Cisco

# ROUTE

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PRINTABLES

PRINTABLE PRACTICE QUESTIONS

QUESTIONS, ANSWERS, AND DETAILED EXPLANATIONS IN AN EASY-TO-USE PRINTABLE FORMAT

LearnSmart™

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# CCNP ROUTE (642-902) Printables


Product ID: 12375
Production Date: November 15, 2011
Total Questions: 149



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Chapter 1
# Implement an EIGRP based solution, given a network design and a set of requirements

1. A network engineer is on a router that is running EIGRP in ASN 100. They configure the following command on interface fa0/0:ip hold-time eigrp 100 10After this command was entered, the EIGRP neighbor relationship fails on fa0/0. Why did this happen?Choose the best answer.

   - ❍ A. The EIGRP hello timers do not match a neighbor connected to fa0/0.
   - ❍ B. The engineer must perform a shutdown and then a no shutdown to bring the EIGRP neighbor relationship back.
   - ❍ C. The EIGRP hold timers do not match on a neighbor connected to fa0/0.
   - ❍ D. You cannot modify EIGRP hold timers on broadcast networks such as Ethernet.

Find the Answer p. 73

2. Which of the following configuration settings is NOT required to match when configuring EIGRP neighbor interfaces?Choose the best answer.

   - ❍ A. EIGRP authentication key number
   - ❍ B. EIGRP passive interface mode
   - ❍ C. EIGRP hello timer
   - ❍ D. EIGRP hold timer

Find the Answer p. 73

3. You are troubleshooting an EIGRP authentication problem that is preventing an EIGRP neighbor relationship from forming.You run the following debug command:debug eigrp packetYou see the following debug output:*Jan 21 16:50:18.749: EIGRP: pkt key id = 2, authentication mismatch*Jan 21 16:50:18.749: EIGRP: Serial0/0/1: ignored packet from 192.168.1.101, opc ode = 5 (invalid authentication)*Jan 21 16:50:18.749: EIGRP: Dropping peer, invalid authentication*Jan 21 16:50:18.749: EIGRP: Sending HELLO on Serial0/0/1 *Jan 21 16:50:18.749: AS 100, Flags 0x0, Seq 0/0 idbQ 0/0 iidbQ un/rely 0/0*Jan 21 16:50:18.753: %DUAL-5-NBRCHANGE: IP-EIGRP(0) 100: Neighbor 192.168.1.101 (Serial0/0/1) is down: Auth failureGiven the debug output, what is likely the problem?Choose the best answer.

- ❍ A. One neighbor is using MD5 authentication while the other is using clear-text authentication.
- ❍ B. The authentication key numbers do not match.
- ❍ C. The MD5 passwords do not match.
- ❍ D. Authentication is not configured on the remote router.
- ❍ E. Authentication is not configured on the local router.

Find the Answer p. 73

4. Gi0/0 is enabled with an IP address of 192.168.18.20/28. You want to configure this interface to participate in EIGRP that is enabled on the router. What EIGRP network statement below is valid?Choose the best answer.

- ❍ A. network 192.168.18.0 0.0.0.7
- ❍ B. network 192.168.18.16 0.0.0.3
- ❍ C. network 192.168.18.0 0.0.0.15
- ❍ D. network 192.168.18.0 0.0.0.7

Find the Answer p. 73

5. A network engineer is configuring EIGRP and enters the following network statement:network 162.18.3.0What wildcard mask would be applied to this network statement by default?Choose the best answer.

- ❍ A. 255.255.0.0
- ❍ B. 0.0.0.255
- ❍ C. 255.0.0.0
- ❍ D. 0.0.255.255

Find the Answer p. 73

6. Which EIGRP show command lists the working interfaces that EIGRP is currently enabled on?Choose the best answer.

- ❍ A. show ip eigrp interfaces
- ❍ B. show eigrp interfaces
- ❍ C. show ip eigrp topology
- ❍ D. show eigrp topology
- ❍ E. show ip interface brief

Find the Answer p. 73

7. How does an EIGRP router send topology information to neighbors?Choose the best answer.

- ❍ A. Multicast message to 224.0.0.10
- ❍ B. Broadcast message to 255.255.255.255
- ❍ C. Multicast message to 224.0.0.5
- ❍ D. Multicast message to 224.0.0.6

Find the Answer p. 73

8. EIGRP uses RTP to send update messages to neighbors. Why is this important?Choose the best answer.

- ❍ A. RTP is connectionless and therefore more efficient on a network.
- ❍ B. RTP allows the router to route both voice and data traffic on the network.
- ❍ C. RTP has the ability to resend updates that are lost in transit.
- ❍ D. RTP provides no error correction and is therefore more efficient on a network.

Find the Answer p. 73

9. Which of the following can EIGRP NOT use to calculate a route metric?Choose the best answer.

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

Find the Answer p. 73

10. A network engineer wants to limit EIGRP multicast hellos to only the interfaces that have neighbors attached to them. What options are possible?Choose two.

- ❑ A. Use the EIGRP network command for interfaces with neighbors attached and then you use the passive-interface command to suppress hello packets on interfaces with no EIGRP neighbors.
- ❑ B. Do not enable EIGRP on the interface and then use the passive-interface command so the router does not send multicast hellos out that interface.
- ❑ C. Do not enable EIGRP on the interface and then advertise the networks using the redistribute static command within EIGRP.
- ❑ D. Do not enable EIGRP on the interface and then advertise the networks using the redistribute connected command within EIGRP.
- ❑ E. Enable EIGRP on the interface using the EIGRP network command and then advertise the networks using the redistribute connected command within EIGRP.

Find the Answer p. 73

11. If you have multiple EIGRP authentication key numbers configured on a router, which one will EIGRP choose to send to neighbors?Choose the best answer.

- ❍ A. The router will send the password of the lowest numbered key first. If the password does not match the neighbor's password, it will try the next lowest and continue this process until the passwords match or until the router has attempted every key.
- ❍ B. The router will send the password of the highest configured key number.
- ❍ C. The router will send the password of the lowest configured key number.
- ❍ D. The router will send the password of the highest numbered key first. If the password does not match the neighbor's password, it will try the next highest and continue this process until the passwords match or until the router has attempted every key.

Find the Answer p. 73

12. Why would an engineer configure EIGRP static neighbors when using Frame Relay WAN interfaces?Choose the best answer.

- ❍ A. Frame Relay does not support IP broadcasting, which EIGRP uses to dynamically form neighbor relationships.
- ❍ B. Frame Relay does not support EIGRP authentication unless neighbors are statically configured.
- ❍ C. Frame Relay does not support IP multicasts, which EIGRP uses to dynamically form neighbor relationships.
- ❍ D. Frame Relay does not support IP unicast messages, which EIGRP uses to dynamically form neighbor relationships.

Find the Answer p. 73

13. When configuring EIGRP on new WAN technologies such as an MPLS VPN or Metro Ethernet, it is important that an engineer understand what layer of the OSI model these technologies function on to determine how EIGRP will form neighbor relationships. From the choices below, choose the proper OSI layer each WAN technology runs on.Choose two.

