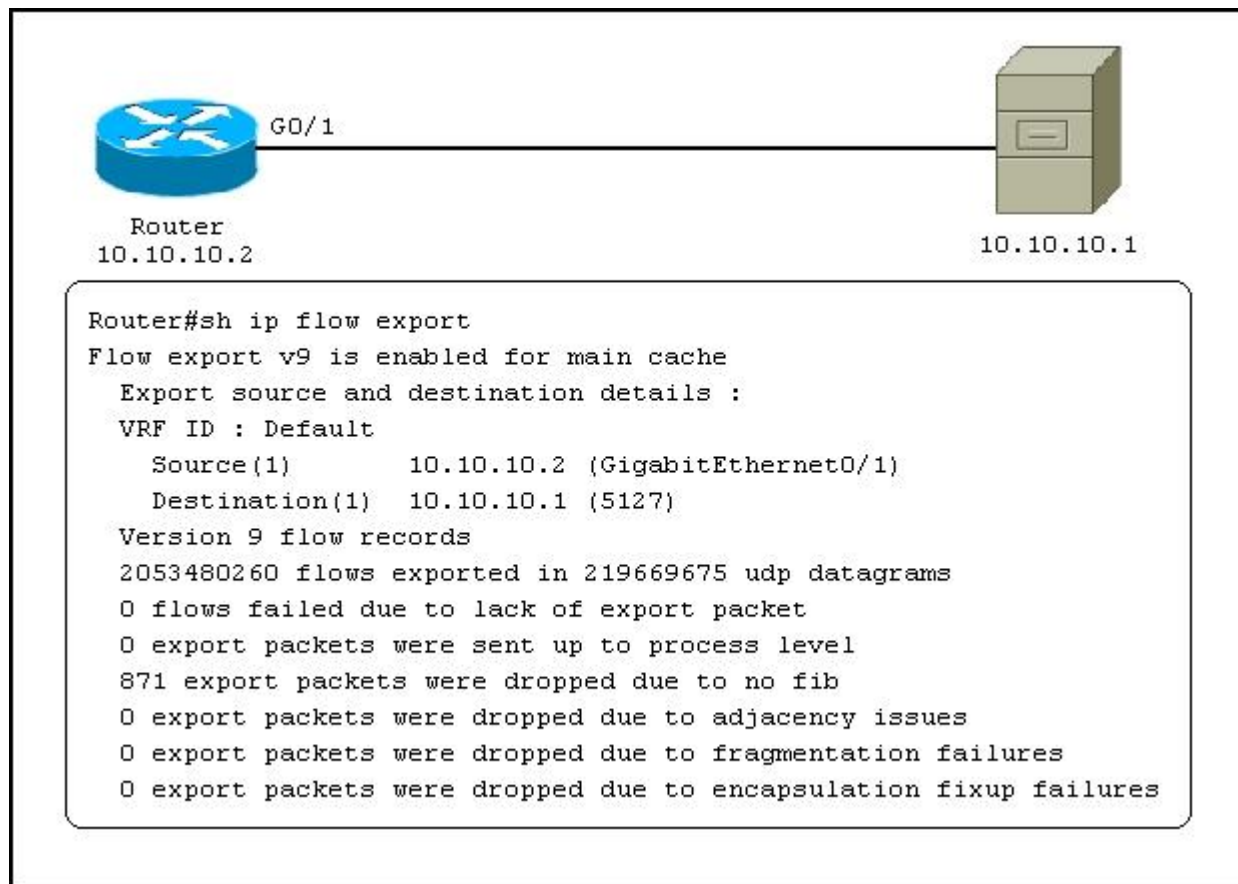
**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 13**

Refer to the exhibit. Which statement about the command output is true?



- A. The router exports flow information to 10.10.10.1 on UDP port 5127.
- B. The router receives flow information from 10.10.10.2 on UDP port 5127.
- C. The router exports flow information to 10.10.10.1 on TCP port 5127.
- D. The router receives flow information from 10.10.10.2 on TCP port 5127.

**Correct Answer:** A

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 14**

A company has their headquarters located in a large city with a T3 frame relay link that connects 30 remote locations that each have T1 frame relay connections. Which technology must be configured to prevent remote sites from getting overwhelmed with traffic and prevent packet drops from the headquarters?

- A. traffic shaping
- B. IPsec VPN
- C. GRE VPN
- D. MPLS

**Correct Answer:** A

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 15**

Two aspects of an IP SLA operation can be tracked: state and reachability. Which statement about state tracking is true?

- A. When tracking state, an OK return code means that the track's state is up; any other return code means that the track's state is down.
- B. When tracking state, an OK or over threshold return code means that the track's state is up; any other return code means that the track's state is down.
- C. When tracking state, an OK return code means that the track's state is down; any other return code means that the track's state is up.
- D. When tracking state, an OK or over threshold return code means that the track's state is down; any other return code means that the track's state is up.

**Correct Answer:** A

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 16**

A network engineer is trying to modify an existing active NAT configuration on an IOS router by using the following command:

**(config)# no ip nat pool dynamic-nat-pool 192.1.1.20 192.1.1.254 netmask 255.255.255.0**

Upon entering the command on the IOS router, the following message is seen on the console:

%Dynamic Mapping in Use, Cannot remove message or the %Pool outpool in use, cannot destroy

What is the least impactful method that the engineer can use to modify the existing IP NAT configuration?

- A. Clear the IP NAT translations using the clear ip nat traffic \* " command, then replace the NAT configuration quickly, before any new NAT entries are populated into the translation table due to active NAT traffic.
- B. Clear the IP NAT translations using the clear ip nat translation \* " command, then replace the NAT configuration quickly, before any new NAT entries are populated into the translation table due to active NAT traffic.
- C. Clear the IP NAT translations using the reload command on the router, then replace the NAT configuration quickly, before any new NAT entries are populated into the translation table due to active NAT traffic.
- D. Clear the IP NAT translations using the clear ip nat table \* " command, then replace the NAT configuration quickly, before any new NAT entries are populated into the translation table due to active NAT traffic.

**Correct Answer: B**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 17**

Which technology was originally developed for routers to handle fragmentation in the path between end points?

- A. PMTUD
- B. MSS
- C. windowing
- D. TCP
- E. global synchronization

**Correct Answer: A**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 18**

In which two ways can NetFlow data be viewed? (Choose two.)

- A. CLI

- B. NetFlow
- C. built-in GUI
- D. syslog server interface
- E. web interface

**Correct Answer:** AB

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

#### QUESTION 19

Refer to the exhibit. Which statement about the configuration is true?

```
ip auth-proxy max-nodata-conns 3
ip admission max-nodata-conns 3
ip sla monitor 1
  type jitter dest-ipaddr 200.0.10.3 dest-port 65051 num-packets 20
  request-data-size 160
  tos 128
  frequency 30
ip sla monitor schedule 1 start-time after 00:05:00
```

- A. 20 packets are being sent every 30 seconds.
- B. The monitor starts at 12:05:00 a.m.
- C. Jitter is being tested with TCP packets to port 65051.
- D. The packets that are being sent use DSCP EF.

**Correct Answer:** A

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

#### QUESTION 20

Refer to the exhibit. The command is executed while configuring a point-to-multipoint Frame Relay interface. Which type of IPv6 address is portrayed in

the exhibit?

```
frame-relay map ipv6 FE80::102 102
```

- A. link-local
- B. site-local
- C. global
- D. multicast

**Correct Answer: A**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

#### QUESTION 21

How does an IOS router process a packet that should be switched by Cisco Express Forwarding without an FIB entry?

- A. by forwarding the packet
- B. by dropping the packet
- C. by creating a new FIB entry for the packet
- D. by looking in the routing table for an alternate FIB entry

**Correct Answer: B**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

#### QUESTION 22

A network engineer is investigating the cause of a service disruption on a network segment and executes the debug condition interface fastethernet f0/0 command. In which situation is the debugging output generated?

- A. when packets on the interface are received and the interface is operational
- B. when packets on the interface are received and logging buffered is enabled
- C. when packets on the interface are received and forwarded to a configured syslog server
- D. when packets on the interface are received and the interface is shut down



**Correct Answer:** A

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 23**

A network engineer has configured a tracking object to monitor the reachability of IP SLA 1. In order to update the next hop for the interesting traffic, which feature must be used in conjunction with the newly created tracking object to manipulate the traffic flow as required?

- A. SNMP
- B. PBR
- C. IP SLA
- D. SAA
- E. ACLs
- F. IGP

**Correct Answer:** B

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 24**

A network administrator is troubleshooting a DMVPN setup between the hub and the spoke. Which action should the administrator take before troubleshooting the IPsec configuration?

- A. Verify the GRE tunnels.
- B. Verify ISAKMP.
- C. Verify NHRP.
- D. Verify crypto maps.

**Correct Answer:** A

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 25**

Which statement is a restriction for PPPoE configuration?

- A. Multiple PPPoE clients can use the same dialer interface.
- B. Multiple PPPoE clients can use the same dialer pool.
- C. A PPPoE session can be initiated only by the client.
- D. A PPPoE session can be initiated only by the access concentrator.

**Correct Answer:** C

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 26**

Which three items can you track when you use two time stamps with IP SLAs? (Choose three.)

- A. delay
- B. jitter
- C. packet loss
- D. load
- E. throughput
- F. path

**Correct Answer:** ABC

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 27**

What are the default timers for RIPng?

- A. Update: 30 seconds Expire: 180 seconds Flush: 240 seconds
- B. Update: 20 seconds Expire: 120 seconds Flush: 160 seconds
- C. Update: 10 seconds Expire: 60 seconds Flush: 80 seconds

D. Update: 5 seconds Expire: 30 seconds Flush: 40 seconds

**Correct Answer:** A

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

#### **QUESTION 28**

An engineer is asked to monitor the availability of the next-hop IP address of 172.16.201.25 every 3 seconds using an ICMP echo packet via an ICMP echo probe. Which two commands accomplish this task? (Choose two.)

- A. router(config-ip-sla)#icmp-echo 172.16.201.25 source-interface FastEthernet 0/0
- B. router(config-ip-sla-echo)#timeout 3
- C. router(config-ip-sla)#icmp-jitter 172.16.201.25 interval 100
- D. router(config-ip-sla-echo)#frequency 3
- E. router(config-ip-sla)#udp-echo 172.16.201.25 source-port 23
- F. router(config-ip-sla-echo)#threshold 3

**Correct Answer:** AD

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

#### **QUESTION 29**

Which IPv6 address type is seen as the next-hop address in the output of the show ipv6 rip

- A. link-local
- B. global
- C. site-local
- D. anycast
- E. multicast

**Correct Answer:** A

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 30**

The OSPF database of a router shows LSA types 1, 2, 3, and 7 only. Which type of area is this router connected to?

- A. stub area
- B. totally stubby area
- C. backbone area
- D. not-so-stubby area

**Correct Answer: D**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

**QUESTION 31**

If the total bandwidth is 64 kbps and the RTT is 3 seconds, what is the bandwidth delay product?

- A. 8,000 bytes
- B. 16,000 bytes
- C. 24,000 bytes
- D. 32,000 bytes
- E. 62,000 bytes

**Correct Answer: C**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

**QUESTION 32**

On which two types of interface is Frame Relay switching supported? (Choose two.)

- A. serial interfaces
- B. Ethernet interfaces
- C. fiber interfaces

- D. ISDN interfaces
- E. auxiliary interfaces

**Correct Answer:** AD

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

### QUESTION 33

A network engineer is considering enabling load balancing with EIGRP. Which consideration should be analyzed?

- A. EIGRP allows a maximum of four paths across for load balancing traffic.
- B. By default, EIGRP uses a default variance of 2 for load balancing.
- C. EIGRP unequal path load balancing can result in routing loops.
- D. By default, EIGRP performs equal cost load balancing at least across four equal cost paths.

**Correct Answer:** D

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

### QUESTION 34

A network engineer has set up VRF-Lite on two routers where all the interfaces are in the same VRF. At a later time, a new loopback is added to Router 1, but it cannot ping any of the existing interfaces. Which two configurations enable the local or remote router to ping the loopback from any existing interface? (Choose two.)

- A. adding a static route for the VRF that points to the global route table
- B. adding the loopback to the VRF
- C. adding dynamic routing between the two routers and advertising the loopback
- D. adding the IP address of the loopback to the export route targets for the VRF
- E. adding a static route for the VRF that points to the loopback interface
- F. adding all interfaces to the global and VRF routing tables

**Correct Answer:** AB

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 35**

Which two routing protocols are supported by Easy Virtual Network? (Choose two.)

- A. RIPv2
- B. OSPFv2
- C. BGP
- D. EIGRP
- E. IS-IS

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 36**

Which statement is true?

- A. RADIUS uses TCP, and TACACS+ uses UDP.
- B. RADIUS encrypts the entire body of the packet.
- C. TACACS+ encrypts only the password portion of a packet.
- D. TACACS+ separates authentication and authorization.

**Correct Answer:** D

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 37**

Which Cisco VPN technology uses AAA to implement group policies and authorization and is also used for the XAUTH authentication method?

- A. DMVPN
- B. Cisco Easy VPN

- C. GETVPN
- D. GREVPN

**Correct Answer: B**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 38**

Which statement about dual stack is true?

- A. Dual stack translates IPv6 addresses to IPv4 addresses.
- B. Dual stack means that devices are able to run IPv4 and IPv6 in parallel.
- C. Dual stack translates IPv4 addresses to IPv6 addresses.
- D. Dual stack changes the IP addresses on hosts from IPv4 to IPv6 automatically.

