

Chapters 1 – 5: Routing and EIGRP Exam Answers (CCNPv8 ENARSI)

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April 8, 2021

CCNP Enterprise: Advanced Routing (Version 8.0) – Routing Concepts and EIGRP Exam

How to find: Press “Ctrl + F” in the browser and fill in whatever wording is in the question to find that question/answer. If the question is not here, find it in **Questions Bank**.

NOTE: If you have the new question on this test, please comment Question and Multiple-Choice list in form below this article. We will update answers for you in the shortest time. Thank you! We truly value your contribution to the website.

1. Refer to the exhibit. What address should be configured on PC1 as its default gateway so that PC1 can communicate with File_server1?



- 172.16.100.1
- 209.165.200.225
- 209.165.200.226
- 172.16.0.254
- **172.16.0.1**

Explanation: The default gateway is the IP address of the local router that is used by a host to route packets off the local network segment. The Ethernet interface that connects PC1 to R1 is the interface that PC1 will use as its default gateway. The IP address of this interface is 172.16.0.1.

2. What would be the interface ID of an IPv6 enabled interface with a MAC address of 1C-6F-65-C2-BD-F8 when the interface ID is generated by using the EUI-64 process?

- 106F:65FF:FEC2:BDF8
- C16F:65FF:FEC2:BDF8
- 0C6F:65FF:FEC2:BDF8
- **1E6F:65FF:FEC2:BDF8**

Explanation: To derive the EUI-64 interface ID by using the MAC address 1C-6F-65-C2-BD-F8, three steps are taken.

- Change the seventh bit of the MAC address from a binary 0 to a binary 1 which changes the hex C, into a hex E.
- Insert hex digits FFFE into the middle of the address.
- Rewrite the address in IPv6 format.

The three steps, when complete, give the interface ID of **1E6F:65FF:FEC2:BDF8**.

3. A company uses the method SLAAC to configure IPv6 addresses for the workstations of the employees. A network administrator configured the IPv6 address on the LAN interface of the router. The interface status is UP. However, the workstations on the LAN segment did not obtain the correct prefix and prefix length. What else should be configured on the router that is attached to the LAN segment for the workstations to obtain the information?

- R1(config-if)# ipv6 nd other-config-flag
- R1(config-if)# ipv6 enable
- R1(config)# ipv6 dhcp pool < name of the pool >
- **R1(config)# ipv6 unicast-routing**

Explanation: A PC that is configured to use the SLAAC method obtains the IPv6 prefix and prefix length from a router. When the PC boots, it sends an RS message to inform the routers that it needs the information. A router sends an RA message that includes the required information. For a router to be able to send RA messages, it must be enabled as an IPv6 router by the unicast ipv6-routing command in global configuration mode. The other options are not used to enable IPv6 routing on a router.

4. What does a router use to determine which route from those installed in the routing table is chosen to forward packets?

- shortest prefix length
- lowest metric
- **longest prefix length**
- lowest administrative distance

Explanation: The route chosen for forwarding a packet is the route with the longest prefix length matching the destination network of the packet. The metric and administrative distance are used to determine which routes will make it into the routing table.

5. A computer has to send a packet to a destination host in the same LAN. How will the packet be sent?

- The packet will be sent to the default gateway first, and then, depending on the response from the gateway, it may be sent to the destination host.
- The packet will be sent only to the default gateway.
- The packet will first be sent to the default gateway, and then from the default gateway it will be sent directly to the destination host.
- **The packet will be sent directly to the destination host.**

Explanation: If the destination host is in the same LAN as the source host, there is no need for a default gateway. A default gateway is needed if a packet needs to be sent outside the LAN.

6. Match the types of EIGRP routes to the correct default administrative distances. (Not all options are used.)

summary	90
internal	internal
external	5
	summary
	110
	170
	external

Explanation: EIGRP uses different administrative distances for each type of source for the routing information. The default values used for summary, internal, and external routes are respectively 5, 90, and 170.

7. Which two statements accurately describe EIGRP tables? (Choose two.)

- Administrative distance is shown as a column in the neighbor table.
- **A feasible successor route can be found in the topology table.**
- **The topology table shows whether a route is in the passive or active state.**
- A successor route can only be found in the routing table.
- The routing table shows the amount of time elapsed since a router adjacency was formed.
- The neighbor table shows all adjacent Cisco devices.

Explanation: Each EIGRP router maintains a topology table for each routed protocol configured, such as IPv4 and IPv6. The topology table includes route entries for every destination that the router learns from its directly connected EIGRP neighbors. It lists all successors and feasible successors that DUAL has calculated to destination networks. Only the successor is installed into the IP routing table. It also indicates the state of a route; P indicates a route is in passive state, which is in a stable mode.

8. Refer to the exhibit. R3 has two possible paths to the 172.16.99.0 network. What is the reported distance of the feasible successor route?

```
R3# show ip eigrp topology
EIGRP-IPv4 Topology Table for AS (100)/ID(1.1.1.1)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - Reply status, s - sia Status

<output omitted>
P 172.16.99.0/24, 1 successors, FD is 2340608
   via 10.0.0.9 (2340608/2169856), Serial0/1/0
   via 10.0.0.5 (10512128/2816), Serial0/1/1

<output omitted>
```

- 2340608
- **2816**
- 10512128
- 2169856

Explanation: A feasible successor route is a backup route to the primary successor route, displayed as the second subentry in the command output. The reported distance of the feasible successor route for the 172.16.99.0 network is 2816.

9. Which two statements accurately describe an EIGRP successor route? (Choose two.)

- It is flagged as active in the routing table.
- It is the route with the highest path metric to reach a destination.
- It is saved in the topology table for use if the primary route fails.
- **It may be backed up by a feasible successor route.**
- **It is used by EIGRP to forward traffic to the destination.**

Explanation: The successor route is the route with the lowest path metric to reach a destination. A feasible successor route is a route that satisfies the feasibility condition and is maintained as a backup route. The successor route is displayed on the topology table with a “P” (passive) code, meaning the topology is stable.