- ❑ A. MPLS VPN is a layer 2 technology
- ❑ B. MPLS VPN is a layer 3 technology
- ❑ C. MPLS VPN is a layer 4 technology
- ❑ D. Metro Ethernet is a layer 2 technology
- ❑ E. Metro Ethernet is a layer 3 technology

Find the Answer p. 73

14. A router can add subnets to its local EIGRP topology table from all of the following sources EXCEPT what?Choose the best answer.

- ❍ A. Subnets of connected networks configured using the EIGRP network command
- ❍ B. Subnets of connected networks for interfaces using the EIGRP neighbor command
- ❍ C. Subnets learned dynamically from EIGRP neighbor routers
- ❍ D. Subnets learned using EIGRP redistribution methods

Find the Answer p. 73

15. EIGRP update messages contain all of the following information EXCEPT what?Choose the best answer.

- ❍ A. Prefix
- ❍ B. Prefix-length
- ❍ C. Router statistics such as CPU and memory usage percents
- ❍ D. Metric components such as bandwidth, delay, reliability, and load
- ❍ E. Non-metric items such as MTU and hop count

Find the Answer p. 73

16. EIGRP lets administrators configure unequal metric load balancing. What IOS command makes this possible?Choose the best answer.

- ❍ A. metric
- ❍ B. delay
- ❍ C. variance
- ❍ D. bandwidth

Find the Answer p. 73

17. Four factors influence EIGRP's scalability. Which of the following is NOT one of those factors?Choose the best answer.

- ❍ A. The number of routes that must be exchanged
- ❍ B. The number of links that must be secured using MD5 authentication
- ❍ C. The number of routers that must know of a topology change
- ❍ D. The number of alternate routes to a network
- ❍ E. The number of router hops from one end of the network to the other

Find the Answer p. 73

18. EIGRP Graceful shutdown is a feature which speeds network convergence. When the EIGRP process is shut down, the router sends a goodbye to its neighbors. What type of EIGRP packet is used with the goodbye message?Choose the best answer.

- ❍ A. Hello
- ❍ B. Alert
- ❍ C. Update
- ❍ D. Query

Find the Answer p. 73

19. When an EIGRP neighbor relationship forms between two routers, what happens?Choose the best answer.

- ❍ A. The neighbors exchange topology data using partial updates.
- ❍ B. Then neighbors exchange topology data after the split-horizon timer has expired.
- ❍ C. The neighbors exchange topology data using incremental updates.
- ❍ D. The neighbors exchange topology data using full updates.

Find the Answer p. 73

20. Which of the following scenarios is NOT a reason for disabling EIGRP split-horizon using the "no ip split-horizon eigrp" command?Choose the best answer.

- ❍ A. The routers use Frame Relay point-to-point interfaces.
- ❍ B. Three or more routers running Frame Relay are configured on the same IP subnet.
- ❍ C. The routers use Frame Relay multipoint interfaces.
- ❍ D. A full mesh of Frame Relay PVCs between the routers does not exist.

Find the Answer p. 73

21. A network engineer needs to adjust the EIGRP metric calculation methods the router uses to determine the weight applied to each value of bandwidth, delay, reliability and load. What are the default k values set to?Choose the best answer.

- ❍ A. k1 = 1<br>k2 = 0<br>k3 = 0<br>k4 = 0<br>k5 = 1
- ❍ B. k1 = 1<br>k2 = 0<br>k3 = 1<br>k4 = 0<br>k5 = 0
- ❍ C. k1 = 1<br>k2 = 1<br>k3 = 1<br>k4 = 0<br>k5 = 0
- ❍ D. k1 = 1<br>k2 = 0<br>k3 = 1<br>k4 = 0<br>k5 = 1

Find the Answer p. 73

22. EIGRP offset lists can do all of the following functions EXCEPT what?Choose the best answer.

- ❍ A. Match prefix lengths using an access-list
- ❍ B. Match the direction of the update message as in or out
- ❍ C. Match the metric of the EIGRP interface
- ❍ D. Match the interface on which the EIGRP update is sent or received
- ❍ E. Set the integer metric added to the calculation for both the FD and RD calculations for the route

Find the Answer p. 73

23. Which show command lets you see all EIGRP successor and feasible successor routes?Choose the best answer.

- ❍ A. show ip eigrp neighbors
- ❍ B. show ip route
- ❍ C. show ip eigrp successor
- ❍ D. show ip eigrp topology

Find the Answer p. 73

24. What is one method for limiting query messages within an EIGRP AS?Choose the best answer.

- ❍ A. Configure all interfaces as EIGRP passive interfaces.
- ❍ B. Configure route filtering on the router to prevent traffic from being forwarded.
- ❍ C. Configure route redistribution of connected networks.
- ❍ D. Configure the router as an EIGRP stub router.

Find the Answer p. 74

25. An engineer wants to filter EIGRP learned routes on a router. They have configured access-list 1 permitting specific IP subnets to be accepted. What EIGRP command enables this access-list to begin filtering routes coming into EIGRP enabled interfaces on the router?Choose the best answer.

- ❍ A. distribute-list 1 in
- ❍ B. access-group 1 in
- ❍ C. access group 1 out
- ❍ D. distribute-list 1 out

Find the Answer p. 74

26. What two methods can be used to match routes when attempting to filter EIGRP routes?Choose two.

- ❑ A. Distribute-lists
- ❑ B. IP prefix-lists
- ❑ C. Filter-lists
- ❑ D. Access-groups

Find the Answer p. 74

27. An engineer is trying to summarize the following networks using the "ip summary-address eigrp" command:10.8.88.0/2510.8.89.48/2910.8.64.96/27Which network and subnet mask below would be the smallest EIGRP summary address to include all three subnets?Choose the best answer.

- ❍ A. 10.8.0.0 255.255.192.0
- ❍ B. 10.8.64.0 255.255.128.0
- ❍ C. 10.8.64.0 255.255.192.0
- ❍ D. 10.8.64.0 255.255.224.0

Find the Answer p. 74

28. Drag the three EIGRP steps on the left to the right in the correct order the router performs the functions.

A. Topology Exchange B. Neighbor Discovery C. Route Selection

Step 1

Step 2

Step 3

Detailed Explanation p. 93

29. EIGRP uses specific rules when determining the IP address to use as the router ID (RID). Drag the rule on the left over to the right so they are in the proper order of importance.

A. Highest IPv4 address on non-loopback interface

B. Statically configured IP address

C. Highest Ipv4 address on loopback interface

Priority 1

Priority 2

Priority 3

Detailed Explanation p. 93

30. Drag the descriptions on the left to the Dynamic routing protocol on the right that best describes the functionality.