**Correct Answer: D**

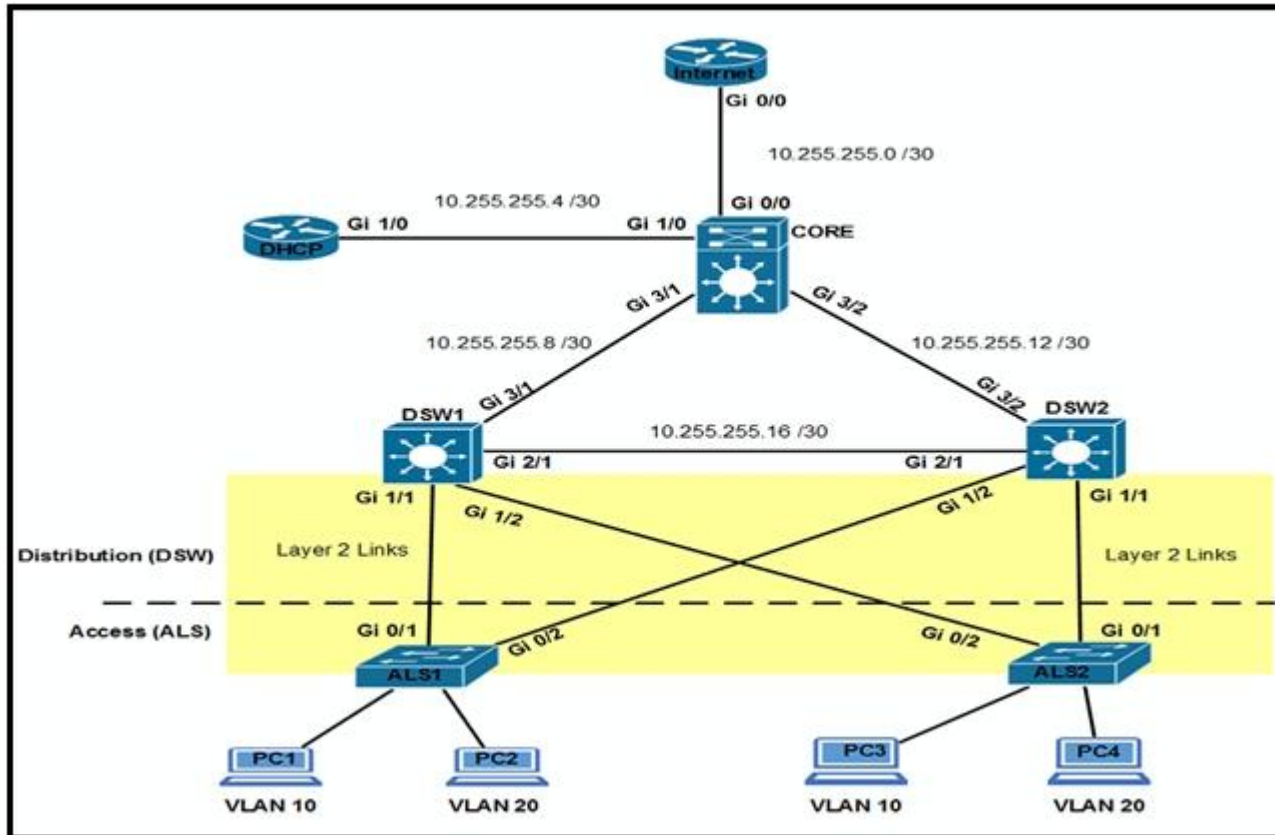
**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 39**

Refer to the exhibit.



Which option prevents routing updates from being sent to the DHCP router, while still allowing routing update messages to flow to the Internet router and the distribution switches?

- A. DHCP(config-router)# passive-interface default DHCP(config-router)# no passive- interface Gi1/0 Internet(config-router)# passive-interface Gi0/1 Internet (config-router)# passive-interface Gi0/2
- B. Core(config-router)# passive-interface Gi0/0 Core(config-router)# passive-interface Gi3/1 Core(config-router)# passive-interface Gi3/2 DHCP(config-router)# no passive- interface Gi1/0
- C. Core(config-router)# passive-interface default Core(config-router)# no passive-interface Gi0/0 Core(config-router)# no passive-interface Gi3/1 Core (config-router)# no passive- interface Gi3/2
- D. Internet(config-router)# passive-interface default Core(config-router)# passive-interface default DSW1(config-router)# passive-interface default DSW2(config-router)# passive- interface default

**Correct Answer: C**



**Section: Topic 7: Mix Questions**  
**Explanation**

**Explanation/Reference:**

**QUESTION 40**

Which type of BGP AS number is 64591?

- A. a private AS number
- B. a public AS number
- C. a private 4-byte AS number
- D. a public 4-byte AS number

**Correct Answer: A**

**Section: Topic 7: Mix Questions**  
**Explanation**

**Explanation/Reference:**

**QUESTION 41**

Refer to the exhibit.

```
!  
interface FastEthernet0/1  
  ip address 209.165.200.225 255.255.255.224  
  ip nat outside  
!  
interface FastEthernet0/2  
  ip address 10.10.10.1 255.255.255.0  
  ip nat inside  
!  
access-list 10 permit 10.10.10.0 0.0.0.255  
!
```

Which command allows hosts that are connected to FastEthernet0/2 to access the

- A. ip nat inside source list 10 interface FastEthernet0/1 overload

- B. ip nat outside source static 209.165.200.225 10.10.10.0 overload
- C. ip nat inside source list 10 interface FastEthernet0/2 overload
- D. ip nat outside source list 10 interface FastEthernet0/2 overload

**Correct Answer: A**

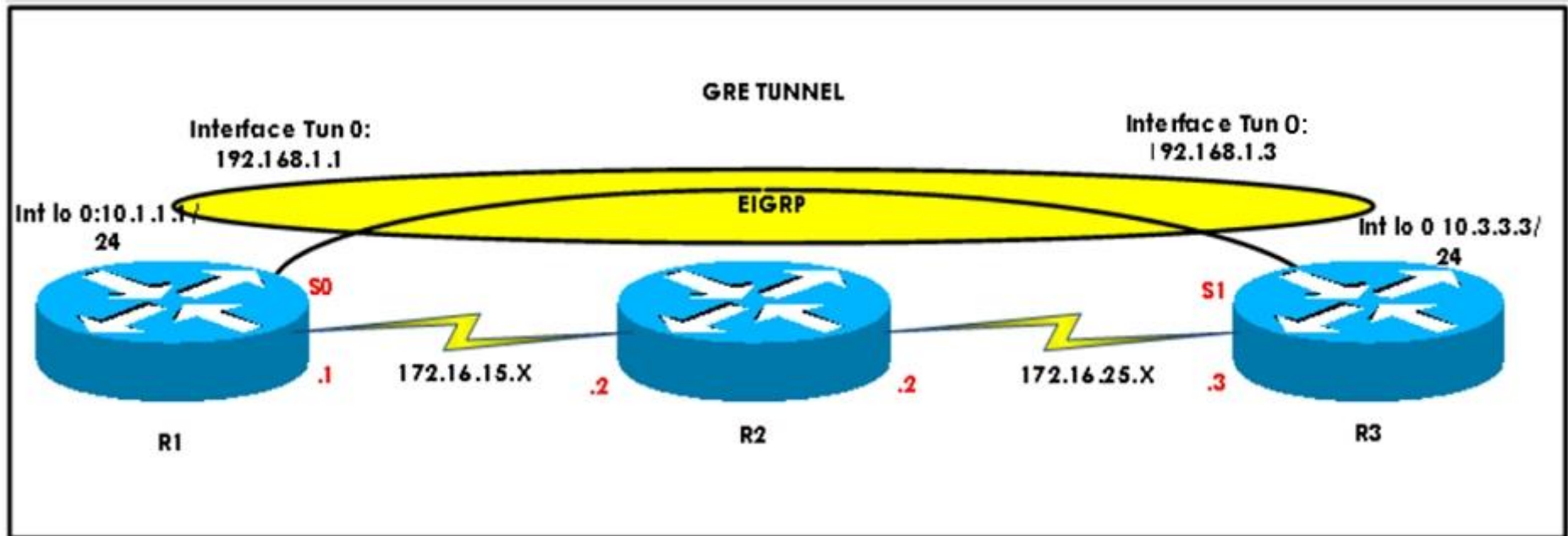
**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

**QUESTION 42**

Refer to the exhibit. After configuring GRE between two routers running OSPF that are connected to each other via a WAN link, a network engineer notices that the two routers cannot establish the GRE tunnel to begin the exchange of routing updates. What is the reason for this?



- A. Either a firewall between the two routers or an ACL on the router is blocking IP protocol number 47.
- B. Either a firewall between the two routers or an ACL on the router is blocking UDP 57.
- C. Either a firewall between the two routers or an ACL on the router is blocking TCP 47.
- D. Either a firewall between the two routers or an ACL on the router is blocking IP protocol number 57.

**Correct Answer:** A

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 43**

Which parameter in an SNMPv3 configuration offers authentication and encryption?

- A. auth
- B. noauth
- C. priv
- D. secret

**Correct Answer:** C

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 44**

Which protocol is used in a DMVPN network to map physical IP addresses to logical IP addresses?

- A. BGP
- B. LLDP
- C. EIGRP
- D. NHRP

**Correct Answer:** D

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 45**

What is the purpose of the route-target command?

- A. It extends the IP address to identify which VRF instance it belongs to.
- B. It enables multicast distribution for VRF-Lite setups to enhance IGP routing protocol capabilities.
- C. It manages the import and export of routes between two or more VRF instances.
- D. It enables multicast distribution for VRF-Lite setups to enhance EGP routing protocol capabilities.

**Correct Answer: C**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 46**

A route map uses an ACL, if the required matching is based on which criteria?

- A. addressing information
- B. route types
- C. AS paths
- D. metrics

**Correct Answer: A**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 47**

To configure SNMPv3 implementation, a network engineer is using the AuthNoPriv security level. What effect does this action have on the SNMP messages?

- A. They become unauthenticated and unencrypted.
- B. They become authenticated and unencrypted.
- C. They become authenticated and encrypted.
- D. They become unauthenticated and encrypted.

**Correct Answer: B**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:****QUESTION 48**

The enterprise network WAN link has been receiving several denial of service attacks from both IPv4 and IPv6 sources. Which three elements can you use to identify an IPv6 packet via its header, in order to filter future attacks? (Choose three.)

- A. Traffic Class
- B. Source address
- C. Flow Label
- D. Hop Limit
- E. Destination Address
- F. Fragment Offset

**Correct Answer:** ACD

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:****QUESTION 49**

Which two authentication protocols does PPP support? (Choose two.)

- A. WAP
- B. PAP
- C. CHAP
- D. EAP
- E. RADIUS

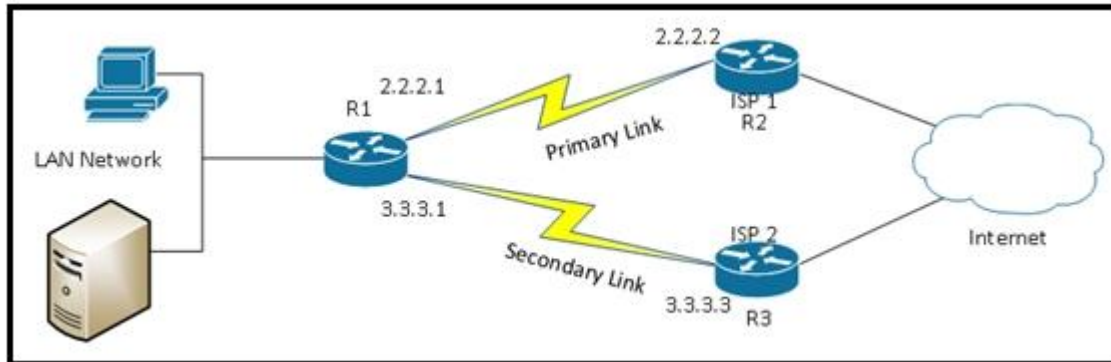
**Correct Answer:** BC

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:****QUESTION 50**

Refer to the exhibit.



Which technology can be employed to automatically detect a WAN primary link failure and failover to the secondary link?

- A. HSRP
- B. VRRP
- C. IP SLA
- D. multicast

**Correct Answer: C**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 51**

What is the primary service that is provided when you implement Cisco Easy Virtual Network?

- A. It requires and enhances the use of VRF-Lite.
- B. It reduces the need for common services separation
- C. It allows for traffic separation and improved network efficiency.
- D. It introduces multi-VRF and label-prone network segmentation

**Correct Answer: C**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

**QUESTION 52**

Which two statements indicate a valid association mode for NTP synchronization? (Choose two.)

- A. The client polls NTP servers for time.
- B. The client broadcasts NTP requests.
- C. The client listens to NTP broadcasts.
- D. The client creates a VPN tunnel to an NTP server.
- E. The client multicasts NTP requests.

**Correct Answer:** AC

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

**QUESTION 53**

Refer to the exhibit. The DHCP client is unable to receive a DHCP address from the server. Consider the following output:

**hostname RouterB**

**!**

**interface fastethernet 0/0**

**ip address 172.31.1.1 255.255.255.0**

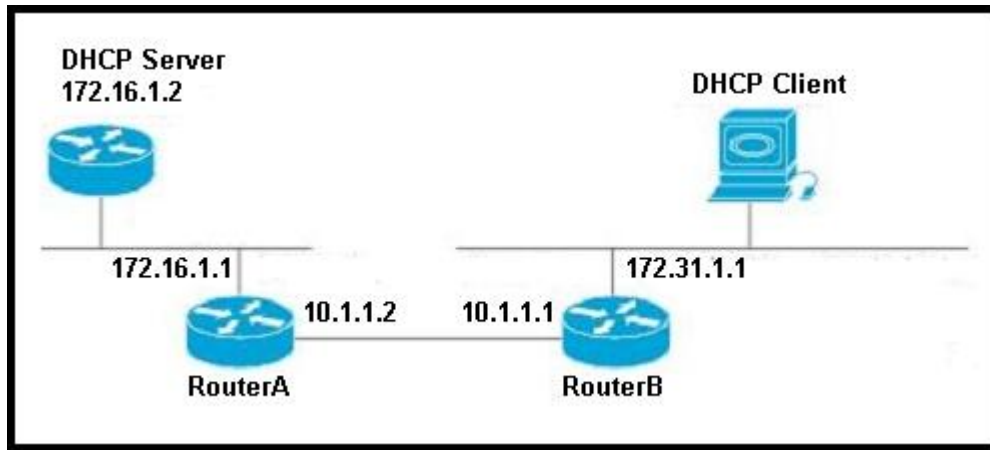
**interface serial 0/0**

**ip address 10.1.1.1 255.255.255.252**

**!**

**ip route 172.16.1.0 255.255.255.0 10.1.1.2**

Which configuration is required on the Router B fastethernet 0/0 port in order to allow the DHCP client to successfully receive an IP address from the DHCP server?