10. What two statements describe EIGRP authentication? (Choose two.)

- **EIGRP authentication uses a pre-shared key.**
- EIGRP authentication requires that both routers have the same key chain name.
- EIGRP authentication can protect updates from a protected router to an unprotected one.
- **EIGRP authentication uses the MD5 algorithm.**
- EIGRP authentication uses varying levels of WEP to encrypt data exchanged between routers.

Explanation: EIGRP message authentication ensures that routers only accept routing messages from other connected routers that know the same pre-shared key. EIGRP supports routing protocol authentication using MD5.

11. What is an EIGRP successor for a destination network?

- **the next hop on the primary route with the smallest feasible distance to the destination**
- the next hop on a backup route with the largest feasible distance to the destination
- the next hop on a backup route with the smallest feasible distance to the destination
- the next hop on the primary route with the largest feasible distance to the destination

Explanation: The successor is the first next-hop router for the successor route (primary route). A successor route is a route with the lowest-metric path to reach a destination network (feasible distance).

12. What two values must match between two EIGRP directly connected neighbors to establish and maintain an adjacency? (Choose two.)

- router ID
- Area ID
- **metric parameters**
- hello timers
- **autonomous system number**

Explanation: Before two EIGRP routers can become neighbors, several parameters contained in the exchanged hello packets between the two routers must match. The two routers must use the same EIGRP metric parameters (such as bandwidth and delay) and they both must be configured for the same autonomous system number.

13. When would the network administrator use the ip bandwidth-percent eigrp as-number percent command?

- when the connection is serial instead of Ethernet
- **when there is a low bandwidth connection**
- when the connection is on a shared medium
- when the link is always busy

Explanation: By default, EIGRP will use only up to 50 percent of an interface's bandwidth for EIGRP information. This prevents the EIGRP process from over-utilizing a link and not allowing enough bandwidth for the routing of normal traffic. However, if a connection is in low bandwidth, the up to 50 percent bandwidth may not be able to keep up the EIGRP information exchange. The ip bandwidth-percent eigrp command can be used to configure the percentage of bandwidth that may be used by EIGRP on an interface in such a scenario.

14. When an EIGRP router detects a topology change, how does the router notify neighbor routers that a new route calculation is required for a specific route?

- **An EIGRP query packet is sent out with the delay set to infinity.**
- An EIGRP update packet is sent out with a metric value of zero.
- A route withdrawal is sent out, notifying other neighbors to remove the route from the topology table.

Explanation: An EIGRP update packet is sent out with the topology change notification flag set.

If a feasible successor is not available for a route, DUAL performs a new route calculation. The route state changes from passive to active in the EIGRP topology table. The router detecting the topology change sends out query packets to EIGRP neighbors for the route. A query packet includes the network prefix with the delay set to infinity so that other routers are aware that it is now active.

15. Which command would limit the amount of bandwidth used by EIGRP for protocol control traffic to approximately 128 kbps on a 1.544 Mbps link?

- ip bandwidth-percent eigrp 100 25
- **ip bandwidth-percent eigrp 100 8**
- ip bandwidth-percent eigrp 100 40
- ip bandwidth-percent eigrp 100 30

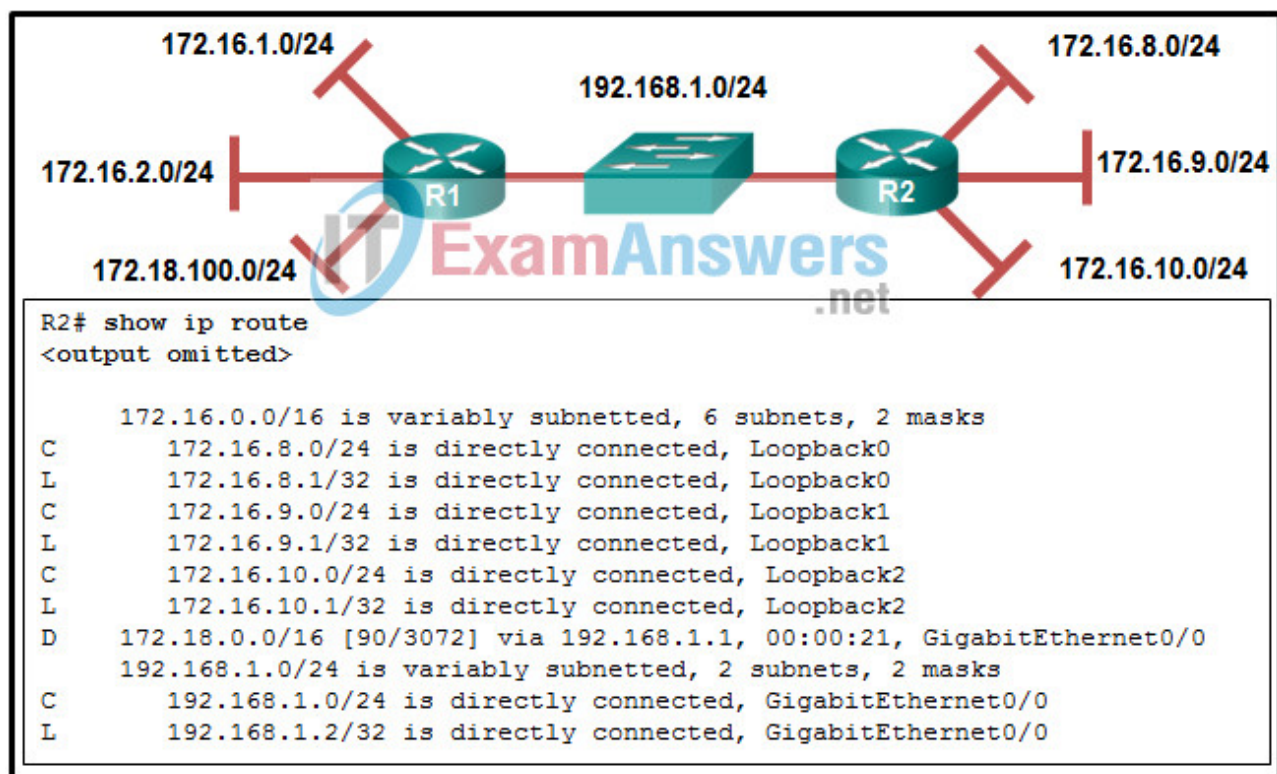
Explanation: Some routing protocols can consume all the bandwidth on slow circuits. EIGRP overcomes this deficiency by setting the maximum available bandwidth for all circuits to 50%. This allows EIGRP to use 50% of the bandwidth and reserves 50% of the bandwidth for data packets. To change this default setting, the `ip bandwidth-percent eigrp` command is used. The `ip bandwidth-percent eigrp 100 8` command will set the bandwidth for autonomous system 100 at 8% of the bandwidth of the interface.