A. Neighbor IP address is explicitly configured and may not be on common subnet.

B. Advertises metric information about routes

C. Uses IP protocol 89 for RP transport

D. Uses TCP 179 for transport of RP messages

E. Advertises a variety of path attributes about routes

F. Commonly uses multicast packets on connected subnets for transporting RP messages


Detailed Explanation p. 94

Chapter 2
# Implement a multi-area OSPF Network, given a network design and a set of requirements

1. All of the following information is communicated between OSPF routers LSDB EXCEPT what?Choose the best answer.

   - ❍ A. Router ID
   - ❍ B. List of successor and feasible successor routes each router learns
   - ❍ C. Router interface type/number, IP address and subnet mask
   - ❍ D. List of routers reachable by each router on each interface

   Find the Answer p. 75

2. OSPF route summarization can be configured where?Choose the best answer.

   - ❍ A. Only on the designated router (DR)
   - ❍ B. On any router configured to run OSPF
   - ❍ C. Either on the ABR or ASBR
   - ❍ D. Only on the ASBR

   Find the Answer p. 75

3. OSPF update information destined for the Designated Routers (DR) are sent to what multicast IP address?Choose the best answer.

   - ❍ A. 224.0.0.6
   - ❍ B. 224.0.0.10
   - ❍ C. 224.0.0.1
   - ❍ D. 224.0.0.5

   Find the Answer p. 75

4. A router has been configured with OSPF authentication on interface fa0/0. The OSPF neighbor relationship is not forming. You issue a "debug ip ospf events" command and see the following log message:05:01:35: OSPF: Rcv pkt from 192.168.2.2, OSPF_VL0 : MismatchAuthentication type. Input packet specified type 0, we use type 1Using this information, which of the following is true?Choose the best answer.

   - ❍ A. Fa0/0 on the local router has the following configuration.
     ip ospf authentication message-digest
   - ❍ B. Fa0/0 on the local router has the following configuration.
     ip ospf authentication
   - ❍ C. Fa0/0 on the local router has the following configuration.
     ip ospf authentication null
   - ❍ D. Fa0/0 on the local router has the following configuration.
     ip ospf authentication type-1

Find the Answer p. 75

5. You are in charge of designing an OSPF network that uses Frame Relay WAN connections. The design calls for a single central site with 20 remote sites using a partial mesh topology with Frame Relay PVCs. One PVC is between the central site and each of the 20 remote site routers. All routers use point-to-point subinterfaces and one subnet per PVC. Given this information, which of the following is true?Choose the best answer.

   - ❍ A. The remote site router has 20 fully adjacent neighborships on the WAN.
   - ❍ B. The central site router has 20 fully adjacent neighborships on the WAN.
   - ❍ C. The central site router has a neighborship with the Frame Relay switch.
   - ❍ D. The remote site router has a neighborship with the Frame Relay switch.

Find the Answer p. 75

6. A network engineer is reviewing an OSPF design. The diagram lists OSPF area 10 configured with three internal routers. The backbone area has four internal routers. A single ABR connects the backbone to area 10. How many Type 1 LSAs would be listed in ABR2's LSDB?Choose the best answer.

- ❍ A. 3
- ❍ B. 5
- ❍ C. 7
- ❍ D. 9

Find the Answer p. 75

7. A network engineer is reviewing the design of a fully functional OSPF network that only uses FastEthernet and GigabitEthernet connections. The engineer is trying to determine what routers will be responsible for flooding Type 2 LSAs on the network. Which of the following is true?Choose the best answer.

- ❍ A. Because the entire network is NBMA, type 2 LSAs will never be seen on the network.
- ❍ B. Because the entire network is a broadcast technology, type 2 LSAs will never be seen on the network.
- ❍ C. Type 2 LSA messages will be flooded by elected DR routers.
- ❍ D. Type 2 LSA messages will be flooded during the DR election process by all routers configured to run OSPF.

Find the Answer p. 75

8. By default, OSPF floods each LSA every 30 minutes based on what?Choose the best answer.

- ❍ A. Each LSAs age variable
- ❍ B. The OSPF process timer that begins as soon as OSPF is enabled on the router
- ❍ C. The OSPF hold-down timer
- ❍ D. The OSPF flood timer that is maintained by the DR/BDR

Find the Answer p. 75

9. Where are Type 3 messages originated in an OSPF network?Choose the best answer.

- ❍ A. The DR only
- ❍ B. The DR and BDR
- ❍ C. Any backbone (area 0) router
- ❍ D. Any Area boarder router (ABR)

Find the Answer p. 75

10. Type 3 OSPF LSAs contain all of the following information EXCEPT what?Choose the best answer.

- ❍ A. The subnet number/mask represented by the LSA
- ❍ B. The list of OSPF areas configured on the network
- ❍ C. The cost of the ABRs lowest-cost route to reach the subnet
- ❍ D. The RID of the ABR

Find the Answer p. 75

11. When a router analyzes the OSPF LSDB to calculate the best route to each subnet for internal routes, it does the calculations in a specific order. Which answer below puts the calculations in the correct order of operation?Choose the best answer.

- ❍ A. 1. Runs SPF to find all possible paths through the area's topology, from itself to each subnet.
  2. Finds all subnets inside the area, based on the stub interfaces listed in the Type 1 LSAs and based on any Type 2 network LSAs.
  3. Calculates the OSPF interface costs for all outgoing interfaces in each route, picking the lowest total cost route for each subnet as the best route.
- ❍ B. 1. Finds all subnets inside the area, based on the stub interfaces listed in the Type 1 LSAs and based on any Type 2 network LSAs.
  2. Runs SPF to find all possible paths through the area's topology, from itself to each subnet.
  3. Calculates the OSPF interface costs for all outgoing interfaces in each route, picking the lowest total cost route for each subnet as the best route.
- ❍ C. 1. Finds all subnets inside the area, based on the stub interfaces listed in the Type 1 LSAs and based on any Type 2 network LSAs.
  2. Calculates the OSPF interface costs for all outgoing interfaces in each route, picking the lowest total cost route for each subnet as the best route.
  3. Runs SPF to find all possible paths through the area's topology, from itself to each subnet.
- ❍ D. 1. Calculates the OSPF interface costs for all outgoing interfaces in each route, picking the lowest total cost route for each subnet as the best route.
  2. Finds all subnets inside the area, based on the stub interfaces listed in the Type 1 LSAs and based on any Type 2 network LSAs.
  3. Runs SPF to find all possible paths through the area's topology, from itself to each subnet.

Find the Answer p. 75

12. OSPF calculates the default OSPF cost for an interface based on the following formula:Reference bandwidth / interface bandwidthYou wish to change the "reference bandwidth" to 1000 to differentiate FastEthernet links with GigabitEthernet links. What is the correct IOS command to modify this on a router?Choose the best answer.

- ❍ A. Router(config)#auto-cost reference-bandwidth 1000
- ❍ B. Router(config-if)#auto-cost reference-bandwidth 1000
- ❍ C. Router(config-router)#auto-cost reference-bandwidth 1000
- ❍ D. Router(config-router)#bandwidth 1000
- ❍ E. Router(config-if)#bandwidth 1000
- ❍ F. Router(config)#bandwidth 1000

Find the Answer p. 75

13. OSPF inter-area and intra-area routes are chosen based on what type of logic?Choose two.

- ❑ A. OSPF uses pure link state logic for intra-area route selection.
- ❑ B. OSPF uses distance-vector logic for intra-area route selection.
- ❑ C. OSPF uses distance-vector logic for inter-area route selection.
- ❑ D. OSPF uses pure link state logic for inter-area route selection.