- A. RouterB(config-if)# ip helper-address 172.16.1.2
- B. RouterB(config-if)# ip helper-address 172.16.1.1
- C. RouterB(config-if)# ip helper-address 172.31.1.1
- D. RouterB(config-if)# ip helper-address 255.255.255.255

**Correct Answer:** A

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

#### QUESTION 54

Various employees in the same department report to the network engineer about slowness in the network connectivity to the Internet. They are also having latency issues communicating to the network drives of various departments. Upon monitoring, the engineer finds traffic flood in the network. Which option is the problem?

- A. network outage
- B. network switching loop
- C. router configuration issue
- D. wrong proxy configured

**Correct Answer:** B

**Section:** Topic 7: Mix Questions

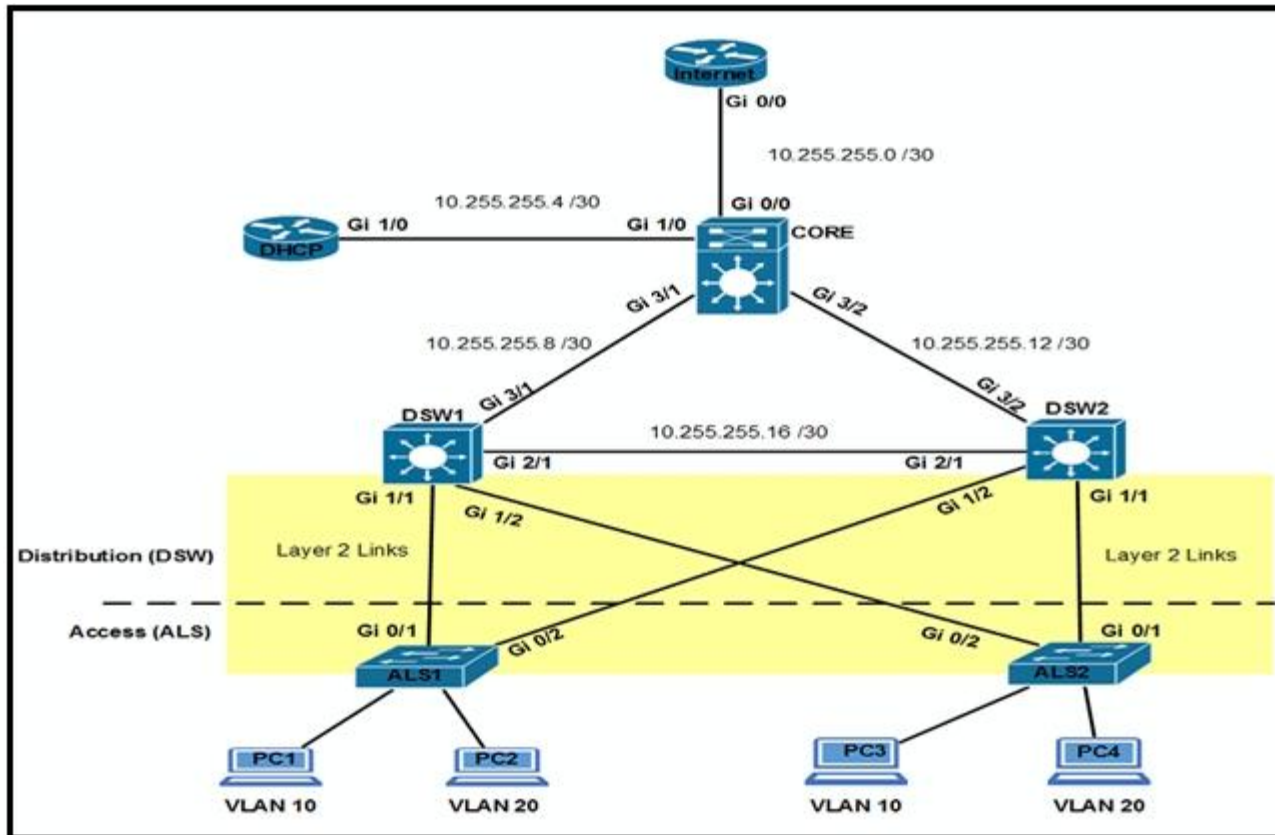
**Explanation**



Explanation/Reference:

**QUESTION 55**

Refer to the exhibit.



Which option prevents routing updates from being sent to the access layer switches?

- A. DWS1(config-router)# passive-interface default DWS2(config-router)# passive-interface default
- B. ALS1(config-router)# passive-interface default ALS2(config-router)# passive-interface default
- C. DWS1(config-router)# passive-interface gi1/1 DWS1(config-router)# passive-interface gi1/2 2  
DWS2(config-router)# passive-interface gi1/1 DWS2(config-router)# passive-interface gi1/2

D. ALS1(config-router)# passive-interface gi0/1 ALS1(config-router)# passive-interface gi0/2 ALS2(config-router)# passive-interface gi0/1 ALS2(config-router)# passive-interface gi0/2

**Correct Answer: C**

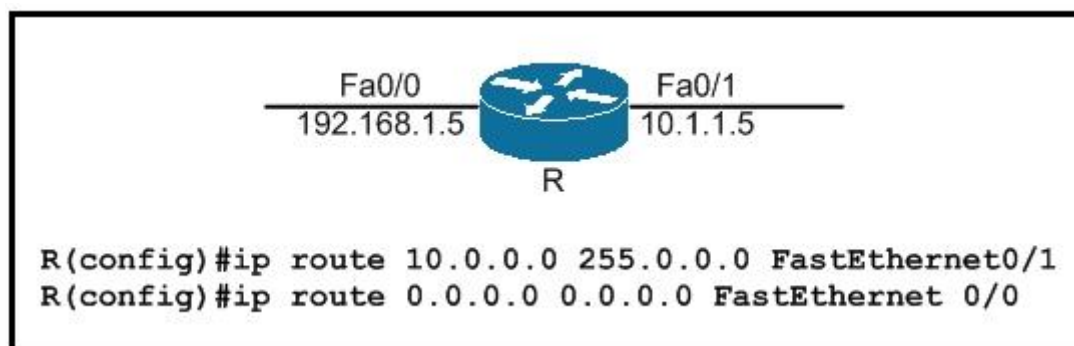
**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

#### QUESTION 56

Refer to the exhibit.



Which option represents the minimal configuration that allows inbound traffic from the 172.16.1.0/24 network to successfully enter router R, while also limiting spoofed 10.0.0.0/8 hosts that could enter router R?

- A. (config)#ip cef  
(config)#interface fa0/0  
(config-if)#ip verify unicast source reachable-via rx allow-default
- B. (config)#ip cef  
(config)#interface fa0/0  
(config-if)#ip verify unicast source reachable-via rx
- C. (config)#no ip cef  
(config)#interface fa0/0  
(config-if)#ip verify unicast source reachable-via rx
- D. (config)#interface fa0/0  
(config-if)#ip verify unicast source reachable-via any

**Correct Answer: A**

**Section: Topic 7: Mix Questions**  
**Explanation**

**Explanation/Reference:**

**QUESTION 57**

Which Cisco VPN technology can use multipoint tunnel, resulting in a single GRE tunnel interface on the hub, to support multiple connections from multiple spoke devices?

- A. DMVPN
- B. GETVPN
- C. Cisco Easy VPN
- D. FlexVPN

**Correct Answer: A**

**Section: Topic 7: Mix Questions**  
**Explanation**

**Explanation/Reference:**

**QUESTION 58**

Which option is invalid when configuring Unicast Reverse Path Forwarding?

- A. allow self ping to router
- B. allow default route
- C. allow based on ACL match
- D. source reachable via both

**Correct Answer: D**

**Section: Topic 7: Mix Questions**  
**Explanation**

**Explanation/Reference:**

**QUESTION 59**

Refer to the exhibit.

```
interface Ethernet 0
  pppoe-client dial-pool-number 5
  pppoe-client ppp-max-payload 1500
interface Dialer 1
  ip address negotiated
  dialer pool 5
  mtu 1492
```

Which statement about the configuration is true?

- A. This configuration is incorrect because the MTU must match the ppp-max-payload that is defined.
- B. This configuration is incorrect because the dialer interface number must be the same as the dialer pool number.
- C. This configuration is missing an IP address on the dialer interface.
- D. This configuration represents a complete PPPoE client configuration on an Ethernet connection.

**Correct Answer: D**

**Section: Topic 7: Mix Questions**

**Explanation**

**Explanation/Reference:**

#### QUESTION 60

Refer to the exhibit. When summarizing these routes, which route is the summarized route?

```
OI 2001:DB8:0:7::/64 [110/20]
  via FE80::A8BB:CCFF:FE00:6F00, Ethernet0/0
OI 2001:DB8:0:8::/64 [110/100]
  via FE80::A8BB:CCFF:FE00:6F00, Ethernet0/0
OI 2001:DB8:0:9::/64 [110/20]
  via FE80::A8BB:CCFF:FE00:6F00, Ethernet0/0
```

- A. OI 2001:DB8::/48 [110/100] via FE80::A8BB:CCFF:FE00:6F00, Ethernet0/0
- B. OI 2001:DB8::/24 [110/100] via FE80::A8BB:CCFF:FE00:6F00, Ethernet0/0
- C. OI 2001:DB8::/32 [110/100] via FE80::A8BB:CCFF:FE00:6F00, Ethernet0/0

D. OI 2001:DB8::/64 [110/100] via FE80::A8BB:CCFF:FE00:6F00, Ethernet0/0

**Correct Answer:** A

**Section:** Topic 7: Mix Questions

**Explanation**

**Explanation/Reference:**

## Labs

### QUESTION 1

Route.com is a small IT corporation that is attempting to implement the network shown in the exhibit. Currently the implementation is partially completed. OSPF has been configured on routers Chicago and NewYork. The SO/O interface on Chicago and the SO/1 interface on NewYork are in Area 0. The loopback0 interface on NewYork is in Area 1. However, they cannot ping from the serial interface of the Seattle router to the loopback interface of the NewYork router. You have been asked to complete the implementation to allow this ping.

ROUTE.com's corporate implementation guidelines require:

- The OSPF process ID for all routers must be 10.
- The routing protocol for each interface must be enabled under the routing process.
- The routing protocol must be enabled for each interface using the most specific wildcard mask possible.
- The serial link between Seattle and Chicago must be in OSPF area 21.
- OSPF area 21 must not receive any inter-area or external routes.

#### Network Information

##### Seattle

S0/0 192.168.16.5/30 - Link between Seattle and Chicago

Secret Password: cisco

##### Chicago

S0/0 192.168.54.9/30 - Link between Chicago and NewYork

S0/1 192.168.16.6/30 - Link between Seattle and Chicago

Secret Password: cisco

##### NewYork

S0/1 192.168.54.10/30 - Link between Chicago and NewYork

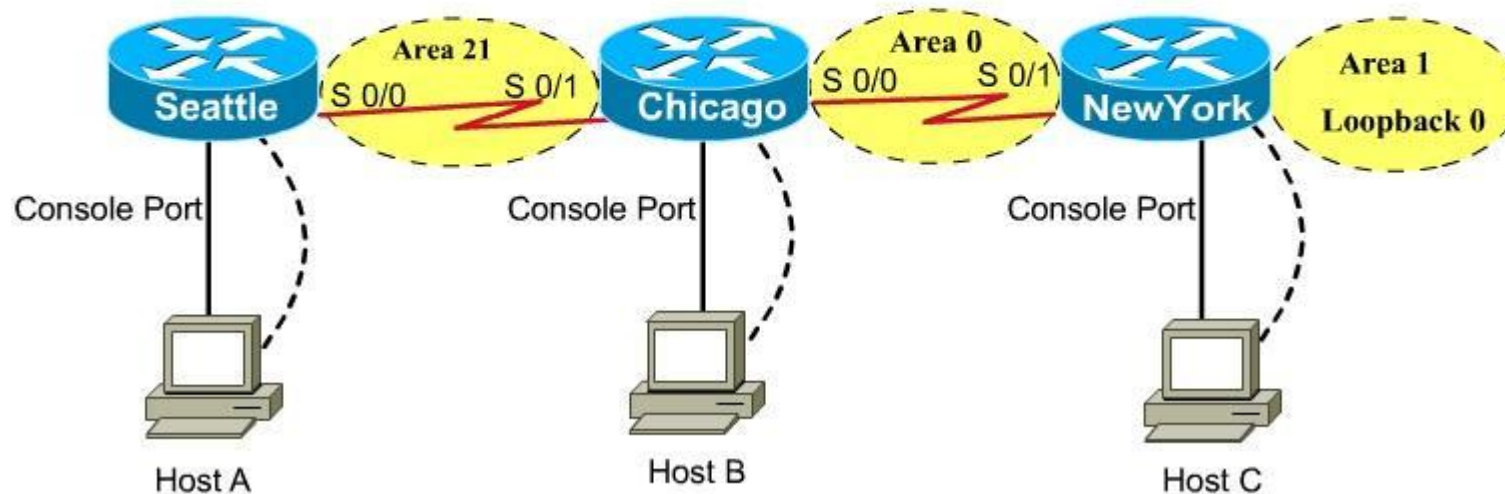
Loopback0 172.16.189.189

Secret Password: cisco

**Name : Seattle**  
**S0/0 : 192.168.16.5/30**  
**Secret Password : cisco**

**Name : Chicago**  
**S0/0 : 192.168.54.9/30**  
**S0/1 : 192.168.16.6/30**  
**Secret Password : cisco**

**Name : NewYork**  
**S0/1 : 192.168.54.10/30**  
**Loopback0 : 172.16.189.189/32**



A. Click answer for solution

**Correct Answer: A**  
**Section: Labs**  
**Explanation**

**Explanation/Reference:**

Here is the solution below:

Note:

In actual exam, the IP addressing, OSPF areas and process ID, and router hostnames may change, but the overall solution is the same.

Seattle's S0/0 IP Address is 192.168.16.5/30. So, we need to find the network address and wildcard mask of 192.168.16.5/30 in order to configure the

OSPF.

IP Address: 192.168.16.5 /30  
Subnet Mask: 255.255.255.252

Here subtract 252 from 256,  $256 - 252 = 4$ , hence the subnets will increment by 4.

First, find the 4th octet of the Network Address:

Subnet	Network	Broadcast
0	0	3
1	4	7
2	8	11
3	12	15
4	16	19
5	...	...

The 4th octet of IP address (192.168.16.5) belongs to subnet 1 (4 to 7).