16. Which action does split horizon use to reduce incorrect routing information?

- It limits the number of hops a packet can traverse through the network before the packet should be discarded.
- It marks routes as unreachable in routing updates sent to other routers.
- It prevents routers from accepting higher cost routes to networks previously marked as inaccessible before the timer expires.
- **It prevents routers from advertising a network through the interface from which the update came.**

Explanation: Advertising a route back to the originating router is known as reverse route. Reverse routes waste network resources, causing routing loops. Split horizon prevents the advertisement of reverse routes.

17. Refer to the exhibit. The routing table on R2 does not include all networks that are attached to R1. The network administrator verifies that the network statement is configured to include these two networks. What is a possible cause of the issue?



- The AS number does not match between R1 and R2.
- **The no auto-summary command is missing in the R1 configuration.**
- The interfaces that are connected to these two networks are configured as passive interfaces.
- The network statements should include the wild card mask.

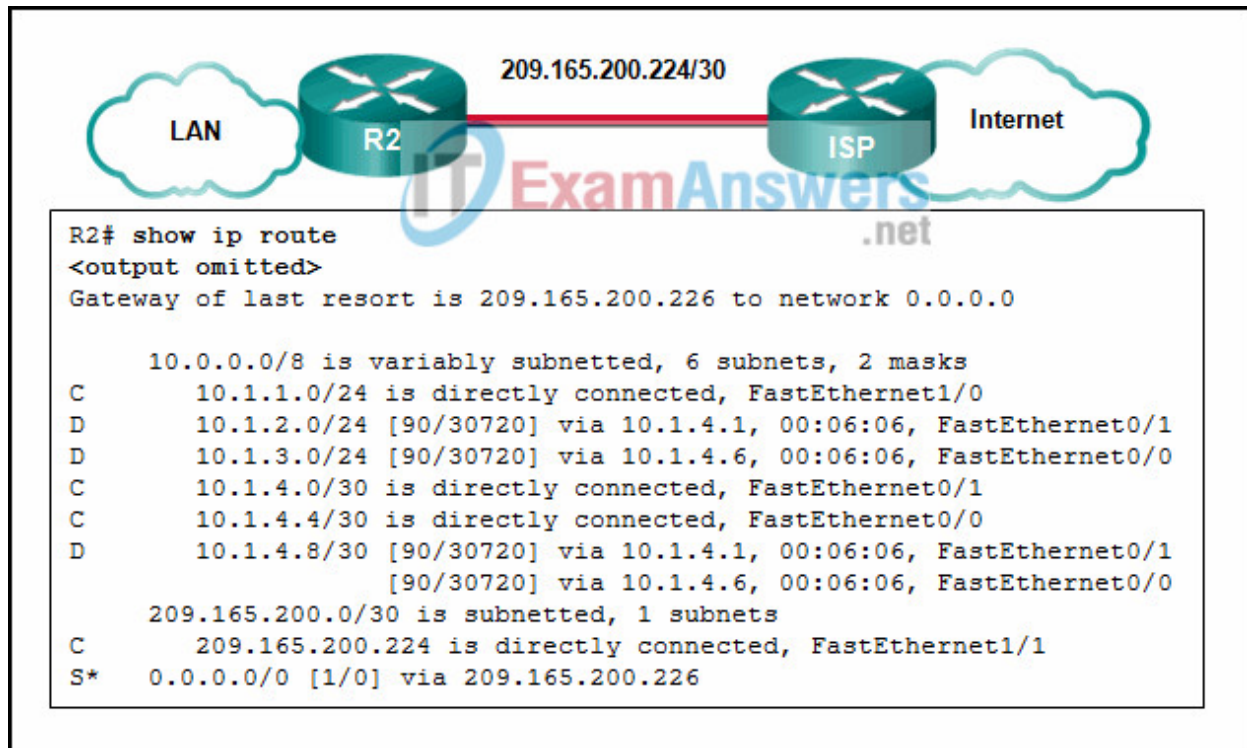
Explanation: The fact that R2 has a route to 172.18.100.0 from R1 indicates that EIGRP is functioning, which excludes the issue of an AS number not matching. The issue is that both sides have a network within the Class B 172.16.0.0/16 network. Therefore, automatic network summarization must be disabled by the no auto-summary command. If this command is not used, the network statement with a wild card mask will not have effect. The passive interface, if configured, will prevent EIGRP updates from entering the two networks, but not prevent R1 from advertising them to R2.

18. What two actions will the EIGRP DUAL take if a link to a network goes down? (Choose two.)

- **query neighbors for a new route**
- **search topology table for a feasible successor**
- search routing table for a feasible successor
- put the route into passive mode
- run the SPF algorithm to find a new successor

Explanation: When EIGRP detects that it has lost a successor for a path, it searches for a feasible successor in the topology table. If a feasible successor is not available for this path, DUAL performs a new route calculation. The route state changes from passive to active in the EIGRP topology table. The router detecting the topology change sends out query packets to EIGRP neighbors for the route.