Find the Answer p. 75

14. A network engineer has 3 IP subnets allocated for the data center. The subnets are 172.16.1.0/24, 172.16.2.0/24, and 172.16.3.0/24. The engineer then connects to OSPF router configuration mode on the ABR and issues the following command:area 0 range 172.16.0.0 255.255.252.0What is the effect of this command?Choose the best answer.

- ❍ A. The three subnets are now seen as a single 172.16.0.0/22 subnet in the backbone.
- ❍ B. The three subnets are now seen as a single 172.16.0.0/22 subnet in non-backbone areas.
- ❍ C. The three subnets are now seen as a single 172.16.0.0/22 subnet in the backbone and in non-backbone areas.
- ❍ D. The three subnets are now seen as a single 172.16.0.0/22 subnet on the DR and BDR.

Find the Answer p. 75

15. When redistributing routes into OSPF, what type of LSAs are sent by the ASBR?Choose the best answer.

- ❍ A. Type 2
- ❍ B. Type 3
- ❍ C. Type 5
- ❍ D. Type 7

Find the Answer p. 75

16. When configuring the ASBR to redistribute networks into OSPF, what does the "summary-address <prefix-mask>" command do?Choose the best answer.

- ❍ A. It is an automatic process where OSPF will summarize the redistributed routes by creating a Type 5 LSA for the summary route. It will then no longer advertise the Type 5 LSAs for the subordinate subnets that fall in the summary-address/mask range.
- ❍ B. It is an automatic process where OSPF will summarize the redistributed routes by creating a Type 5 LSA for the summary route. It will advertise both the summary and subordinate subnets when advertising the Type 5 LSAs.
- ❍ C. It is a manual process where OSPF will summarize the redistributed routes by creating a Type 5 LSA for the summary route. It will no longer advertise the Type 5 LSAs for the subordinate subnets that fall in the summary-address/mask range.
- ❍ D. It is a manual process where OSPF will summarize the redistributed routes by creating a Type 5 LSA for the summary route. It will advertise both the summary and subordinate subnets when advertising the Type 5 LSAs.

Find the Answer p. 75

17. What does the following OSPF router command do when performed on an ASBR?default-information originateChoose the best answer.

- ❍ A. It tells the router to flood a default route into OSPF if the router has a default route in its neighbors IP routing table.
- ❍ B. It tells the router to flood a default route into OSPF if the router has a default route in its local IP routing table.
- ❍ C. It tells the router to send Type 3 summary LSAs instead of Type 5 LSAs.
- ❍ D. It tells the router to send Type 5 summary LSAs instead of Type 3 LSAs.

Find the Answer p. 75

18. An engineer is configuring the ASBR router that connects the Internet to the internal network. The engineer wants to redistribute the non-OSPF learned routes as a simple 0.0.0.0/0 default route. What OSPF configuration command below can be used to do this that insures that the default route is flooded even if it is not in the local routing table?Choose the best answer.

- ❍ A. default-information originate constant
- ❍ B. default-information originate always
- ❍ C. default-information originate 0.0.0.0 0.0.0.0
- ❍ D. default-information originate type-5

Find the Answer p. 75

19. All of the following statements are true regarding OSFP totally stubby areas EXCEPT what?Choose the best answer.

- ❍ A. ABRs create a default route, using a Type 3 LSA, listing subnet 0.0.0.0 and mask 0.0.0.0, and flood that into the totally stubby area.
- ❍ B. ABRs flood Type 5 LSAs into the totally stubby area.
- ❍ C. ABRs do not flood other Type 3 LSAs into the totally stubby.
- ❍ D. The default route has a metric of 1 unless otherwise configured using the OSPF subcommand area area-num default-cost cost.

Find the Answer p. 75

20. An engineer is configuring a remote site router in totally stubby area 5. What is the correct command on the ABR?Choose the best answer.

- ❍ A. area 5 stub no-summary
- ❍ B. area 5 stub totally
- ❍ C. area 5 stub nssa
- ❍ D. area 5 stub-tot

Find the Answer p. 75

21. You are reviewing an OSPF network design. The design shows a network that uses only OSPF. One goal of the design is to keep the LSDBs and routing tables in each OSPF area small. Which of the following is NOT a possible implementation choice?Choose the best answer.

- ❍ A. Use manual route summarization on ABRs.
- ❍ B. Use Type 5 LSA filtering.
- ❍ C. Use Type 3 LSA filtering.
- ❍ D. Use stub areas.

Find the Answer p. 75

22. What OSPF show command identifies neighbor adjacency status and shows both the designated router and backup designated router (if there is one)?Choose the best answer.

- ❍ A. show ip ospf packet
- ❍ B. show ip ospf adjacancy
- ❍ C. show ip ospf database
- ❍ D. show ip ospf neighbors

Find the Answer p. 75

23. Which OSPF network type requires you to manually configure OSPF neighbors?Choose the best answer.

- ❍ A. NBMA
- ❍ B. Point-to-multipoint
- ❍ C. Point-to-multipoint nonbroadcast
- ❍ D. Point-to-Point

Find the Answer p. 75

24. You are reviewing a network implementation and notice that the design shows OSPF areas 1 and 2 directly connecting to area 0 using different ABRs. The diagram shows Type 3 LSA filtering into non-backbone areas as well as into the backbone. Why is this?Choose the best answer.

- ❍ A. This diagram is incorrect as the ABR will send Type 3 LSAs into backbone areas only.
- ❍ B. This diagram is incorrect as the ABR will send Type 3 LSAs into non-backbone areas only.
- ❍ C. ABR's create Type 3 LSAs and sends them to both non-backbone and backbone areas.
- ❍ D. This diagram is incorrect as the ABR will send Type 5 LSAs into backbone areas only.

Find the Answer p. 76

25. Which of the following answers is correct based on the following OSPF command output?R1#show ip ospf virtual-linksVirtual Link OSPF_VL0 to router 4.4.4.4 is upRun as demand circuitDoNotAge LSA allowed.Transit area 3, via interface FastEthernet0/1, Cost of using 2Choose the best answer.

- ❍ A. R1 is configured with an area 3 virtual-link 4.4.4.4 cost 2 command.
- ❍ B. R1 is an ASBR router.
- ❍ C. R1's Fa0/0 OSPF cost is 4.
- ❍ D. 4.4.4.4 is known to R1 based on a Type 1 LSA in transit area 0.

Find the Answer p. 76

26. Choose the statement below that is true based on the following OSPF and interface configuration:router ospf 4area 1 virtual-link 1.1.1.1!interface fastethernet0/0ip address 10.1.1.1 255.255.255.0ip ospf 4 area 0Choose the best answer.

- ❍ A. The remote-RID is 1.1.1.1
- ❍ B. The remote FastEthernet Interface is 1.1.1.1
- ❍ C. The virtual-link transit area is area 0
- ❍ D. The virtual-link transit area is area 4

Find the Answer p. 76

27. When planning the subnets to use OSPF over a Frame Relay WAN, the design engineer has several options. Which of the following are possible options?Choose two.