Network Address: 192.168.16.4  
Broadcast Address: 192.168.16.7

Lets find the wildcard mask of /30.

Subnet Mask: (Network Bits - 1's, Host Bits - 0's)

Lets find the wildcard mask of /30.



Subnet Mask: (Network Bits – 1's, Host Bits – 0's)

/30    11111111    11111111    11111111    11111100  
      255    255    255    252

Wildcard Mask : (Network Bits – 0's, Host Bits – 1's)

/30    00000000    00000000    00000000    00000011  
      0        0        0        3

Now we configure OSPF using process ID 10 (note the process ID may change to something else in real exam).

```
Seattle>enable
Password:
Seattle#conf t
Seattle(config)#router ospf 10
Seattle(config-router)#network 192.168.16.4 0.0.0.3 area 21
```

One of the tasks states that area 21 should not receive any external or inter-area routes (except the default route).

```
Seattle(config-router)#area 21 stub
Seattle(config-router)#end
Seattle#copy run start
```

Chicago Configuration:

```
Chicago>enable
Password: cisco
Chicago#conf t
Chicago(config)#router ospf 10
```

We need to add Chicago's S0/1 interface to Area 21

```
Chicago(config-router)#network 192.168.16.4 0.0.0.3 area 21
```

Again, area 21 should not receive any external or inter-area routes (except the default route). In order to accomplish this, we must stop LSA Type 5 if we don't want to send external routes. And if we don't want to send inter-area routes, we have to stop LSA Type 3 and Type 4. Therefore we want to configure area 21 as a totally stubby area.

```
Chicago(config-router)#area 21 stub no-summary  
Chicago(config-router)#end  
Chicago#copy run start
```

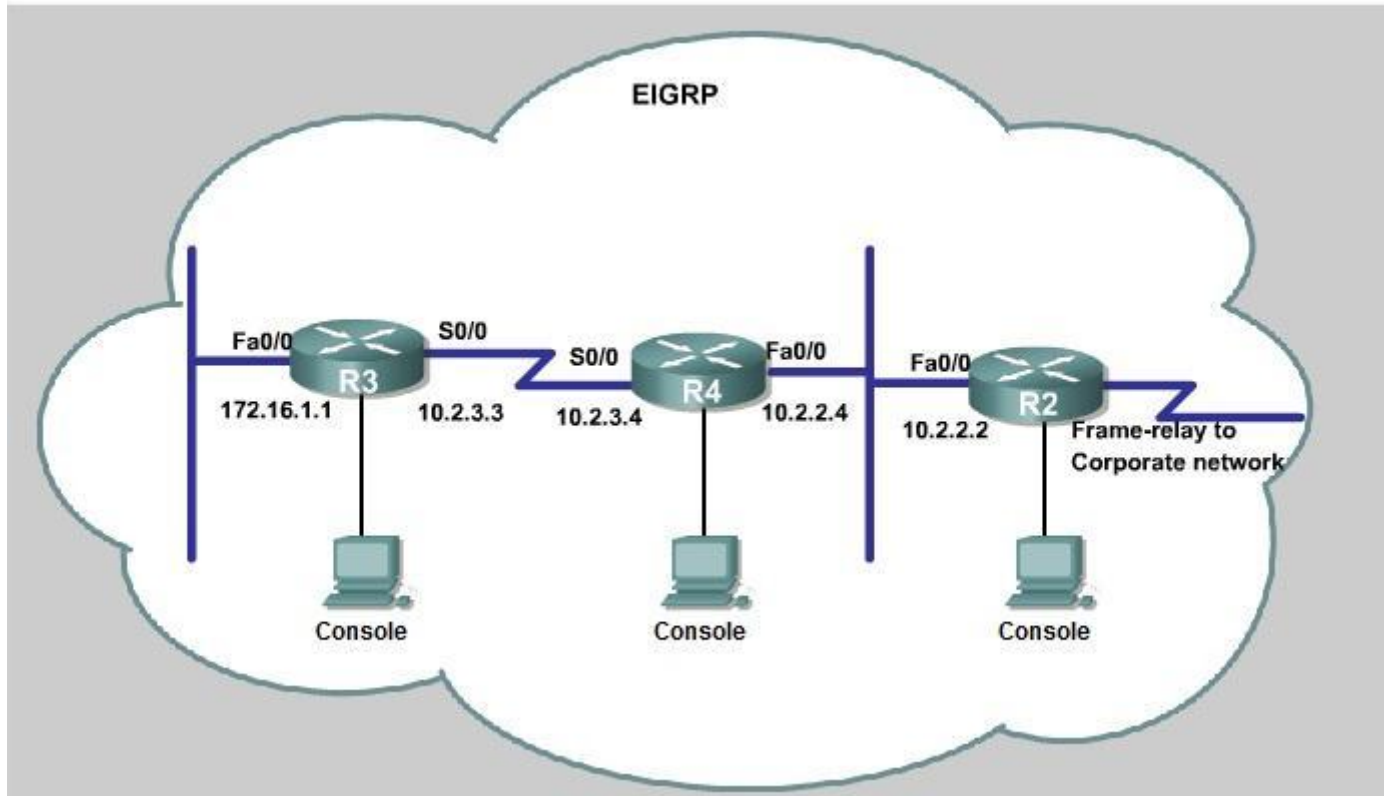
The other interface on the Chicago router is already configured correctly in this scenario, as well as the New York router so there is nothing that needs to be done on that router.

## QUESTION 2

JS Industries has expanded their business with the addition of their first remote office. The remote office router (R3) was previously configured and all corporate subnets were reachable from R3. JS Industries is interested in using route summarization along with the EIGRP Stub Routing feature to increase network stability while reducing the memory usage and bandwidth utilization to R3. Another network professional was tasked with implementing this solution. However, in the process of configuring EIGRP stub routing connectivity with the remote network devices off of R3 has been lost.

Currently EIGRP is configured on all routers R2, R3, and R4 in the network. Your task is to identify and resolve the cause of connectivity failure with the remote office router R3. Once the issue has been resolved you should complete the task by configuring route summarization only to the remote office router R3.

You have corrected the fault when pings from R2 to the R3 LAN interface are successful, and the R3 IP routing table only contains 2 10.0.0.0 subnets.



A. Click answer for solution

**Correct Answer:** A

**Section:** Labs

**Explanation**

**Explanation/Reference:**

Here are the solution as below:

First we have to figure out why R3 and R4 can not communicate with each other. Use the show running-config command on router R3.

```
R3#show run

<output omitted>
!
!
router eigrp 123
 network 10.0.0.0
 network 172.16.0.0
 no auto-summary
 eigrp stub receive-only
!
<output omitted>
```

Notice that R3 is configured as a stub receive-only router. The receive-only keyword will restrict the router from sharing any of its routes with any other router in that EIGRP autonomous system. This keyword will also prevent any type of route from being sent. Therefore we will remove this command and replace it with the eigrp stub command:

```
R3# configure terminal
R3(config)# router eigrp 123
R3(config-router)# no eigrp stub receive-only
R3(config-router)# eigrp stub
R3(config-router)# end
```

Now R3 will send updates containing its connected and summary routes to other routers. Notice that the eigrp stub command equals to the eigrp stub connected summary because the connected and summary options are enabled by default.

Next we will configure router R3 so that it has only 2 subnets of 10.0.0.0 network. Use the show ip route command on R3 to view its routing table:

```
R3#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, ia - IS-IS inter area
```

```
* - candidate default, U - per-user static route, o - ODR
```

```
P - periodic downloaded static route
```

```
Gateway of last resort is not set
```

```
10.0.0.0/8 is variably subnetted, 9 subnets, 2 masks
D    10.2.2.0/24 [90/30720] via 10.2.3.4, 00:00:06, Serial0/0
C    10.2.3.0/24 is directly connected, Serial0/1
D    10.2.4.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
D    10.2.5.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
D    10.2.6.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
D    10.2.7.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
D    10.2.8.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
D    10.2.9.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
D    172.16.0.0/16 is a summary, 02:04:06, Null0
C    172.16.1.0/24 is directly connected, FastEthernet0/0
```

Because we want the routing table of R3 only have 2 subnets so we have to summary sub- networks at the interface which is connected with R3, the s0/0 interface of R4.

There is one interesting thing about the output of the show ip route shown above: the 10.2.3.0/24, which is a directly connected network of R3. We can't get rid of it in the routing table no matter what technique we use to summary the networks. Therefore, to make the routing table of R3 has only 2 subnets we have to summary other subnets into one subnet.

In the output if we don't see the summary line (like 10.0.0.0/8 is a summary...) then we should use the command ip summary-address eigrp 123 10.2.0.0 255.255.0.0 so that all the ping can work well.

In conclusion, we will use the ip summary-address eigrp 123 10.2.0.0 255.255.0.0 at the interface s0/0 of R4 to summary.

```
R4> enable R4# conf t
```

```
R4(config)# interface s0/0
```

```
R4(config-if)# ip summary-address eigrp 123 10.2.0.0 255.255.0.0
```

Now we jump back to R3 and use the show ip route command to verify the effect, the output is shown below:

```
R3#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, ia - IS-IS inter area
```

```
* - candidate default, U - per-user static route, o - ODR
```

```
P - periodic downloaded static route
```

```
Gateway of last resort is not set
```

```
10.0.0.0/8 is variably subnetted, 3 subnets, 3 masks
D    10.0.0.0/8 is a summary, 00:18:43, Null0
D    10.2.0.0/16 [90/161280] via 10.2.3.4, 00:00:11, Serial0/0
C    10.2.3.0/24 is directly connected, Serial0/1
D    172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
D    172.16.0.0/16 is a summary, 02:04:06, Null0
C    172.16.1.0/24 is directly connected, FastEthernet0/0
```

Note:

Please notice that the IP addresses and the subnet masks in your real exam might be different so you might use different ones to solve this question. Just for your information, notice that if you use another network than 10.0.0.0/8 to summary, for example, if you use the command `ip summary-address eigrp 123 10.2.0.0 255.255.0.0` you will leave a /16 network in the output of the `show ip route` command.

```
R3#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, ia - IS-IS inter area
```

```
* - candidate default, U - per-user static route, o - ODR
```

```
P - periodic downloaded static route
```

```
Gateway of last resort is not set
```

```
10.0.0.0/8 is variably subnetted, 3 subnets, 3 masks
D    10.0.0.0/8 is a summary, 00:18:43, Null0
D    10.2.0.0/16 [90/161280] via 10.2.3.4, 00:00:11, Serial0/0
C    10.2.3.0/24 is directly connected, Serial0/1
D    172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
D    172.16.0.0/16 is a summary, 02:04:06, Null0
C    172.16.1.0/24 is directly connected, FastEthernet0/0
```

But in your real exam, if you don't see the line "10.0.0.0/8 is a summary, Null0" then you can summarize using the network 10.2.0.0/16. This summarization is better because all the pings can work well.

Finally don't forget to use the `copy run start` command on routers R3 and R4 to save the configurations.



```
R3(config-if)# end
R3# copy run start
R4(config-if)# end
R4# copy run start
```

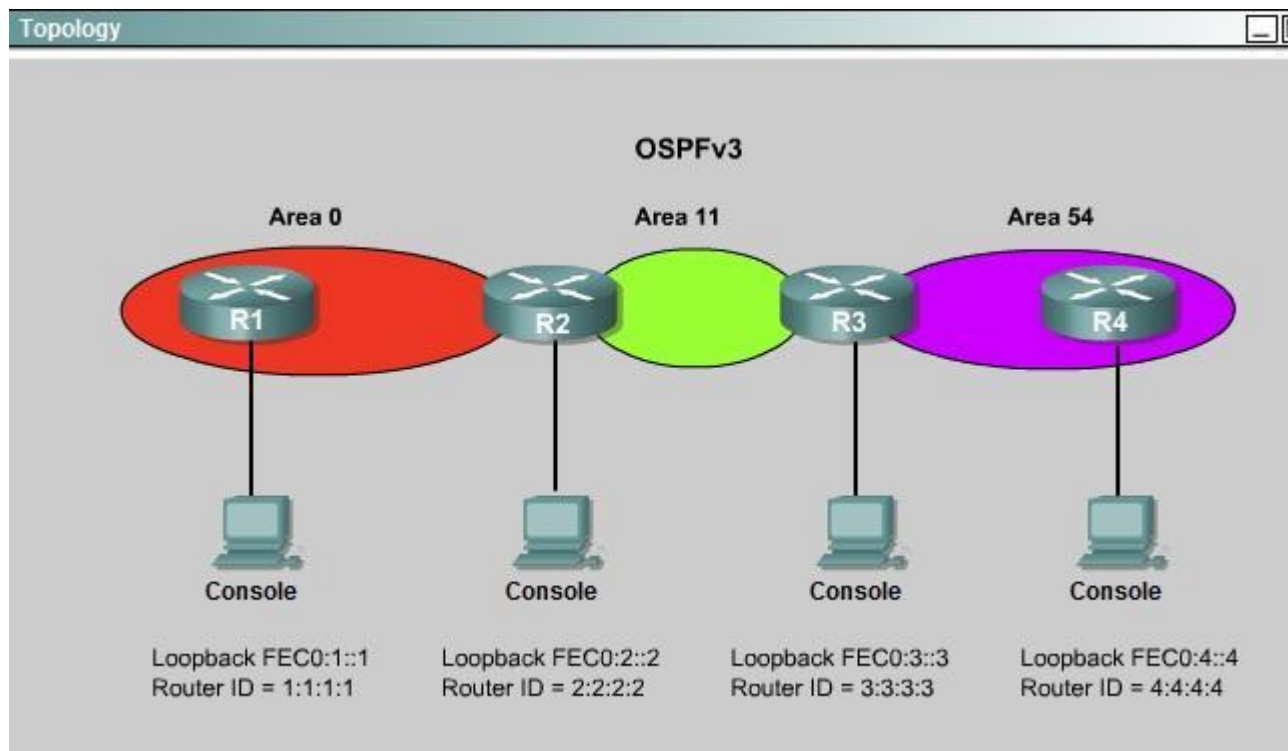
If the "copy run start" command doesn't work then use "write memory."

### QUESTION 3

ROUTE.com is a small IT corporation that has an existing enterprise network that is running IPv6 OSPFv3. Currently OSPF is configured on all routers. However, R4's loopback address (FEC0:4:4) cannot be seen in R1's IPv6 routing table. You are tasked with identifying the cause of this fault and implementing the needed corrective actions that uses OPSF features and does not change the current area assignments. You will know that you have corrected the fault when R4's loopback address (FEC0:4:4) can be seen in RTs IPv6 routing table.