19. Refer to the exhibit. Which two routes will be advertised to the router ISP if autosummarization is disabled? (Choose two.)



- 10.1.4.0/24
- **10.1.4.0/30**
- 10.1.0.0/16
- **10.1.2.0/24**
- 10.1.4.0/28

Explanation: If the no auto-summary command was issued disabling the autosummarization, all subnetworks will be advertised, without summarization.

20. Two routers, R1 and R2, have established an EIGRP neighbor relationship, but there is still a connectivity problem. Which issue could be causing this problem?

- **an access list that is blocking advertisements from other networks**
- an authentication mismatch
- automatic summarization that is disabled on both routers
- a process ID mismatch

Explanation: If the EIGRP neighbor relationship is formed between the two routers, but there is still a connection issue, there may be a routing problem, incorrectly configured passive interfaces, or an access list that is blocking advertisements of remote networks.

21. Refer to the exhibit. Remote users are experiencing connectivity problems when attempting to reach hosts in the 172.21.100.0 /24 network. Using the output in the exhibit, what is the most likely cause of the connectivity problem?

```
R3# show running-config
<output omitted>
!
interface GigabitEthernet0/0
 ip address 172.20.100.254 255.255.255.0
!
interface GigabitEthernet0/1
 ip address 172.21.100.254 255.255.255.0
 ip hello-interval eigrp 55 80
!
interface Serial0/0/0
 bandwidth 1024
 ip address 192.168.254.9 255.255.255.252
!
interface Serial0/0/1
 bandwidth 64
 ip address 192.168.254.13 255.255.255.252
!
router eigrp 55
 passive-interface GigabitEthernet0/0
 network 172.20.0.0
 network 192.168.254.0
 no auto-summary
```

- The hello timer has been modified on interface GigabitEthernet 0/1 of R3 and not on the neighbor, causing a neighbor adjacency not to form.
- The GigabitEthernet interfaces are not limiting the flow of EIGRP message information and are being flooded with EIGRP traffic.
- The passive-interface command is preventing neighbor relationships on interface GigabitEthernet 0/0.
- **The GigabitEthernet 0/1 interface is not participating in the EIGRP process.**

Explanation: When enabling EIGRP, the network command must be applied to the classful network address of the interface or to a subnet with the appropriate wildcard mask. The network 172.20.0.0 will only activate interfaces in that network. The wildcard mask 0.1.255.255 must be issued to support both 172.20.0.0 and 172.21.0.0 in a single network statement.

22. Refer to the exhibit. A network administrator has issued the displayed commands. The EIGRP routing domain has completely converged and a network administrator is planning to configure EIGRP authentication throughout the complete network. On which two interfaces should EIGRP authentication be configured between R2 and R3? (Choose two.)

```

R3# show ip eigrp neighbors
IP-EIGRP neighbors for process 55
H   Address           Interface      Hold Uptime    SRTT    RTO    Q    Seq
                               (sec)          (ms)          Cnt    Num
0   192.168.254.14     Se0/0/1       10   00:42:32    40     1000    0    35
1   192.168.254.10     Se0/0/0       10   00:42:23    40     1000    0    22
2   192.168.254.6      Se0/1/1       10   00:42:23    40     1000    0    19

R3# show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID         Local Intrfce  Holdtme    Capability  Platform  Port ID
R4                Ser 0/1/0     135        R           C2900     Ser 0/0/0
R2                Ser 0/0/1     135        R           C2900     Ser 0/1/0
R1                Ser 0/0/0     127        R           C2900     Ser 0/1/1
CiscoVille        Gig 0/0       127        S           2960      Gig 0/1
R3#

```

- **serial 0/1/0 of R2**
- serial 0/1/0 of R4
- serial 0/0/1 of R2
- gig 0/0 of R3
- **serial 0/0/1 of R3**

Explanation: EIGRP authentication should be configured on each interface that is part of the EIGRP routing domain. According to the output of the issued command show ip eigrp neighbors , EIGRP has formed neighbor relationships with router R2 and router R1. Any interface that is used between router R3 and those two routers should have EIGRP authentication configured on it.