- ❑ A. A single subnet with all routers using point-to-point subinterfaces associated with each PVC.
- ❑ B. A single subnet for every physical interface using point-to-multipoint subinterfaces associated with each PVC.
- ❑ C. A single subnet with all routers using point-to-multipoint subinterfaces associated with each PVC.
- ❑ D. Add multiple routers into a single Frame Relay WAN subnet using a single point-to-point subinterface associated with multiple PVCs.
- ❑ E. Add multiple routers into a single Frame Relay WAN subnet using a single point-to-multipoint subinterface associated with multiple PVCs.

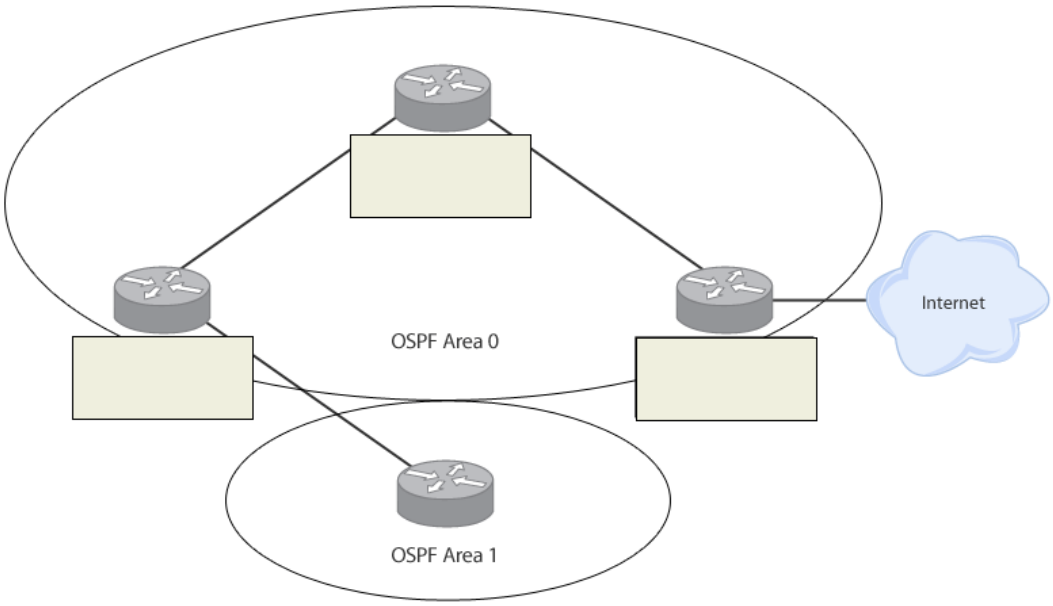
Find the Answer p. 76

28. Drag the OSPF router type listed on the left to one of the routers in the diagram that BEST displays the specific router.

A. Autonomous System Boundary Router

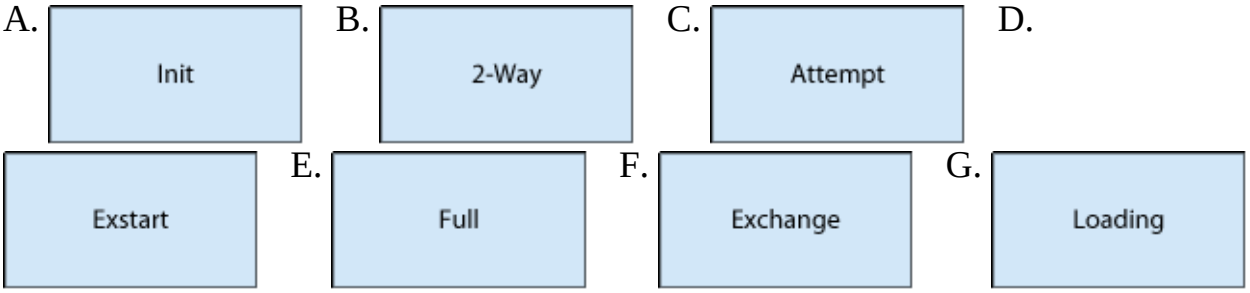
B. Area Border Router

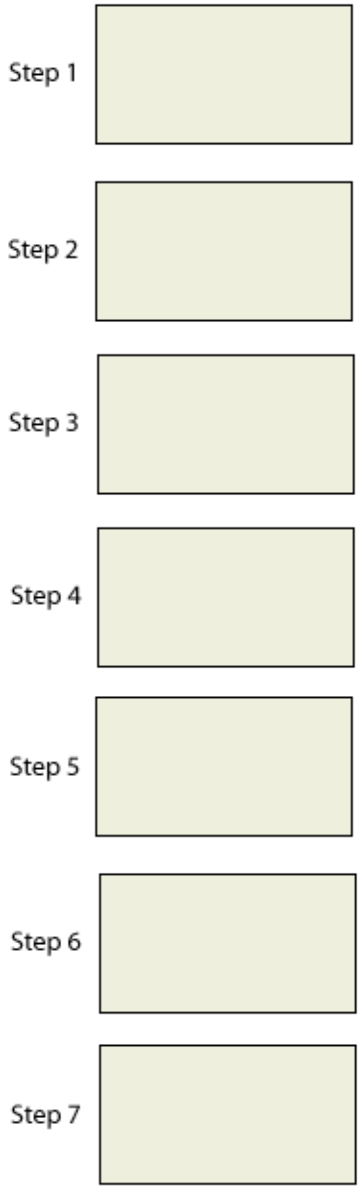
C. Backbone Router




Detailed Explanation p. 106

29. Drag the OSPF neighbor states listed on the left in the correct order of operation on the right.






Detailed Explanation p. 107

# Chapter 3
# Implement an IPv4 or IPv6 based redistribution solution, given a network design and a set of requirements

1. Which of the statements below is NOT a reason to redistribute routes?Choose the best answer.

   - ❍ A. The merging of two networks that use different dynamic routing protocols
   - ❍ B. To separate management control over routing to different groups within the company
   - ❍ C. To eliminate the need to maintain static routes
   - ❍ D. To support multiple router vendors
   - ❍ E. Layer 3 WAN (MPLS)

Find the Answer p. 77

2. Your organization has merged with a competitor and you are in charge of connecting the two networks together. Your network is running EIGRP on AS 101 and the new network is running OSPF process number 100. What EIGRP router configuration command is needed to redistribute OSPF-learned routes into EIGRP?Choose the best answer.

   - ❍ A. redistribute ospf 100
   - ❍ B. redistribute ospf 101
   - ❍ C. redistribute eigrp 100
   - ❍ D. redistribute eigrp 101

Find the Answer p. 77

3. When redistributing into EIGRP, the network engineer issues the metric option. What metric options are available?Choose the best answer.