Special Note:

To gain the maximum number of points you must remove all incorrect or unneeded configuration statements related to this issue.



A. Click answer for solution

**Correct Answer:** A

**Section:** Labs

**Explanation**

**Explanation/Reference:**

Here is the solution below:

To troubleshoot the problem, first issue the show running-config on all of 4 routers. Pay more attention to the outputs of routers R2 and R3. The output of the "show running-config" command of R2:

```
<output omitted>
!
ipv6 router ospf 1
router-id 2.2.2.2
log-adjacency-changes
!
<output omitted>
```

The output of the "show running-config" command of R3:

```
<output omitted>
!
ipv6 router ospf 1
router-id 3.3.3.3
log-adjacency-changes
area 54 virtual-link 4.4.4.4
!
<output omitted>
```

We knew that all areas in an Open Shortest Path First (OSPF) autonomous system must be physically connected to the backbone area (Area 0). In some cases, where this is not possible, we can use a virtual link to connect to the backbone through a non-backbone area. The area through which you configure the virtual link is known as a transit area. In this case, the area 11 will become the transit area. Therefore, routers R2 and R3 must be configured with the area <area id> virtual-link <neighbor router-id> command. + Configure virtual link on R2 (from the first output above, we learned that the OSPF process ID of R2 is 1):

R2>enable

R2#configure terminal

R2(config)#ipv6 router ospf 1



```
R2(config-rtr)#area 11 virtual-link 3.3.3.3
Save the configuration:
R2(config-rtr)#end
R2#copy running-config startup-config
```

(Notice that we have to use neighbor router-id 3.3.3.3, not R2's router-id 2.2.2.2) + Configure virtual link on R3 (from the second output above, we learned that the OSPF process ID of R3 is 1 and we have to disable the wrong configuration of "area 54 virtual-link 4.4.4.4"):

```
R3>enable
R3#configure terminal
R3(config)#ipv6 router ospf 1
R3(config-rtr)#no area 54 virtual-link 4.4.4.4
R3(config-rtr)#area 11 virtual-link 2.2.2.2
Save the configuration:
R3(config-rtr)#end
R3#copy running-config startup-config
```

You should check the configuration of R4, too. Make sure to remove the incorrect configuration statements to get the full points.

```
R4(config)#ipv6 router ospf 1
R4(config-router)#no area 54 virtual-link 3.3.3.3
R4(config-router)#end
```

After finishing the configuration doesn't forget to ping between R1 and R4 to make sure they work.

Note:

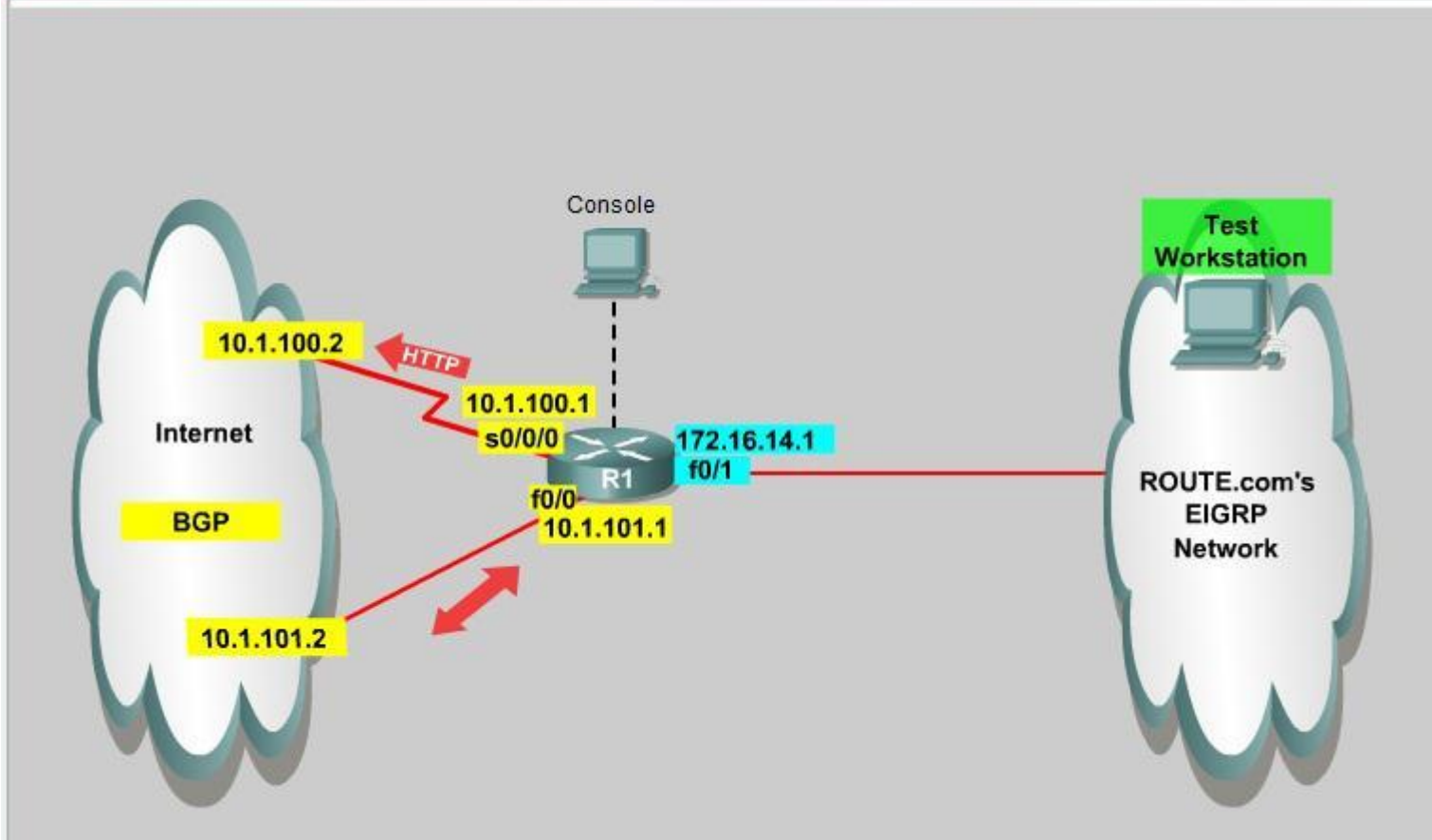
If you want to check the routing information, use the show ipv6 route command, not "show ip route".

#### QUESTION 4

You are a network engineer with ROUTE.com, a small IT company. ROUTE.com has two connections to the Internet; one via a frame relay link and one via an EoMPLS link. IT policy requires that all outbound HTTP traffic use the frame relay link when it is available. All other traffic may use either link. No static or default routing is allowed.

Choose and configure the appropriate path selection feature to accomplish this task. You may use the Test Workstation to generate HTTP traffic to validate your solution.

Topology



A. Click answer for solution

**Correct Answer:** A

**Section:** Labs

**Explanation**

**Explanation/Reference:**

Here are the step by Step Solution for this:

1) First create the access list that catches the HTTP traffic:

R1(config)#access-list 101 permit tcp any any eq www

2) Configure the route map that sets the next hop address to be ISP1 and permits the rest of the traffic:

```
R1(config)#route-map pbr permit 10
R1(config-route-map)#match ip address 101
R1(config-route-map)#set ip next-hop 10.1.100.2
R1(config-route-map)#exit
R1(config)#route-map pbr permit 20
3) Apply the route-map on the interface to the server in the EIGRP Network:
R1(config-route-map)#exit
R1(config)#int fa0/1
R1(config-if)#ip policy route-map pbr
R1(config-if)#exit
R1(config)#exit
```

Explanation:

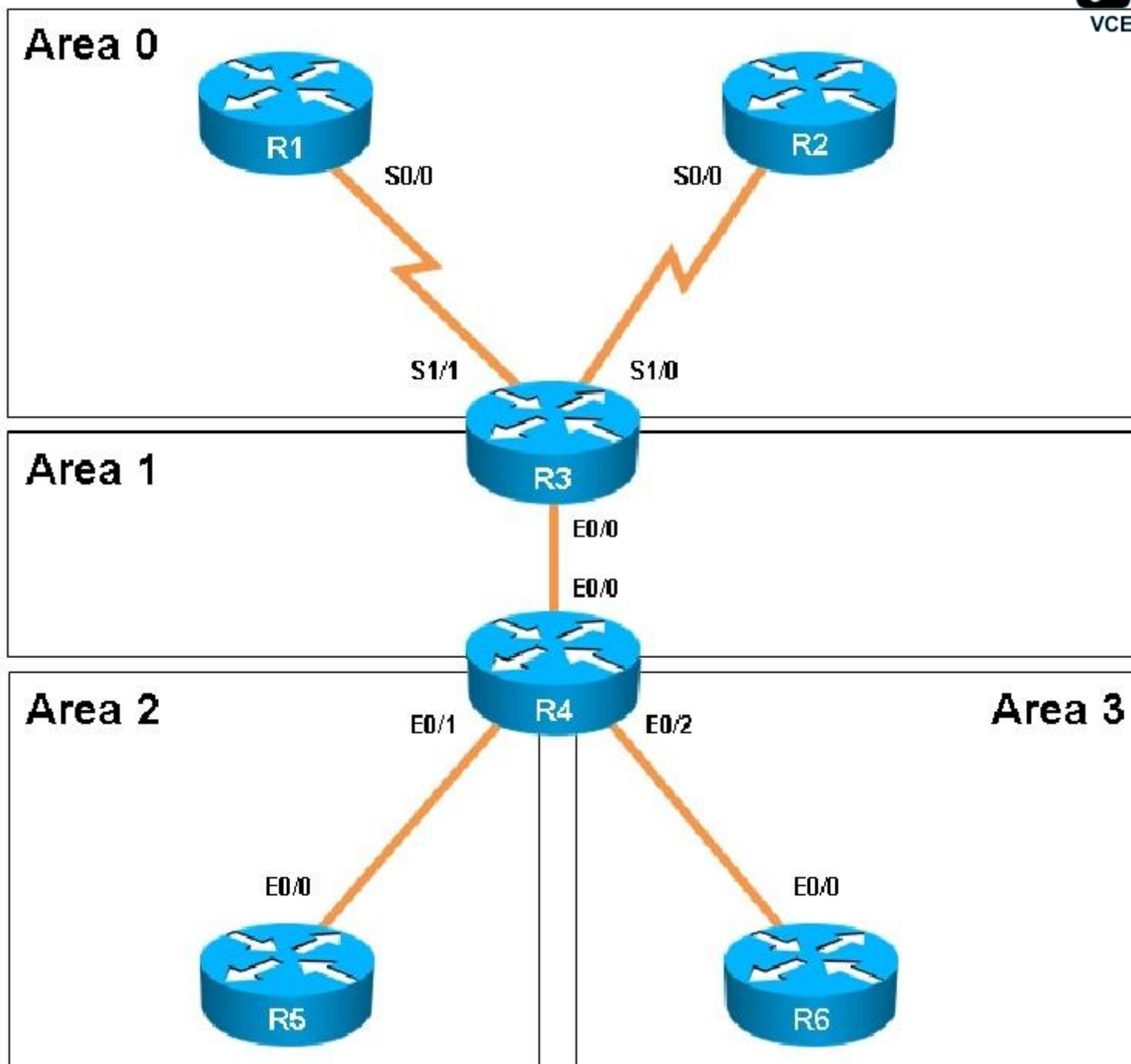
First you need to configure access list to HTTP traffic and then configure that access list. After that configure the route map and then apply it on the interface to the server in EIGRP network.

## OSPF Evaluation Sim

### QUESTION 1

Scenario:

You have been asked to evaluate an OSPF network setup in a test lab and to answer questions a customer has about its operation. The customer has disabled your access to the show running-config command.



How old is the Type 4 LSA from Router 3 for area 1 on the router R5 based on the output you have examined?

- A. 1858
- B. 1601
- C. 600
- D. 1569

**Correct Answer: A**

**Section: OSPF Evaluation Sim**

**Explanation**

**Explanation/Reference:**

**Explanation**

To check OSPF LSA we should use the “show ip ospf database” command on R5:

```
R5#show ip ospf database
```

```
OSPF Router with ID (5.5.5.5) (Process ID 1)
```

```
Router Link States (Area 2)
```

Link ID	ADV Router	Age	Seq#	Checksum	Link count
4.4.4.4	4.4.4.4	415	0x80000004	0x006A66	1
5.5.5.5	5.5.5.5	424	0x80000004	0x004C59	2

```
Net Link States (Area 2)
```

Link ID	ADV Router	Age	Seq#	Checksum
192.168.45.5	5.5.5.5	424	0x80000002	0x004B14

```
Summary Net Link States (Area 2)
```

Link ID	ADV Router	Age	Seq#	Checksum
1.1.1.1	4.4.4.4	400	0x80000001	0x001FC1
2.2.2.2	4.4.4.4	483	0x80000001	0x00F0EB
3.3.3.3	4.4.4.4	1858	0x80000001	0x0040D8
4.4.4.4	4.4.4.4	1600	0x80000001	0x00080E
6.6.6.6	4.4.4.4	498	0x80000001	0x00B557
192.168.13.0	4.4.4.4	600	0x80000001	0x00026D
192.168.23.0	4.4.4.4	483	0x80000001	0x0093D1
192.168.34.0	4.4.4.4	501	0x80000001	0x009703
192.168.46.0	4.4.4.4	501	0x80000001	0x00137B

In this sim there is no LSA Type 4 because there is no ASBR so maybe this question wants to ask about LSA Type 3 (Summary Net Link States).

**Note:** LSA Type 4 is generated by ABR, not ASBR but without ASBR inside the network there are no LSA Type 4 generated. For more information about OSPF LSA Types please read our OSPF LSA Types Lab tutorial.