23. Refer to the exhibit. Routers R1 and R2 are directly connected via their serial interfaces and are both running the EIGRP routing protocol. R1 and R2 can ping the directly connected serial interface of their neighbor, but they cannot form an EIGRP neighbor adjacency. What action should be taken to solve this problem?

```

R2# show ip eigrp topology
IP-EIGRP Topology Table for AS(80)/ID(192.168.101.1)

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - reply Status, s - sia Status

P 192.168.1.0/30, 1 successors, FD is 128256
   Via Connected, Serial0/0/0
R2#

R1# show ip eigrp topology
IP-EIGRP Topology Table for AS(50)/ID(192.168.100.5)

Codes: P -
Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - reply Status, s - sia Status

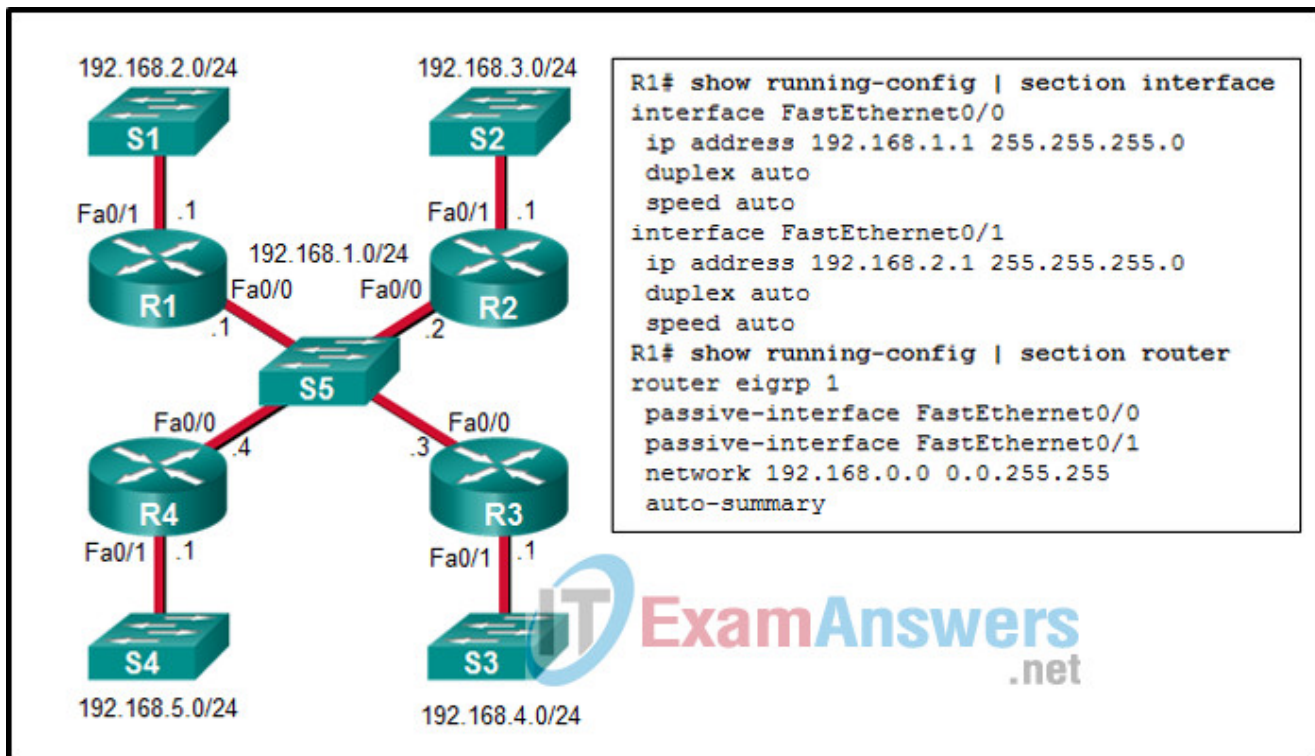
P 192.168.1.0/30, 1 successors, FD is 20512000
   via Connected, Serial0/0/0

```

- Configure EIGRP to send periodic updates.
- **Configure both routers with the same EIGRP autonomous system number.**
- Configure the same hello interval between the routers.
- Enable the serial interfaces of both routers.

Explanation: In EIGRP configuration, the command that starts the EIGRP process is followed by a number that is the autonomous system (AS) number, router eigrp as-number . The as-number must be the same in all routers that are in the same EIGRP routing domain. In this case R2 is configured with AS 80 and R1 is configured with AS 50.

24. Refer to the exhibit. Considering that R2, R3, and R4 are correctly configured, why did R1 not establish an adjacency with R2, R3, and R4?



- because the Fa0/o interface of R1 is declared as passive for EIGRP
- because the automatic summarization is enabled on R1
- because the IPv4 address on Fa0/o interface of R1 is incorrect
- because there is no network command for the network 192.168.1.0/24 on R1

Explanation: The missing routes are the result of there not being an EIGRP adjacency between R1 and R2, R3, and R4. To establish adjacency, a router must send and receive hello packets over an interface to and from its neighbors. The interface Fa0/ of the router R1 is declared as passive, so R1 will not send hello packets over its interface Fa0/o.

25. Which two protocols are allowed to be routed by EIGRP as a consequence of the PDM feature? (Choose two.)

- RTP
- UDP
- IPv6
- IPv4
- TCP

Explanation: Protocol-dependent modules (PDM) allow EIGRP to route for various Layer 3 protocol packets. TCP and UDP are Layer 4 protocols and RTP is used by EIGRP to guarantee delivery of packets.

26. An administrator needs to verify if EIGRP has been configured correctly on a router. Which command can be used to display specific routes to verify if they were learned using EIGRPv6?

- **show ipv6 route ipv6-address/prefix-length**
- show ipv6 route
- show ipv6 eigrp neighbors
- show ipv6 route eigrp

Explanation: The show ipv6 route command displays the entire IPv6 routing table. The use of the additional arguments ipv6 address/prefix-length displays only the routes matching the argument specifics, eg. show ipv6 route 2001:DB8:0:1::/64 . Part of the output from this command specifies details about how the route was learned, for example, known via “eigrp 100”, distance 90, metric 3072, type internal.

27. Which multicast address is used by the EIGRPv6 process to form neighbor adjacencies?

- FF02::FA00:100
- FF02::2
- **FF02::A**
- FF02::1

Explanation: FF02::A is an IPv6 link-local scope multicast address that is used by all devices on a wire that want to communicate in the EIGRP protocol with one another.

28. An administrator is troubleshooting connectivity between two routers configured with EIGRPv6. The routing table, for both the respective routers, displays all the advertised networks and the authentication parameters for key ID and the key string match. Unfortunately, authentication fails between the two routers. What is a possible cause?

- a passive interface present on one of the routers
- mismatched valid times
- **improperly configured timers.**
- IPv6 not enabled on one connected interface

Explanation: For successful authentication, the key ID and key string must match. Timers do not have to match. However, if they are not configured appropriately, neighbor relationships might flap resulting in unsuccessful authentication.

29. An administrator is troubleshooting a router in a mixed EIGRPv4 and EIGRPv6 network. Which command can be used to see if the split horizon rule has been applied to an interface for the IPv6 address family?

- show ipv6 eigrp interfaces
- **show eigrp address-family ipv6 interfaces detail**
- show eigrp address-family ipv6 interfaces
- show ipv6 protocols

Explanation: The show eigrp address-family ipv6 interfaces detail command will display additional interface parameters (for example, hello interval and hold time, whether split horizon is enabled, whether authentication is set, and statistics about hellos and packets).

30. What operational feature is different for EIGRP for IPv6 compared to EIGRP for IPv4?

- **the source and destination addresses used within the EIGRP messages**
- neighbor discovery mechanisms
- router ID configuration
- DUAL algorithm calculations

Explanation: Most of the EIGRP operational features are the same for IPv6 as they are for IPv4. Both use the same DUAL algorithm calculations, metric values, neighbor discovery mechanisms, and 32-bit router ID. What is not the same between the protocols are the source and destination addresses used for EIGRP messages.