- ❍ A. A single option that sets a static metric number
- ❍ B. Five separate metric options including bandwidth, delay, reliability, load and MTU
- ❍ C. Four separate metric options including bandwidth, delay, reliability and load
- ❍ D. Two separate metric options which are bandwidth and delay

Find the Answer p. 77

4. What does the route redistribution tag option do?Choose the best answer.

- ❍ A. It adds a tag to the redistributed route which can later be matched by other routers using a route-map.
- ❍ B. It adds a tag to the redistributed route which can be later matched by other routers using a distribution-list.
- ❍ C. It adds a tag to the redistributed route which is used to limit the number of hops the route will propagate into the network.
- ❍ D. It adds a tag to the redistributed route which is used to tunnel traffic through non-routable networks.

Find the Answer p. 77

5. An engineer wants to redistribute OSPF into EIGRP. They log in to the boarder router that runs both OSPF and EIGRP and execute the following commands:Router(config)#router eigrp 100Router(config-router)#redistribute ospf 2Router(config-router)#endRouter#Unfortunately, this did not cause OSPF routes to redistribute into EIGRP. What is likely the problem?Choose two.

- ❑ A. The OSPF process ID is something other than 2.
- ❑ B. OSPF cannot be redistributed into EIGRP.
- ❑ C. OSPF must first be redistributed into static routes prior to being redistributed into EIGRP.
- ❑ D. EIGRP needs to be configured with default metric values before it will redistribute OSPF.

Find the Answer p. 77

6. Which of the following is NOT a method for setting EIGRP metrics needed when redistributing routes into EIGRP?Choose the best answer.

- ❍ A. Use the "default-metric" command to set the default for ALL redistributed protocols.
- ❍ B. Use the "metric" command to set metrics for a single redistributed protocol.
- ❍ C. Use the route-map parameter to set metrics for a single redistributed protocol.
- ❍ D. Use the "default-metric" command used with the route-map parameter to set the metrics for ALL redistributed protocols.

Find the Answer p. 77

7. You've just configured EIGRP default-metric on your router. What show command can you issue to verify your metrics?Choose the best answer.

- ❍ A. show ip ospf topoplogy
- ❍ B. show eigrp topology
- ❍ C. show ip eigrp topology
- ❍ D. show ip ospf database

Find the Answer p. 77

8. You've just finished redistributing EIGRP into OSPF. The problem is, only classful networks are redistributed and none of your VLSM configured EIGRP routes do not show up. What happened?Choose the best answer.

- ❍ A. You must use the metric parameter keyword to redistribute classless networks into OSPF.
- ❍ B. You must use the subnets parameter keyword to redistribute classless networks into OSPF.
- ❍ C. You must use the metric parameter keyword to redistribute classless networks into OSPF.
- ❍ D. You must use the match parameter keyword to redistribute classless networks into OSPF.

Find the Answer p. 77

9. When redistributing into OSPF, which of the following is NOT a default?Choose the best answer.

- ❍ A. When redistributing from sources other than a different OSPF process, use a default metric of 20.
- ❍ B. Create a Type 5 LSA for each redistributed route (external) if not inside a NSSA area; create a Type 7 LSA if inside an NSSA area.
- ❍ C. Use external metric type 1.
- ❍ D. Redistribute only routes of classful networks, and not routes for VLSM subnets.

Find the Answer p. 77

10. What is the main benefit for using different OSPF external route (E1 and E2) types?Choose the best answer.

- ❍ A. When multiple stub networks advertise the same subnet
- ❍ B. When multiple ASBRs advertise the same subnet
- ❍ C. When multiple stub networks advertise a different subnet
- ❍ D. When multiple ASBRs advertise a different subnet

Find the Answer p. 77

11. You are reviewing a network implementation design. The design shows that a router has two connected interfaces running EIGRP on AS 100 and knows dozens of EIGRP routes. The design shows OSPF redistributes EIGRP using the "redistribute eigrp 100 subnets" command. What else must be done to redistribute the two connected subnets inside the EIGRP domain?Choose the best answer.

- ❍ A. A redistribute connected command must be issued.
- ❍ B. A redistribute static command must be issued.
- ❍ C. A redistribute eigrp 100 connected command must be issued.
- ❍ D. Nothing. The redistribute command will redistribute any connected routes that are also configured with EIGRP.

Find the Answer p. 77

12. The redistribute command has two mechanisms that allow filtering of routes. What are they?Choose two.

- ❑ A. route-filter
- ❑ B. access-list
- ❑ C. match
- ❑ D. route-map

Find the Answer p. 77

13. What route-map redistribution set command adds a value that can be read by upstream routers for further filtering?Choose the best answer.

- ❍ A. set metric
- ❍ B. set metric-type
- ❍ C. set tag
- ❍ D. set comment

Find the Answer p. 77

14. A network engineer has recently implemented a prefix-list named cisco1 on a router. They want to see which entries within the prefix-list are being matched. What show command can the engineer use to see this information?Choose the best answer.

- ❍ A. show ip prefix-list detail cisco1
- ❍ B. show ip access-list detail cisco1
- ❍ C. show ip access-list cisco1
- ❍ D. show ip prefix-list cisco1
- ❍ E. show prefix-list detail cisco1
- ❍ F. show prefix-list cisco1

Find the Answer p. 77

15. When filtering redistributed routes using the match and set commands, what routing protocol syntax is different from the others when modifying the route metric?Choose the best answer.

- ❍ A. OSPF
- ❍ B. RIP
- ❍ C. RIPv2
- ❍ D. EIGRP

Find the Answer p. 77

16. An engineer wants to use a distribute-list to modify routes AFTER routes have been redistributed into another routing protocol. To do this, what distribute-list command keyword must be used?Choose the best answer.

- ❍ A. in
- ❍ B. out
- ❍ C. prefix
- ❍ D. post

Find the Answer p. 77

17. Which two of the following are methods for preventing routing loops when redistributing routes on a network?Choose two.

- ❑ A. MD5 authentication
- ❑ B. Route metrics
- ❑ C. Administrative Distance
- ❑ D. AAA

Find the Answer p. 77

18. Which of the following is the default Administrative Distance (AD) for EIGRP external routes?Choose the best answer.

- ❍ A. 5
- ❍ B. 115
- ❍ C. 90
- ❍ D. 170
- ❍ E. 200

Find the Answer p. 77

19. Look at the following configuration below and select the statements that are true.RD2(config)#router ospf 100RD2(config-router)# distance 180 10.1.10.1 0.0.0.0 match-meRD2(config-router)#!RD2(config-router)#ip access-list standard match-meRD2(config-std-nacl)# permit host 172.16.0.0Choose two.

- ❑ A. The local RID is 10.1.10.1
- ❑ B. The neighbor RID is 10.1.10.1
- ❑ C. OSPF will have an AD of 180 for all routes.
- ❑ D. OSPF will have an AD of 180 for routes from 10.1.10.1 in the 172.16.0.0/16 range.

Find the Answer p. 77

20. To use route tags to prevent domain loop problems when performing redistribution you can implement which of the following?Choose two.