R3 advertises LSA Type 1 to R4 then R4 converts it into Type 3 and sends to R5 (because R4 is the ABR) so we see the "Link ID" 3.3.3.3 of R3

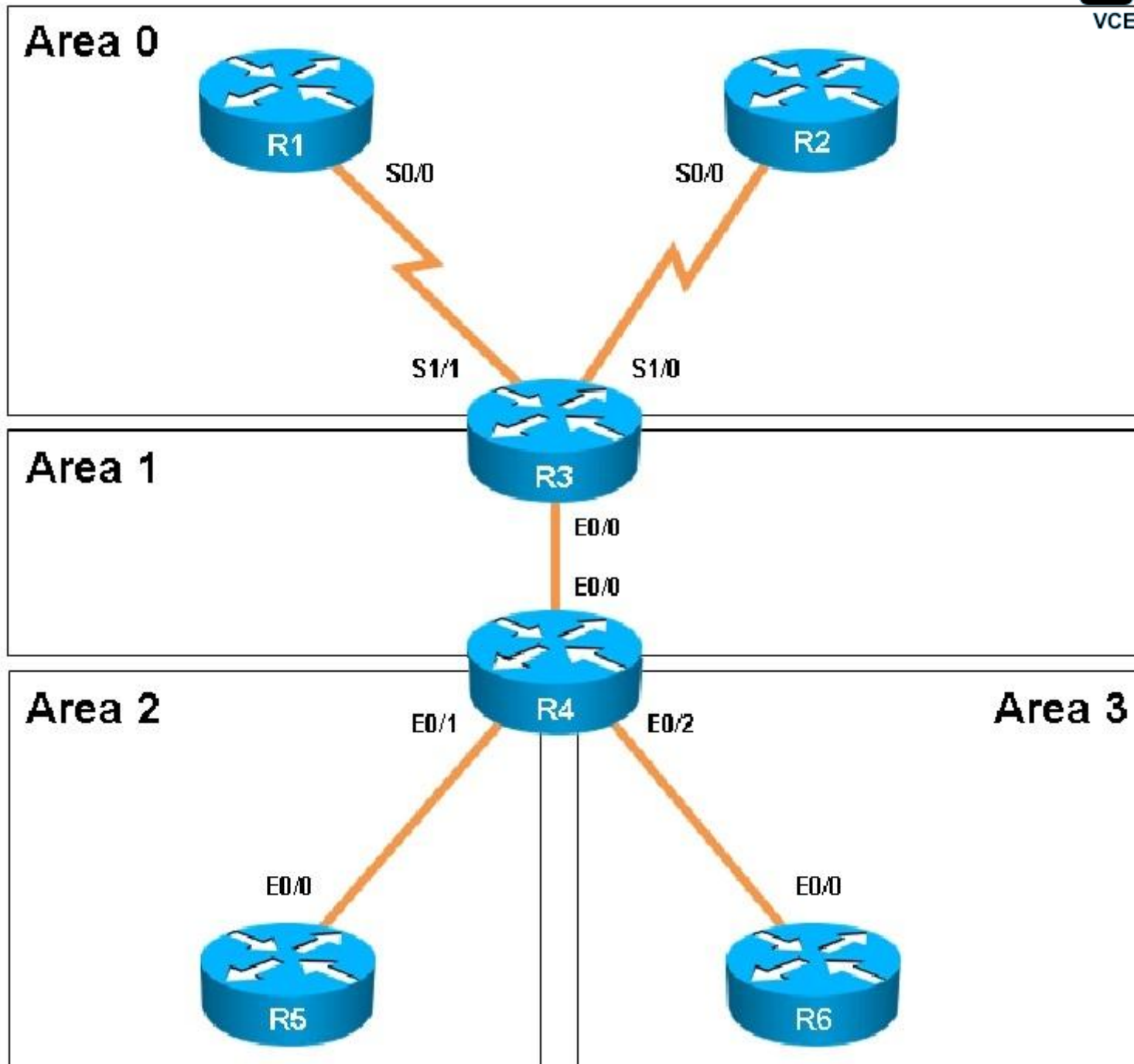
is advertising by R4 (4.4.4.4). According to the “Age” column, this LSA was advertised 1858 seconds ago.

## QUESTION 2

Scenario:

You have been asked to evaluate an OSPF network setup in a test lab and to answer questions a customer has about its operation. The customer has disabled your access to the show running-config command.





Which of the following statements is true about the serial links that terminate in R3

- A. The R1-R3 link needs the neighbor command for the adjacency to stay up
- B. The R2-R3 link OSPF timer values are 30, 120, 120.
- C. The R1-R3 link OSPF timer values should be 10,40,40
- D. R3 is responsible for flooding LSUs to all the routers on the network

**Correct Answer: B**

**Section: OSPF Evaluation Sim**

**Explanation**

**Explanation/Reference:**

Check the Serial1/0 interface of R3 which is connected to R2 with the “show ip ospf interface serial 1/0” command:

```
R3#show ip ospf interface serial 1/0
Serial1/0 is up, line protocol is up
  Internet Address 192.168.23.3/24, Area 0
  Process ID 1, Router ID 3.3.3.3, Network Type NON_BROADCAST, Cost: 64
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 3.3.3.3, Interface address 192.168.23.3
  Backup Designated router (ID) 2.2.2.2, Interface address 192.168.23.2
  Timer intervals configured, Hello 30, Dead 120, Wait 120, Retransmit 5
    oob-resync timeout 120
    Hello due in 00:00:03
  Supports Link-local Signaling (LLS)
  Index 2/2, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 7
  Last flood scan time is 0 msec, maximum is 4 msec
  Neighbor Count is 1, Adjacent neighbor count is 1
    Adjacent with neighbor 2.2.2.2 (Backup Designated Router)
  Suppress hello for 0 neighbor(s)
```

There are two things we should notice from the output above:

+ The “network type” connection between R2-R3 is “NON\_BROADCAST” (usually we have “BROADCAST”). OSPF neighbors are discovered

using multicast Hello packets. In non broadcast environment, multicast (and broadcast) messages are not allowed so OSPF neighborship cannot be formed automatically. Therefore we have to establish OSPF neighborship manually by using “neighbor ” command under OSPF process (OSPF will send unicast Hello message to this address). For example on R2 we have to use these commands:

```
router ospf 1
neighbor 192.168.23.3
```

And on R3:

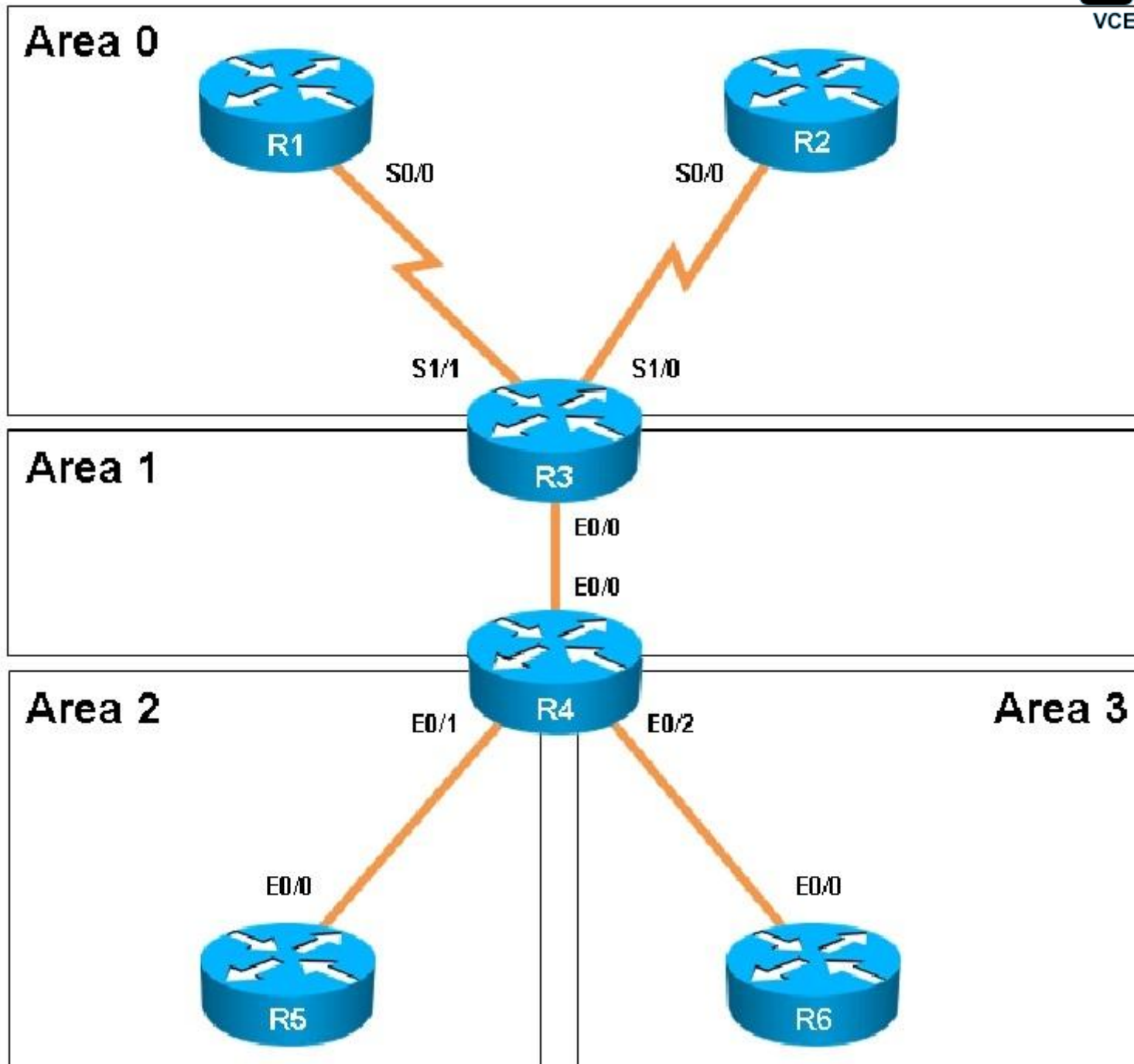
```
router ospf 1
neighbor 192.168.23.2
```

+ For non broadcast environment the default Hello timer is 30 seconds; Dead timer (time to wait before declaring a neighbor dead) is 120 seconds and Wait timer (causes the interface to exit out of the wait period and select a DR on a broadcast network. This timer is always equal to the dead timer interval) is 120 seconds. In the output we also see the default timers for non broadcast network.

### QUESTION 3

Scenario:

You have been asked to evaluate an OSPF network setup in a test lab and to answer questions a customer has about its operation. The customer has disabled your access to the show running-config command.



How many times was SPF algorithm executed on R4 for Area 1?

- A. 1
- B. 5
- C. 9
- D. 20
- E. 54
- F. 224

**Correct Answer: C**

**Section: OSPF Evaluation Sim**

**Explanation**

**Explanation/Reference:**

**We can check the number of executed SPF algorithm via the “show ip ospf” command on R4:**

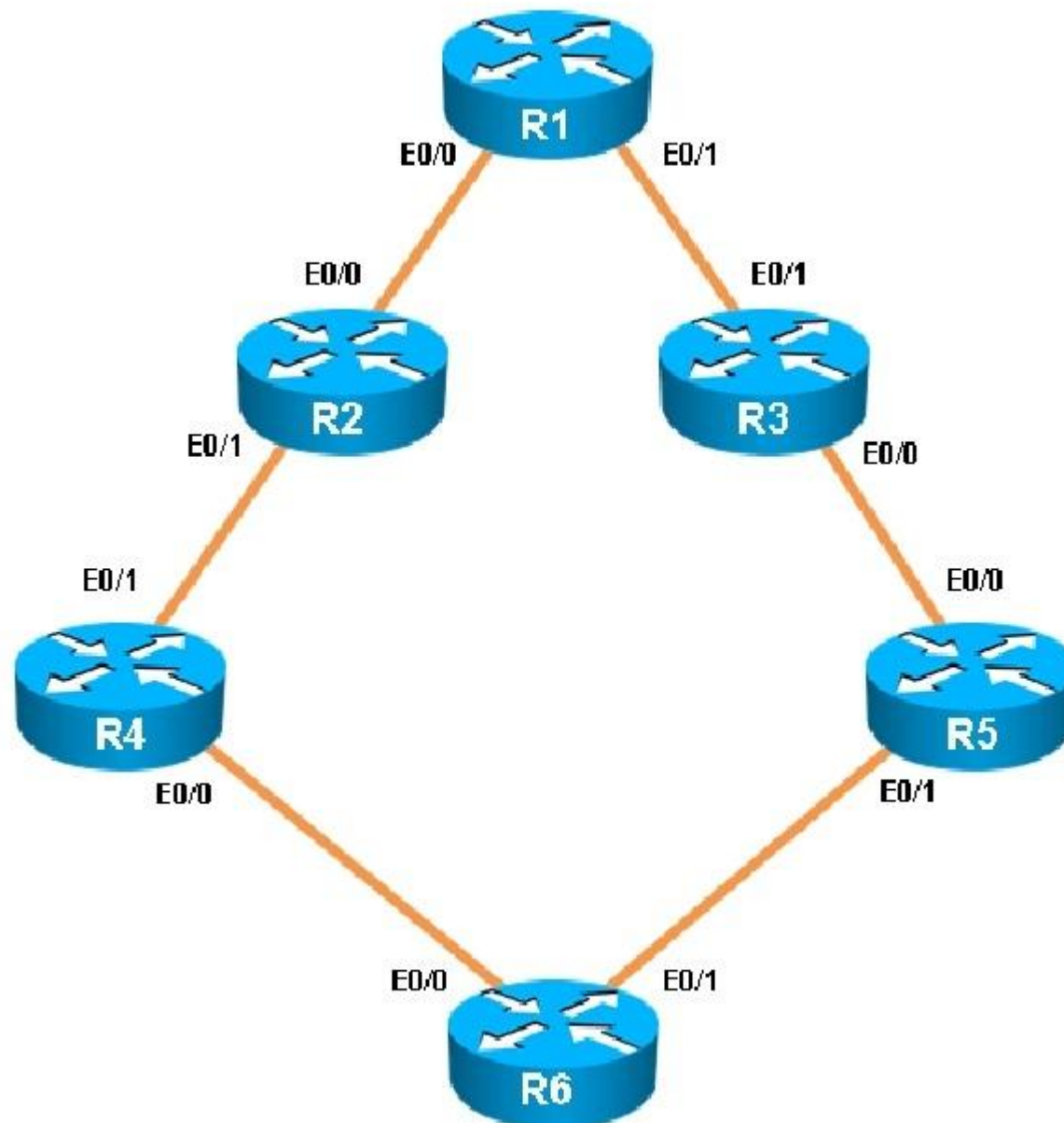
```
R4#show ip ospf
<output omitted>
Area 1
    Number of interfaces in this area is 2 (1 loopback)
    This area has transit capability: Virtual Link Endpoint
    Area has no authentication
    SPF algorithm last executed 00:01:51.544 ago
    SPF algorithm executed 9 times
    Area ranges are
    Number of LSA 12. Checksum Sum 0x053716
    Number of opaque link LSA 0. Checksum Sum 0x000000
    Number of DCbitless LSA 0
    Number of indication LSA 0
    Number of DoNotAge LSA 0
    Flood list length 0
<output omitted>
```

**In the output above we can see SPF has been executed 9 times.**

## EIGRP Evaluation Sim

### QUESTION 1

You have been asked to evaluate how EIGRP is functioning in a customer network.