31. Refer to the exhibit. A network administrator is configuring a router for DHCPv6 operation. Which conclusion can be drawn based on the commands?

```
R1# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)# ipv6 unicast-routing
R1(config)# ipv6 dhcp pool ACAD_CLASS
R1(config-dhcp)# dns-server 2001:db8:acad:a1::10
R1(config-dhcp)# domain-name netacad.net
R1(config-dhcp)# exit
R1(config)# interface gigabitEthernet 0/0
R1(config-if)# ipv6 address 2001:db8:acad:1::1/64
R1(config-if)# ipv6 dhcp server ACAD_CLASS
R1(config-if)# ipv6 nd other-config-flag
R1(config-if)# end
R1#
```

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- **The router is configured for stateless DHCPv6 operation.**
- The DHCPv6 server name is ACAD_CLASS.
- The router is configured for stateful DHCPv6 operation, but the DHCP pool configuration is incomplete.
- Clients would configure the interface IDs above 0010.

Explanation: The DHCPv6 is for the stateless DHCPv6 operation that is indicated by changing the O flag to 1 and leaving the M flag as default, which is 0. Therefore, it is not configured for stateful DHCPv6 operation. Although the DNS server has the interface ID 0010,

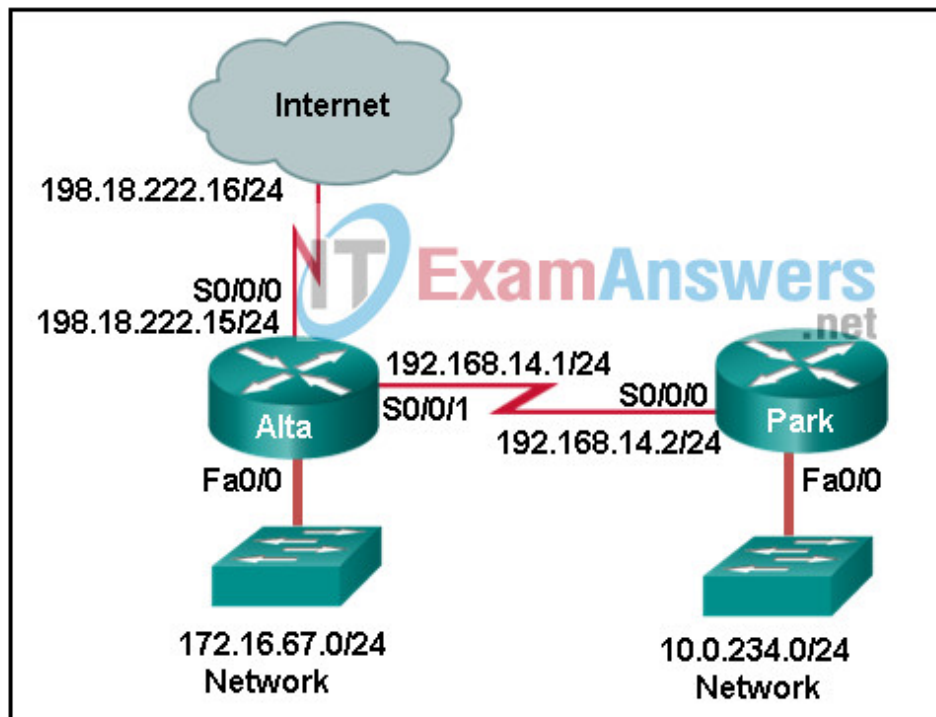
clients in stateless DHCPv6 operation will configure their interface IDs either by EUI-64 or a random number. The ACAD_CLASS is the name of the DHCP pool, not the DHCP server name.

32. Which ICMPv6 message type contains network configuration information for clients that are performing SLAAC?

- neighbor advertisement
- **router advertisement**
- neighbor solicitation
- router solicitation

Explanation: When performing SLAAC, IPv6 clients receive network configuration information from router advertisement messages that are sent by a local router.

33. Refer to the exhibit. Which set of commands will configure static routes that will allow the Park and the Alta routers to a) forward packets to each LAN and b) direct all other traffic to the Internet?



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```
Park(config)# ip route 0.0.0.0 0.0.0.0 192.168.14.1
Alta(config)# ip route 10.0.234.0 255.255.255.0 192.168.14.2
Alta(config)# ip route 0.0.0.0 0.0.0.0 so/0/0
```

```
Park(config)# ip route 172.16.67.0 255.255.255.0 192.168.14.1
Alta(config)# ip route 10.0.234.0 255.255.255.0 192.168.14.2
Alta(config)# ip route 0.0.0.0 0.0.0.0 so/0/1
```

```
Park(config)# ip route 172.16.67.0 255.255.255.0 192.168.14.1
Park(config)# ip route 0.0.0.0 0.0.0.0 192.168.14.1
Alta(config)# ip route 10.0.234.0 255.255.255.0 192.168.14.2
```