- ❑ A. Set the tag value to null for all routes.
- ❑ B. Set the tag value so that it matches the metric for each route. This will properly identify routes taken from domain A and advertised into domain B.
- ❑ C. Set the tag value that identifies routes taken from domain A and advertised into domain B.
- ❑ D. When redistributing from domain B to domain A, match the tag value and filter routes with that tag.

Find the Answer p. 77

21. Drag the route-map redistribution match commands on the left to the correct description on the right.

A. match ip route-source

B. match route-type

C. match ip address

D.

match tag

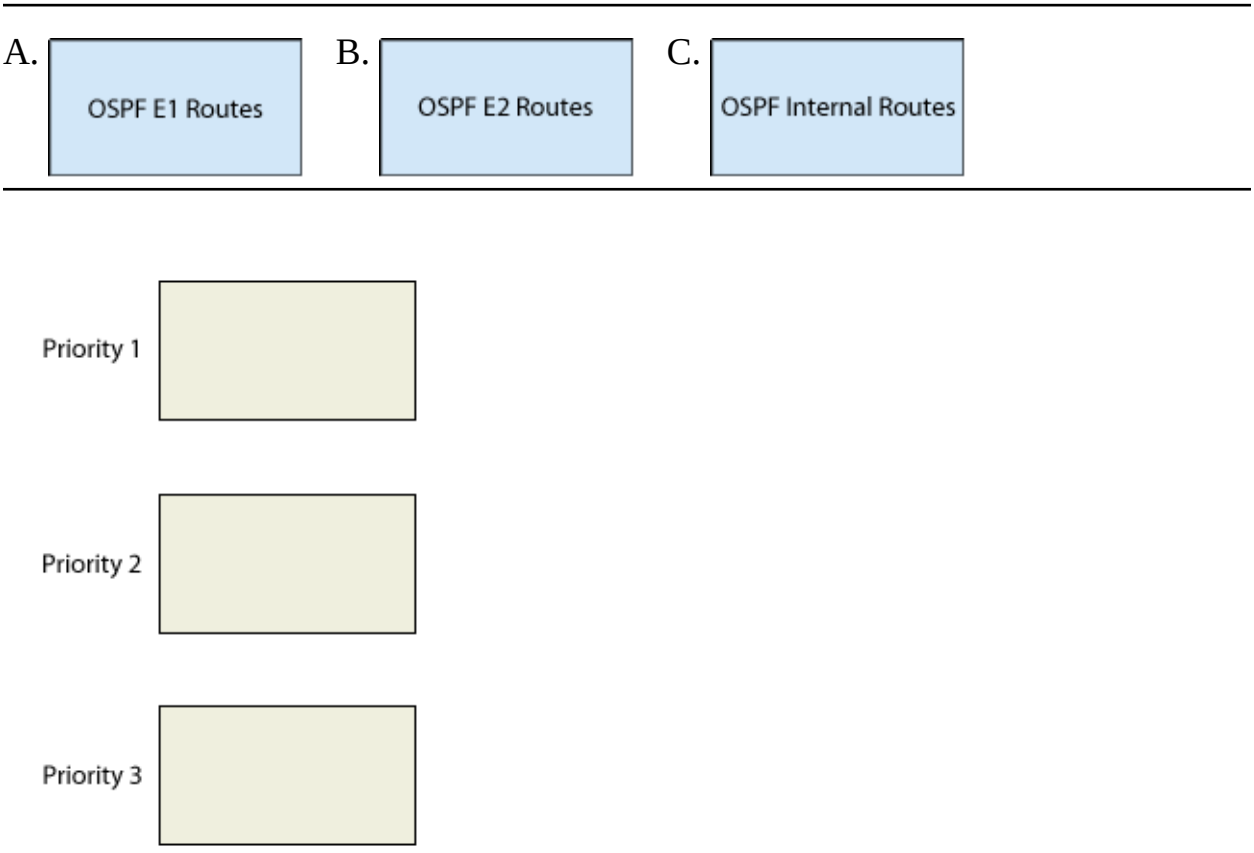
E. match interface

F. match ip next-hop

| | |
|---|---|
| | Matches the local outbound interface the router uses to reach its next hop |
| | Examines route destination prefix and prefix length |
| | Examines route's IP address that it will route to after leaving this router. |
| | Matches advertising router's IP address |
| | Matches OSPF E1 or E2 routes |
| | Matches an identifier inserted into the packet at a downstream router. |

Detailed Explanation p. 116

22. Drag the OSPF route types on the left to the order that it will choose identical routes to be placed into the routing table.




Detailed Explanation p. 117

Chapter 4
# Implement an eBGP based solution, given a network design and a set of requirements

1. What port/protocol allows BGP to form neighbor relationships without being physically connected?Choose the best answer.

   - ❍ A. IP protocol 89 for routing messages
   - ❍ B. TCP 179 for routing messages
   - ❍ C. IP protocol 179 for routing messages
   - ❍ D. TCP 89 for routing messages

   Find the Answer p. 78

2. BGP uses the AS Path attribute to perform what two key functions?Choose two.

   - ❑ A. Calculate the number to be used as the local AS
   - ❑ B. Choose the best route for a network based on the shortest AS Path
   - ❑ C. Limit routing table size
   - ❑ D. Prevent routing loops

   Find the Answer p. 78

3. BGP has two different classes of peer. What are they called?Choose two.

   - ❑ A. BGP E1
   - ❑ B. BGP E2
   - ❑ C. eBGP
   - ❑ D. iBGP
   - ❑ E. BGP OA
   - ❑ F. BGP IA

   Find the Answer p. 78

4. When does a BGP router add its own AS number to the AS Path?Choose the best answer.

- ❍ A. When advertising to external peers.
- ❍ B. When advertising to internal peers.
- ❍ C. It never advertises its own AS, only the external AS numbers the protocol knows how to reach.
- ❍ D. When advertising to both internal and external peers.

Find the Answer p. 78

5. Which of the following is NOT an IANA ASN for public use on the Internet?Choose the two best answers.

- ❍ A. 0
- ❍ B. 1
- ❍ C. 32513
- ❍ D. 64495

Find the Answer p. 78

6. What is the ASN range allocated for private use by the IANA?Choose the best answer.

- ❍ A. 64,512 - 65,534
- ❍ B. 32,768 - 65,534
- ❍ C. 65,512 - 65,534
- ❍ D. 64,496 - 65,511

Find the Answer p. 78

7. Which of the following is NOT a BGP route advertisement choice?Choose the best answer.

- ❍ A. Allocate routes to a set amount of router memory
- ❍ B. Default route
- ❍ C. Full updates
- ❍ D. Partial updates

Find the Answer p. 78

8. You are designing a network with a single connection to the Internet. What are two reasonable choices you should consider?Choose two.