Traffic from R1 to R6's Loopback address is load shared between R1-R2-R4-R6 and R1-R3-R5-R6 paths. What is the ratio of traffic over each path?

- A. 1:1
- B. 1:5
- C. 6:8
- D. 19:80

**Correct Answer: D**

**Section: EIGRP Evaluation Sim**

**Explanation**

**Explanation/Reference:**

First we need to get the IP address of R6's loopback address by "show ip interface brief" command on R6:

```
R6#show ip interface brief
Interface      IP-Address      OK? Method Status  Protocol
Ethernet0/0    192.168.46.6    YES manual up      up
Ethernet0/1    192.168.56.6    YES manual up      up
Loopback0      150.1.6.6       YES manual up      up
Loopback1      172.16.6.6      YES manual up      up
```

Now we learned the R6's loopback address is 150.1.6.6. To see the ratio of traffic that is load shared between paths, use the "show ip route 150.1.6.6" command on R1:

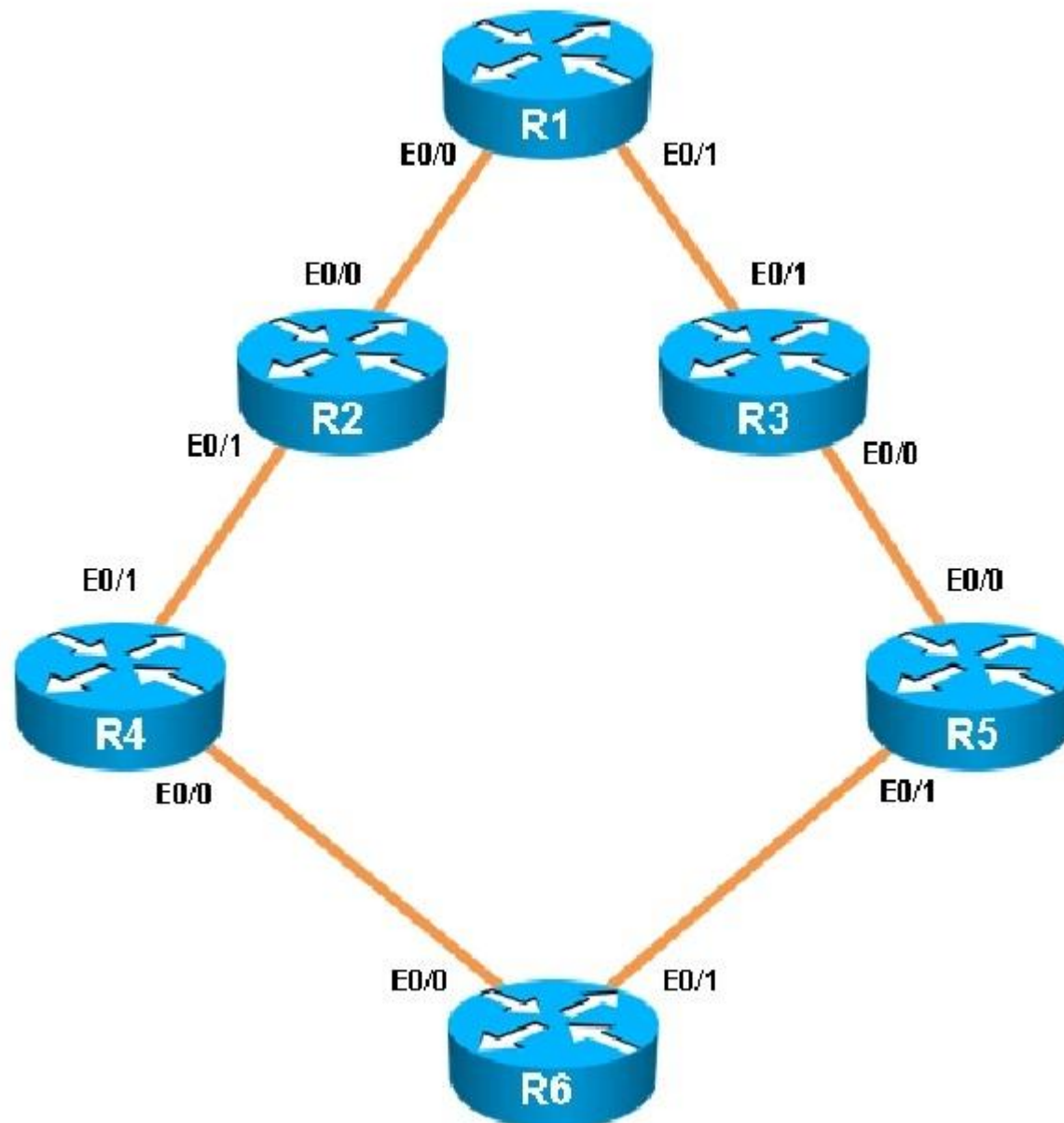


```
R1#show ip route 150.1.6.6
Routing entry for 150.1.6.6/32
  Known via "eigrp 1", distance 90, metric 461056, type internal
  Redistributing via eigrp 1
  Last update from 192.168.13.3 on Ethernet0/1, 00:29:07 ago
  Routing Descriptor Blocks:
    192.168.13.3, from 192.168.13.3, 00:29:07 ago, via Ethernet0/1
      Route metric is 1938688, traffic share count is 19
      Total delay is 65730 microseconds, minimum bandwidth is 10000 Kbit
      Reliability 255/255, minimum MTU 1500 bytes
      Loading 1/255, Hops 3
    * 192.168.12.2, from 192.168.12.2, 00:29:07 ago, via Ethernet0/0
      Route metric is 461056, traffic share count is 80
      Total delay is 8010 microseconds, minimum bandwidth is 10000 Kbit
      Reliability 255/255, minimum MTU 1500 bytes
      Loading 1/255, Hops 3
```

This means that after 19 packets are sent to 192.168.13.3, R1 will send 80 packets to 192.168.12.2 (ratio 19:80). This is unequal cost path Load balancing (configured with “variance” command).

## QUESTION 2

You have been asked to evaluate how EIGRP is functioning in a customer network.



What type of route filtering is occurring on R6

- A. Distribute-list using an ACL
- B. Distribute-list using a prefix-list
- C. Distribute-list using a route-map
- D. An ACL using a distance of 255

**Correct Answer: A**

**Section: EIGRP Evaluation Sim**

**Explanation**

**Explanation/Reference:**

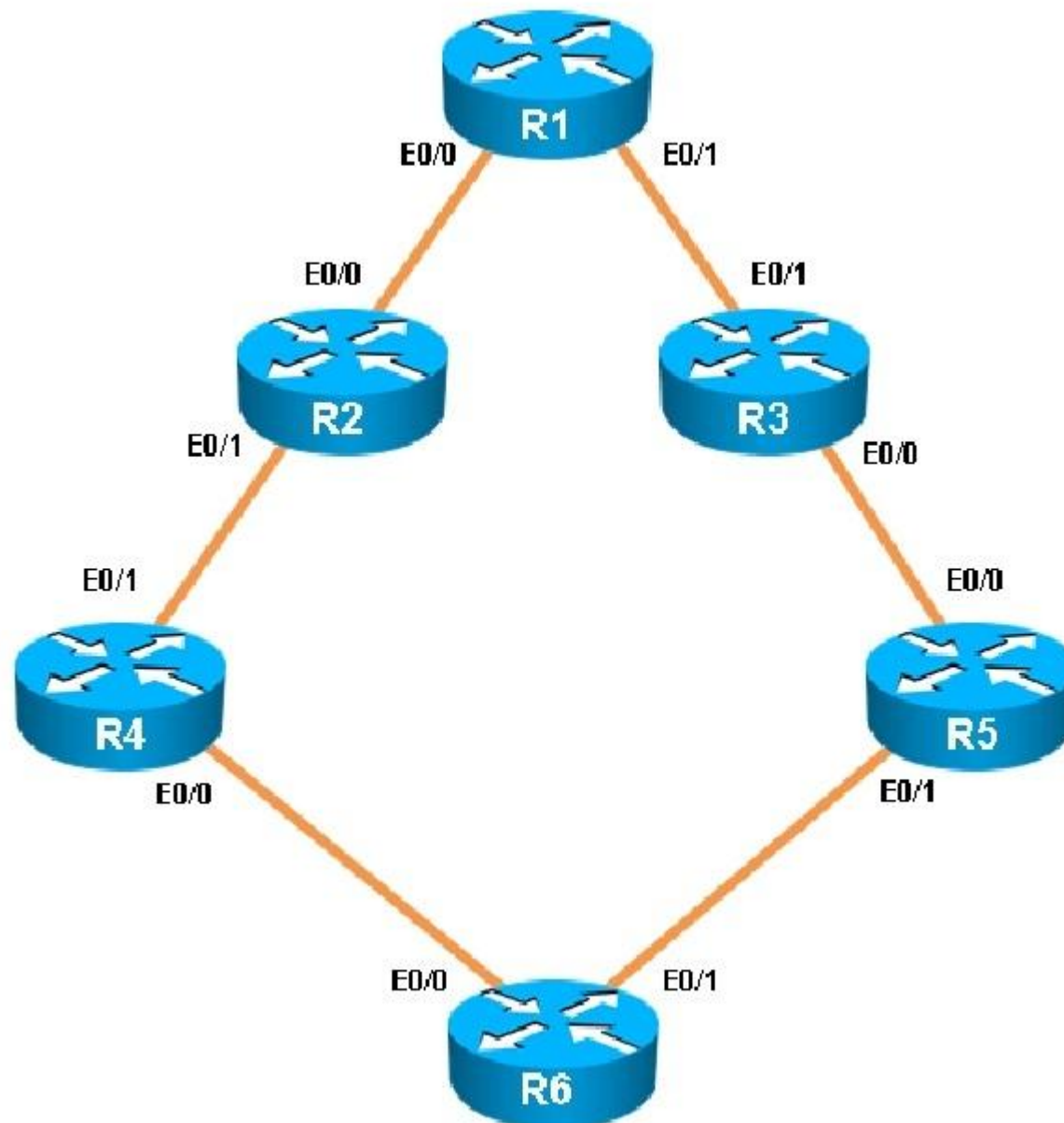
Use the “show running-config” on R6 we will see a distribute-list applying under EIGRP:

```
R6#show running-config
<output omitted>
router eigrp 1
  distribute-list 1 out
  network 150.1.6.6 0.0.0.0
  network 172.16.6.6 0.0.0.0
  network 192.168.46.0
  network 192.168.56.0
!
access-list 1 permit 192.168.46.0
access-list 1 permit 192.168.56.0
access-list 1 permit 150.1.6.6
access-list 1 deny 172.16.6.6
access-list 2 permit 192.168.47.1
access-list 2 permit 192.168.13.1
access-list 2 permit 192.168.12.1
access-list 2 deny 150.1.1.1
<output omitted>
```

With this distribute-list, only networks 192.168.46.0; 192.168.56.0 and 150.1.6.6 are advertised out by R6.

**QUESTION 3**

You have been asked to evaluate how EIGRP is functioning in a customer network.



Which key chain is being used for authentication of EIGRP adjacency between R4 and R2?

- A. CISCO
- B. EIGRP
- C. key
- D. MD5

**Correct Answer: A**

**Section: EIGRP Evaluation Sim**  
**Explanation**

**Explanation/Reference:**

Check on both R2 and R4:

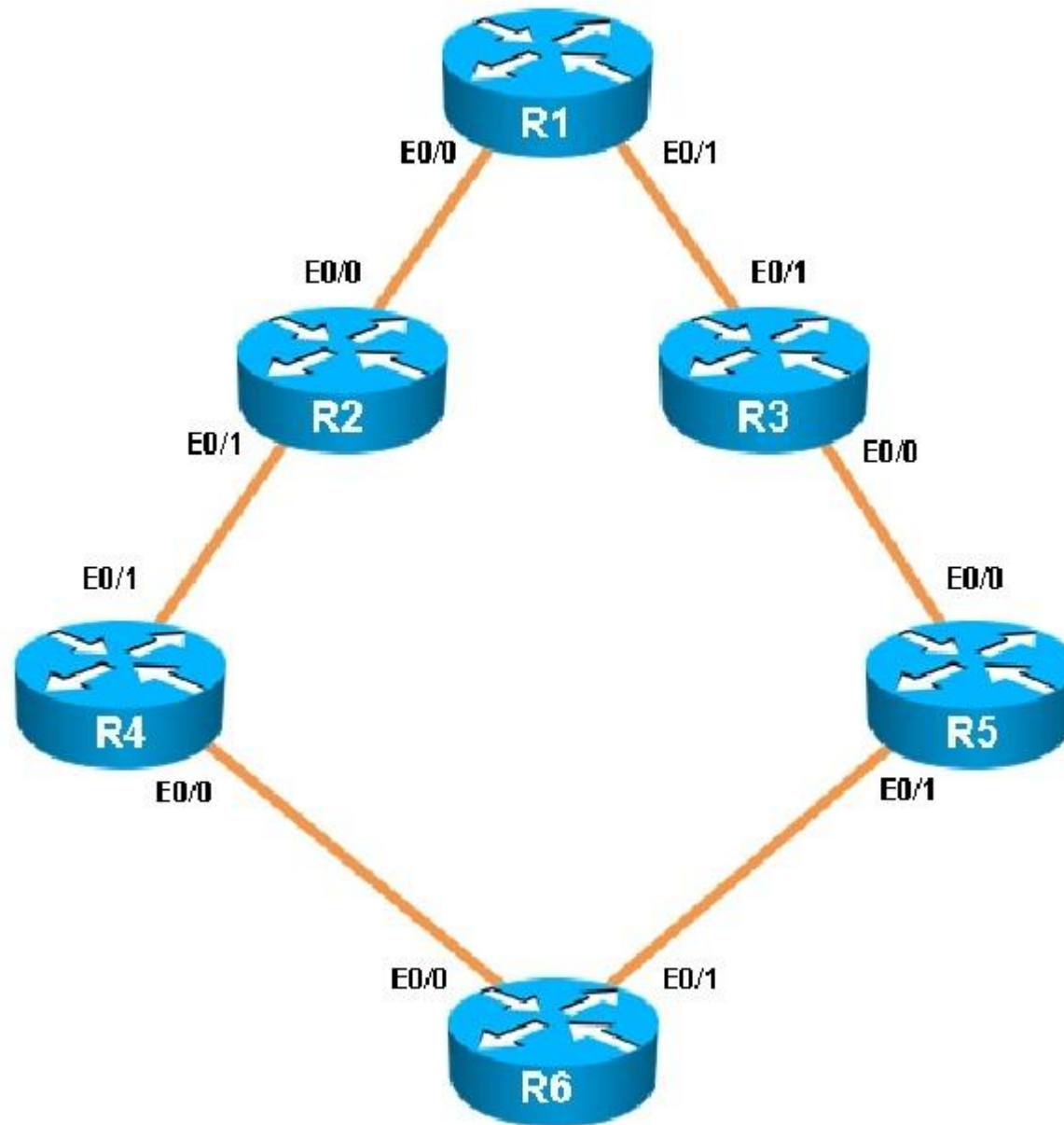
```
R2#show running-config
<output omitted>
key chain CISCO
  key 1
    key-string firstkey
key chain FIRSTKEY
  key 1
    key-string CISCO
key chain R3
  key 1
    key-string R3
  key 2
    key-string R1
!
<output omitted>
```

```
R4#show running-config
<output omitted>
key chain CISCO
  key 1
    key-string firstkey
!
<output omitted>
```