```
Park(config)# ip route 0.0.0.0 0.0.0.0 192.168.14.1
Alta(config)# ip route 10.0.234.0 255.255.255.0 192.168.14.2
Alta(config)# ip route 198.18.222.0 255.255.255.255 so/0/0
```

Explanation: The LAN connected to the router Park is a stub network, therefore, a default route should be used to forward network traffic destined to non-local networks. The router Alta connects to both the internet and the Park router, it would require two static routes configured, one toward the internet and the other toward the LAN connected to the router Park.

34. A network administrator wants to verify the default delay values for the interfaces on an EIGRP-enabled router. Which command will display these values?

- show running-config
- show ip protocols
- **show interfaces**
- show ip route

Explanation: The show interfaces command is used to show the delay, in microseconds, of a specified interface. This command will also provide the default delay value or an administratively configured value. The show running-config command will only display an administratively configured value. The commands show ip route and show ip protocols will not provide the delay value of each interface.

35. Refer to the exhibit. Router R1 has recently been configured to operate in an IPv6 only network and is connected via interface Gigabit Ethernet 0/0 to router R2. R2 is configured correctly, but will not form a neighbor relationship with R1. What is the problem?

- The IP address is missing on interface Gigabit Ethernet 0/0.
- **The router ID has not been created on router R1.**
- The EIGRPv6 process has not been activated on interface Gigabit Ethernet 0/0.
- The command ipv6 unicast-routing has not been implemented.

Explanation: To successfully implement EIGRPv6 on a Cisco router, the administrator must provide a router ID within the EIGRPv6 router configuration mode. EIGRPv6 will fail to form a neighbor relationship until the router ID is provided. Being an IPv6 only network indicates that there are no configured IPv4 addresses on the router to provide a router ID. The fact that the command `ipv6 eigrp 20` was successfully entered into the R1 configuration indicates that the command `ipv6 unicast-routing` has been entered (otherwise, the `ipv6 eigrp 20` command would be rejected).

```
R1# show running-config
<output omitted>
!
interface GigabitEthernet0/0
  no ip address
  duplex auto
  speed auto
  ipv6 address 2001:DB8:CAFE:A001::2/64
  ipv6 eigrp 20
!
ipv6 router eigrp 20
  no shutdown
!
```

CCNP Enterprise: Advanced Routing (Version 8.0) –
Routing Concepts and EIGRP Exam 35

36. Which address will EIGRP for IPv6 use as the router ID?

- the highest IPv4 address that is configured on any enabled interface
- the highest link-local address that is configured on any enabled interface
- the highest interface MAC address
- the highest IPv6 address that is configured on any enabled interface

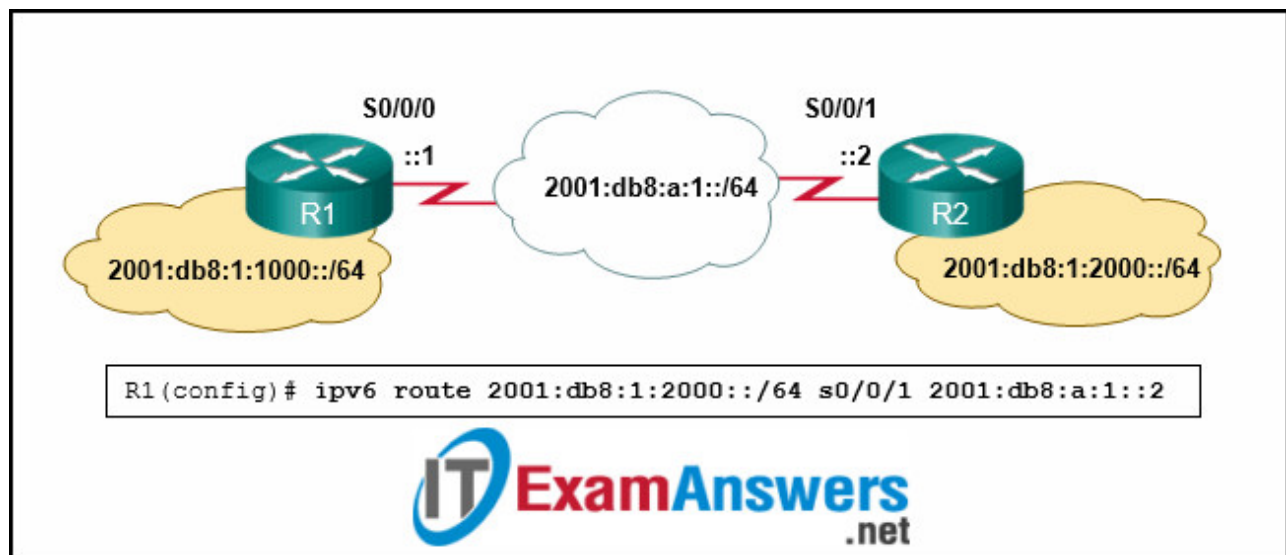
Explanation: EIGRP for IPv6 uses the same router ID as EIGRP for IPv4 uses. The 32-bit number can be configured with the `router-id` command or automatically assigned from the highest IPv4 address on an enabled interface.

37. An administrator is troubleshooting two routers in an EIGRPv6 network. A route filter was applied on one of the routers and since then, routes are no longer being populated as expected. What two commands can be used to verify that the filter was applied correctly and to display the IPv6 prefix list? (Choose two.)

- `show ipv6 protocols`
- `show access-lists ipv6`
- `show run | section ipv6 router eigrp`
- `show ipv6 prefix-list`
- `show ipv6 eigrp interfaces detail`

Explanation: The `show run | section ipv6 router eigrp` command is used to verify that the filter has been applied correctly and the `show ipv6 prefix-list` command is used to view the routes listed in the prefix list.

38. Refer to the exhibit. An administrator is attempting to install an IPv6 static route on router R1 to reach the network attached to router R2. After the static route command is entered, connectivity to the network is still failing. What error has been made in the static route configuration?



- The interface is incorrect.
- The next hop address is incorrect.
- The destination network is incorrect.
- The network prefix is incorrect.

Explanation: In this example the interface in the static route is incorrect. The interface should be the exit interface on R1, which is s0/0/0.

39. Refer to the exhibit. Router CiscoVille has been partially configured for EIGRP authentication. What is missing that would allow successful authentication between EIGRP neighbors?