To successfully authenticate between two EIGRP neighbors, the key number and key-string must match. The key chain name is only for local use. In this case we have key number "1" and key-string "CISCO" and they match so EIGRP neighbor relationship is formed.

#### QUESTION 4

You have been asked to evaluate how EIGRP is functioning in a customer network.



What is the advertised distance for the 192.168.46.0 network on R1?

- A. 333056
- B. 1938688
- C. 1810944
- D. 307456

**Correct Answer: C**

**Section: EIGRP Evaluation Sim**

**Explanation**

**Explanation/Reference:**

To check the advertised distance for a prefix we cannot use the “show ip route” command because it only shows the metric (also known as Feasible Distance). Therefore we have to use the “show ip eigrp topology” command:



```
R1#show ip eigrp topology
EIGRP-IPv4 Topology Table for AS(1)/ID(150.1.1.1)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - reply Status, s - sia Status

P 192.168.24.0/24, 1 successors, FD is 307200
    via 192.168.12.2 (307200/281600), Ethernet0/0
P 192.168.35.0/24, 1 successors, FD is 793600
    via 192.168.13.3 (1785088/281600), Ethernet0/1
P 192.168.12.0/24, 1 successors, FD is 281600
    via Connected, Ethernet0/0
P 192.168.46.0/24, 1 successors, FD is 332800
    via 192.168.12.2 (1810944/333056), Ethernet0/0
P 150.1.1.1/32, 1 successors, FD is 128256
    via Connected, Loopback0
P 150.1.4.4/32, 1 successors, FD is 435200
    via 192.168.12.2 (435200/409600), Ethernet0/0
P 192.168.13.0/24, 1 successors, FD is 1759488
    via Connected, Ethernet0/1
P 150.1.6.6/32, 2 successors, FD is 460800
    via 192.168.12.2 (460800/435200), Ethernet0/0
    via 192.168.13.3 (1938688/435200), Ethernet0/1
P 192.168.56.0/24, 1 successors, FD is 358400
    via 192.168.12.2 (358400/332800), Ethernet0/0, serno 155
    via 192.168.13.3 (1810688/307200), Ethernet0/1
```

There are two parameters in the brackets of 192.168.46.0/24 prefix: (1810944/333056). The first one "1810944" is the Feasible Distance (FD) and the second "333056" is the Advertised Distance (AD) of that route -> A is correct.

Just for your reference, this is the output of the "show ip route" command on R1:

```
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 not set
```

```
D    192.168.46.0/24 [90/1810944] via 192.168.12.2, 00:10:01, Ethernet0/0  
C    192.168.12.0/24 is directly connected, Ethernet0/0  
L    192.168.12.1/32 is directly connected, Ethernet0/0  
C    192.168.13.0/24 is directly connected, Ethernet0/1  
L    192.168.13.1/32 is directly connected, Ethernet0/1  
D    192.168.24.0/24 [90/1862144] via 192.168.12.2, 00:10:02, Ethernet0/0  
D    192.168.56.0/24 [90/1810686] via 192.168.12.2, 00:10:01, Ethernet0/0  
D    192.168.35.0/24 [90/1785088] via 192.168.13.3, 00:10:01, Ethernet0/1  
    150.1.0.0/32 is subnetted, 3 subnets  
D        150.1.6.6 [90/1938688] via 192.168.13.3, 00:10:03, Ethernet0/1  
        [90/461056] via 192.168.12.2, 00:10:03, Ethernet0/0  
D        150.1.4.4 [90/158720] via 192.168.12.2, 00:10:04, Ethernet0/0  
C        150.1.1.1 is directly connected, Loopback0
```

In the first line:

D 192.168.46.0/24 [90/ 1810944] via 192.168.12.2, 00:10:01, Ethernet0/0

The first parameter “90” is the EIGRP Administrative Distance. The second parameter “1810944” is the metric of the route 192.168.46.0/24. R1 will use this metric to advertise this route to other routers but the question asks about “the advertised distance for the 192.168.46.0 network on R1” so we cannot use this command to find out the answer.

## Drag and Drop

### QUESTION 1

#### Select and Place:

Click and drag the command on the left to the associated task on the right.	
show ip eigrp neighbor	confirm what EIGRP is learning
show ip eigrp interface	confirm what is actually being used
show ip eigrp topology	view route information sources
show ip route eigrp	verify the routing of specific networks

#### Correct Answer:

Click and drag the command on the left to the associated task on the right.	
show ip eigrp neighbor	show ip eigrp topology
show ip eigrp interface	show ip route eigrp
show ip eigrp topology	show ip eigrp neighbor
show ip route eigrp	show ip eigrp interface

#### Section: Drag and Drop Explanation

#### Explanation/Reference:

### QUESTION 2



Select and Place:

Click and drag the associated set of OSPF LEAs on the left to the corresponding area type on the right where this set of LEAs may be seen.

LSA 1, 2, 3, 4, 5	Stub
LSA 1, 2, 3	NSSA
LSA 1, 2	Backbone or transit
LSA 1, 2, 3, 7	Totally NSSA
LSA 1, 2, 7	Totally Stubby

Correct Answer:

Click and drag the associated set of OSPF LEAs on the left to the corresponding area type on the right where this set of LEAs may be seen.

LSA 1, 2, 3, 4, 5	LSA 1, 2, 3
LSA 1, 2, 3	LSA 1, 2, 3, 7
LSA 1, 2	LSA 1, 2, 3, 4, 5
LSA 1, 2, 3, 7	LSA 1, 2, 7
LSA 1, 2, 7	LSA 1, 2

Section: Drag and Drop  
Explanation

Explanation/Reference:

### QUESTION 3

Select and Place:

Click and drag the BGP attribute characterization on the left to the correct BGP attribute on the right.

is propagated throughout the local autonomous system

is not advertised to neighboring routers

used for one router with multiple exit points out of the autonomous system

is propagated between autonomous systems

MED Attribute

Local Preference Attribute

Weight Attribute

Correct Answer:

Click and drag the BGP attribute characterization on the left to the correct BGP attribute on the right.

is propagated throughout the local autonomous system

is not advertised to neighboring routers

used for one router with multiple exit points out of the autonomous system

is propagated between autonomous systems

MED Attribute

is propagated between autonomous systems

Local Preference Attribute

is propagated throughout the local autonomous system

Weight Attribute

is not advertised to neighboring routers

used for one router with multiple exit points out of the autonomous system

**Section: Drag and Drop**  
**Explanation**

**Explanation/Reference:**

**QUESTION 4**

**Select and Place:**

Click and drag the correct techniques for transitioning networks or devices from IPv4 to IPv6 from the left to the target zone on the right.

NAT-PT

6to4 tunnels

GRE tunnels

route tagging

IPsec tunnels

ISATAP tunnels

IPv4 to IPv6 Transition Methods

**Correct Answer:**

Click and drag the correct techniques for transitioning networks or devices from IPv4 to IPv6 from the left to the target zone on the right.

NAT-PT

6to4 tunnels

GRE tunnels

route tagging

IPsec tunnels

ISATAP tunnels

IPv4 to IPv6 Transition Methods

NAT-PT

6to4 tunnels

GRE tunnels

ISATAP tunnels

**Section: Drag and Drop****Explanation**

Explanation/Reference:

### QUESTION 5

Select and Place:

Drag each OSPF state to the correct definition.		
init		No information has been received, but Hello packets can still be sent to the neighbor.
loading		A Hello packet is received, but the ID of the receiving router was not included in the Hello packet.
exstart		Each router see its own Router ID in the neighbor field of the Hello packet; there is a DR / BDR election.
full		The routers and their DR and BDR establish a master-slave relationship.
2-Way		Routers exchange DBD packets that describe the contents of the entire link-state database.
down		Based on the information provided by the DBDs, routers send link-state request packets.
exchange		All the router and network LSAs are exchanged and the router databases are synchronized.

Correct Answer:



Drag each OSPF state to the correct definition.

init	down
loading	init
exstart	2-Way
full	exstart
2-Way	exchange
down	loading
exchange	full

**Section: Drag and Drop**  
**Explanation**

**Explanation/Reference:**

### QUESTION 6

**Select and Place:**

Drag each OSPF router type to the approximate description on the left. Not all types are used.

internal routers

external routers

backbone routers

ABRs

ASBRs

peer routers

have all interfaces in one area and maintain identical LSDBs

have interfaces attached to multiple areas, maintain separate LSDBs for each area

have at least one interface connected to area 0

have at least one interface attached to an external internetwork such as EIGRP

**Correct Answer:**

Drag each OSPF router type to the approximate description on the left. Not all types are used.

internal routers

external routers

backbone routers

ABRs

ASBRs

peer routers

internal routers

ABRs

backbone routers

ASBRs

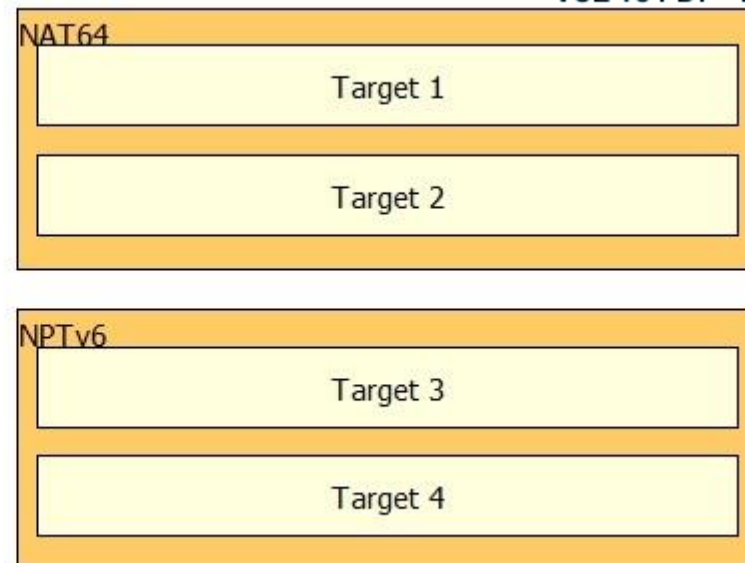
**Section: Drag and Drop**  
**Explanation**

**Explanation/Reference:**

**QUESTION 7**

**Select and Place:**

- Modifies IP header in Transit
- Maps one IPv6 address prefix to another IPv6 prefix
- Uses Network-specific prefix
- Modifies session during translation



**Correct Answer:**

- Modifies IP header in Transit
- Maps one IPv6 address prefix to another IPv6 prefix
- Uses Network-specific prefix
- Modifies session during translation

**NAT64**

- Modifies session during translation
- Uses Network-specific prefix

**NPTv6**

- Maps one IPv6 address prefix to another IPv6 prefix
- Modifies IP header in Transit

**Section: Drag and Drop**  
**Explanation**

**Explanation/Reference:**

### QUESTION 8

**Select and Place:**

OpenSent	refuses connections (the initial state)
OpenConfirm	waits for the connection to be completed
Established	listens for and accepts connections
Idle	waits for an OPEN message
Active	waits for a KEEPALIVE or NOTIFICATION message
Connect	UPDATE, NOTIFICATION, and KEEPALIVE messages are exchanged with peers.

**Correct Answer:**

OpenSent	Idle
OpenConfirm	Connect
Established	Active
Idle	OpenSent
Active	OpenConfirm
Connect	Established

**Section: Drag and Drop**  
**Explanation**

**Explanation/Reference:**

#### **QUESTION 9**

**Select and Place:**

punt adjacency	Packets are discarded.
drop adjacency	Features that require special handling or features that are not yet supported in conjunction with Cisco Express Forwarding switching paths are forwarded to the next switching layer for handling. Features that are not supported are forwarded to the next higher
null adjacency	When a router is connected directly to several hosts, the FIB table on the router maintains a prefix for the subnet rather than for the individual host prefixes. The subnet prefix points to a glean adjacency. When packets need to be forwarded to
discard adjacency	Packets are dropped, but the prefix is checked.
glean adjacency	Packets destined for a Null0 interface are dropped. This can be used as an effective form of access filtering.

**Correct Answer:**



punt adjacency	discard adjacency
drop adjacency	punt adjacency
null adjacency	glean adjacency
discard adjacency	drop adjacency
glean adjacency	null adjacency

**Section: Drag and Drop**  
**Explanation**

**Explanation/Reference:**