```

CiscoVille(config)#
CiscoVille(config)# key chain EIGRP_key
CiscoVille(config-keychain)# key 1
CiscoVille(config-keychain-key)# key-string cisco123
CiscoVille(config-keychain-key)# exit
CiscoVille(config-keychain)# exit
CiscoVille(config)# interface serial 0/0/0
CiscoVille(config-if)# ip authentication mode eigrp 1 md5
CiscoVille(config-if)# exit
CiscoVille(config)# interface serial 0/0/1
CiscoVille(config-if)# ip authentication mode eigrp 1 md5
CiscoVille(config-if)# end
CiscoVille#
  
```

- The CiscoVille router requires a second keychain to function correctly when using two interfaces for EIGRP authentication.

- **The keychain for EIGRP authentication must be configured on the interfaces.**
- The interfaces that will use EIGRP authentication must be specified.
- A username and password must be configured.

Explanation: The **ip authentication key-chain eigrp 1 EIGRP_key** command for EIGRP authentication has not been applied on each interface that participates in EIGRP authentication. EIGRP authentication steps include the creation of a keychain, a key ID, and a key string that is the equivalent of a password. EIGRP authentication is utilized on interfaces by selecting the interface to configure and then enabling MD5 authentication. Finally, EIGRP authentication is activated when the keychain to be used is issued on the interface.

40. Which configuration is necessary to ensure successful operation of EIGRP for IPv6?

- The router eigrp autonomous-system command is required within the router configuration mode.
- The eigrp router-id command requires an IPv6 address within the router configuration mode.
- The network command is required within the router configuration mode.
- **The no shutdown command is required within the router configuration mode.**

Explanation: By default, the EIGRP for IPv6 process is in a shutdown state. The EIGRP for IPv6 process must be activated by using the no shutdown command within router configuration mode.

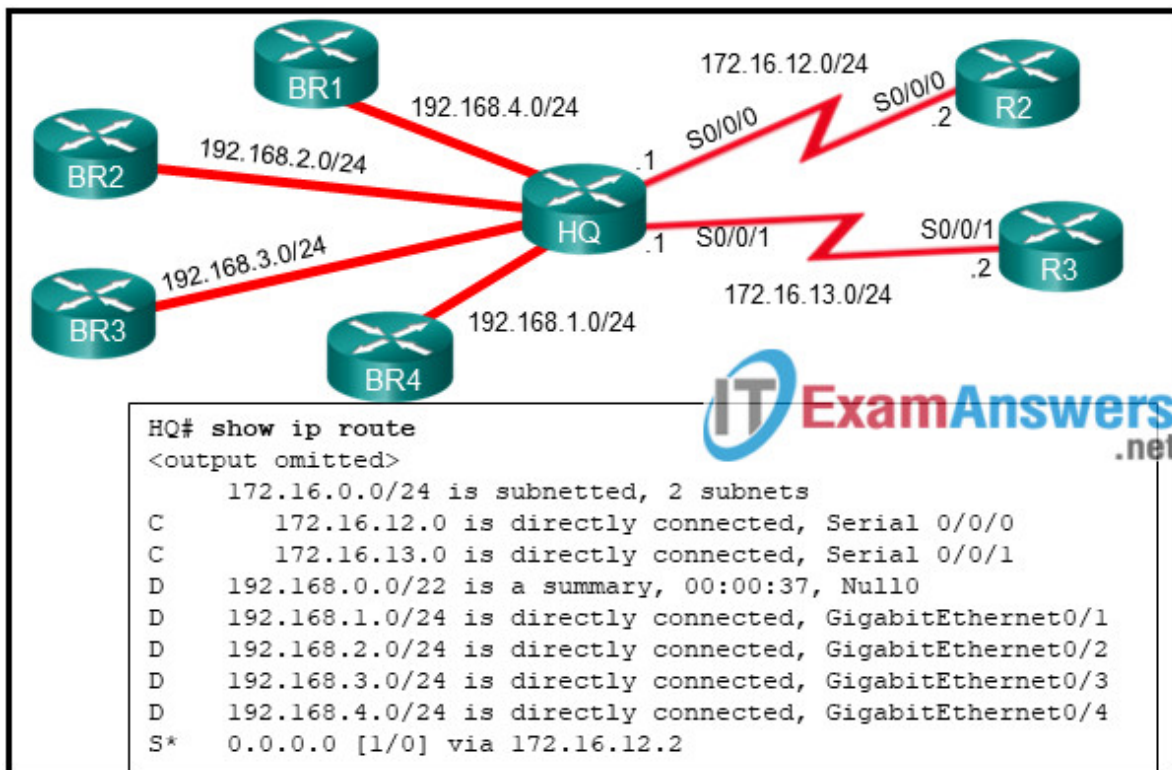
41. Which destination address is used by EIGRP for IPv6 messages?

- the 32-bit router ID of the neighbor
- the unique local IPv6 address of the neighbor
- the IPv6 global unicast address of the neighbor
- **the all-EIGRP-routers link-local multicast address**

42. Which two statements describe characteristics of EIGRPV6? (Choose two.)

- **Route advertisement is configured under the interface configuration.**
- **Neighbor relationships are formed using the link-local address.**
- EIGRPv6 supports only 64 bit addresses.
- Mismatched timers are not supported.
- Route advertisement is configured under the IPv6 router EIGRPv6 configuration.
- Neighbor relationships can be formed only on the configured IPv6 address.

43. Refer to the exhibit. EIGRP has been configured on all routers in the network. An EIGRP summary route is configured on the HQ router. How will packets destined for the 192.168.0.10/24 network be handled by router HQ?



- The traffic will be forwarded to the BR1 and BR2 branch routers.
- The traffic will be forwarded to routers BR1, BR2, BR3, and BR4.
- The traffic will be forwarded to the BR3 and BR4 branch routers.
- **The traffic will be forwarded to the Null0 interface and will be discarded.**
- The traffic will be forwarded to router R2 using the default route.

Explanation: EIGRP for IPv6 uses the all-EIGRP-routers link-local multicast address as the destination address for EIGRP messages.

44. When multiple routing protocols have a route to the same destination network, what determines which route is installed in the routing table?

- lowest hop count
- best metric
- lowest cost
- **lowest administrative distance**
- greatest available bandwidth

Explanation: Administrative distance is the feature that routers use in order to select the best path when there are two or more different routes to the same destination from two different routing protocols.