- ❑ A. BGP learned default route
- ❑ B. BGP partial updates
- ❑ C. BGP full updates
- ❑ D. Static default route

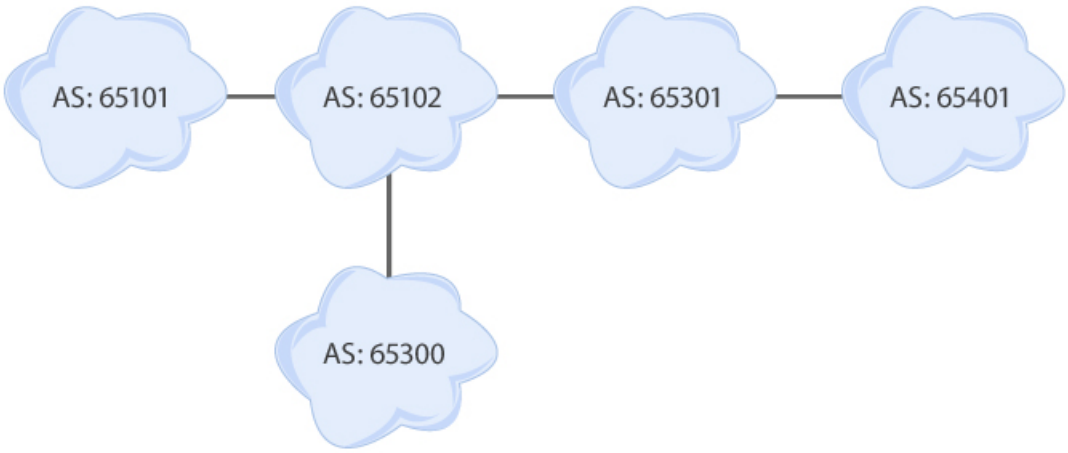
Find the Answer p. 78

9. You are planning to configure BGP on your network to two separate ISPs using two different routers. You will also run BGP on two additional routers. Which connections will run iBGP and which will run eBGP? Look at the diagram for the network design.Choose the best answer.

- ❍ A. The two connections to each ISP will be iBGP as well as the connections between each of these two routers. All other connections will be eBGP.
- ❍ B. The two connections to each ISP will be eBGP and all other connections will be iBGP.
- ❍ C. The two connections to each ISP will be eBGP as well as the connections between each of these two routers. All other connections will be iBGP.
- ❍ D. The two connections to each ISP will be iBGP and all other connections will be eBGP.

Find the Answer p. 78

Exhibit(s):




10. What command configures a BGP neighbor at IP address 10.99.99.254?Choose the best answer.

- ❍ A. network 10.99.99.254 remote-as 1
- ❍ B. network 10.99.99.254 remote-as 1
- ❍ C. neighbor 10.99.99.254 update-source as 1
- ❍ D. neighbor 10.99.99.254 remote-as 1

Find the Answer p. 78

11. What term describes routing between autonomous systems?Choose the best answer.

- ❍ A. eBGP
- ❍ B. iBGP
- ❍ C. Inter-domain routing
- ❍ D. Single Path Forwarding

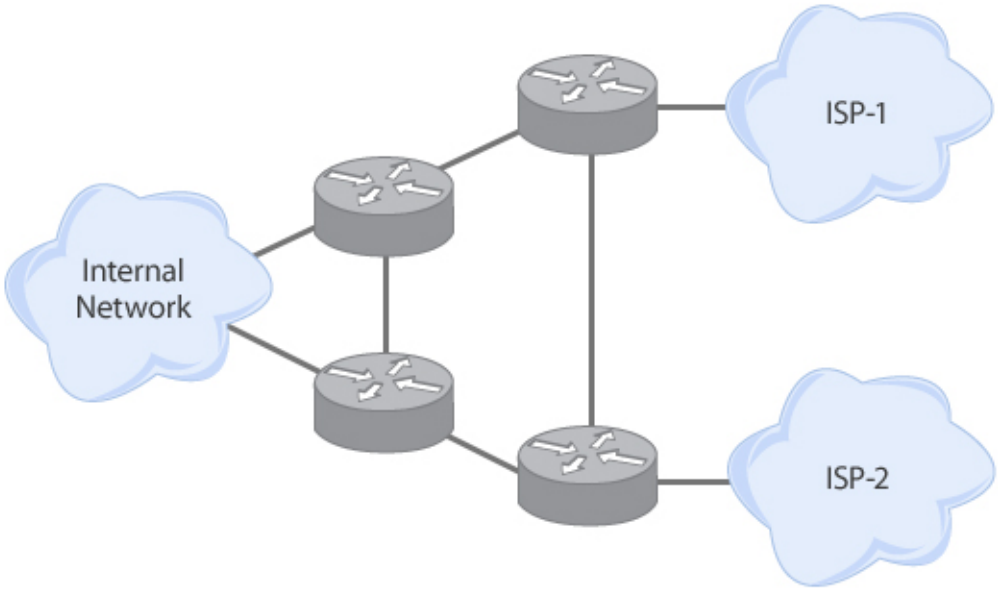
Find the Answer p. 78

12. What will the AS Path look like to BGP speaking routers in AS 65101 to reach AS Path 65401?Choose the best answer.

- ❍ A. AS 65101 65102 65301 65401
- ❍ B. AS 65101 65102 65300 65301 65401
- ❍ C. AS 65102 65301 65401
- ❍ D. AS 65102 65300 65301 65401

Find the Answer p. 78

Exhibit(s):




13. When an administrator issues the command "show ip bgp summary," what output will they be looking at?Choose the best answer.

- ❍ A. BGP statistics of open, update, notification and keepalive messages
- ❍ B. BGP neighbor database
- ❍ C. BGP Routing Information Base (RIB)
- ❍ D. Active iBGP and eBGP interfaces

Find the Answer p. 78

14. To become BGP neighbors, routers must meet all the following requirements except what?Choose the best answer.

- ❍ A. A local router's ASN must match the neighboring router's reference to the ASN.
- ❍ B. The BGP router IDs of the two routers must not match.
- ❍ C. MD5 authentication passwords must match, if configured.
- ❍ D. The BGP process ASN must match.

Find the Answer p. 78

15. When attempting to communicate to an eBGP peer, the Cisco IOS sets the IP TTL in the IP header to what?Choose the best answer.

- ❍ A. 0
- ❍ B. 1
- ❍ C. 2
- ❍ D. Infinity

Find the Answer p. 78

16. What BGP neighbor state describes when a TCP connection has been completed but no Open messages have been sent to the neighbor?Choose the best answer.

- ❍ A. Connect
- ❍ B. Active
- ❍ C. Idle
- ❍ D. Established

Find the Answer p. 78

17. What BGP neighbor state describes when the BGP process is waiting for the TCP connection to be completed?Choose the best answer.

- ❍ A. OpenSent
- ❍ B. Active
- ❍ C. Connect
- ❍ D. Idle

Find the Answer p. 78

18. A network engineer has just finished creating a prefix-list named "filter_me" used to filter BGP learned routes. They issue the following command enter BGP configuration mode:router bgp 65301What command does the engineer need to enter next to apply the prefix-list to 10.100.100.1 outbound?Choose the best answer.

- ❍ A. neighbor 10.100.100.1 prefix-list filter_me out
- ❍ B. network 10.100.100.1 prefix-list filter_me out
- ❍ C. summary outbound 10.100.100.1 prefix-list filter_me
- ❍ D. set prefix-list 10.100.100.1 filter_me out

Find the Answer p. 78

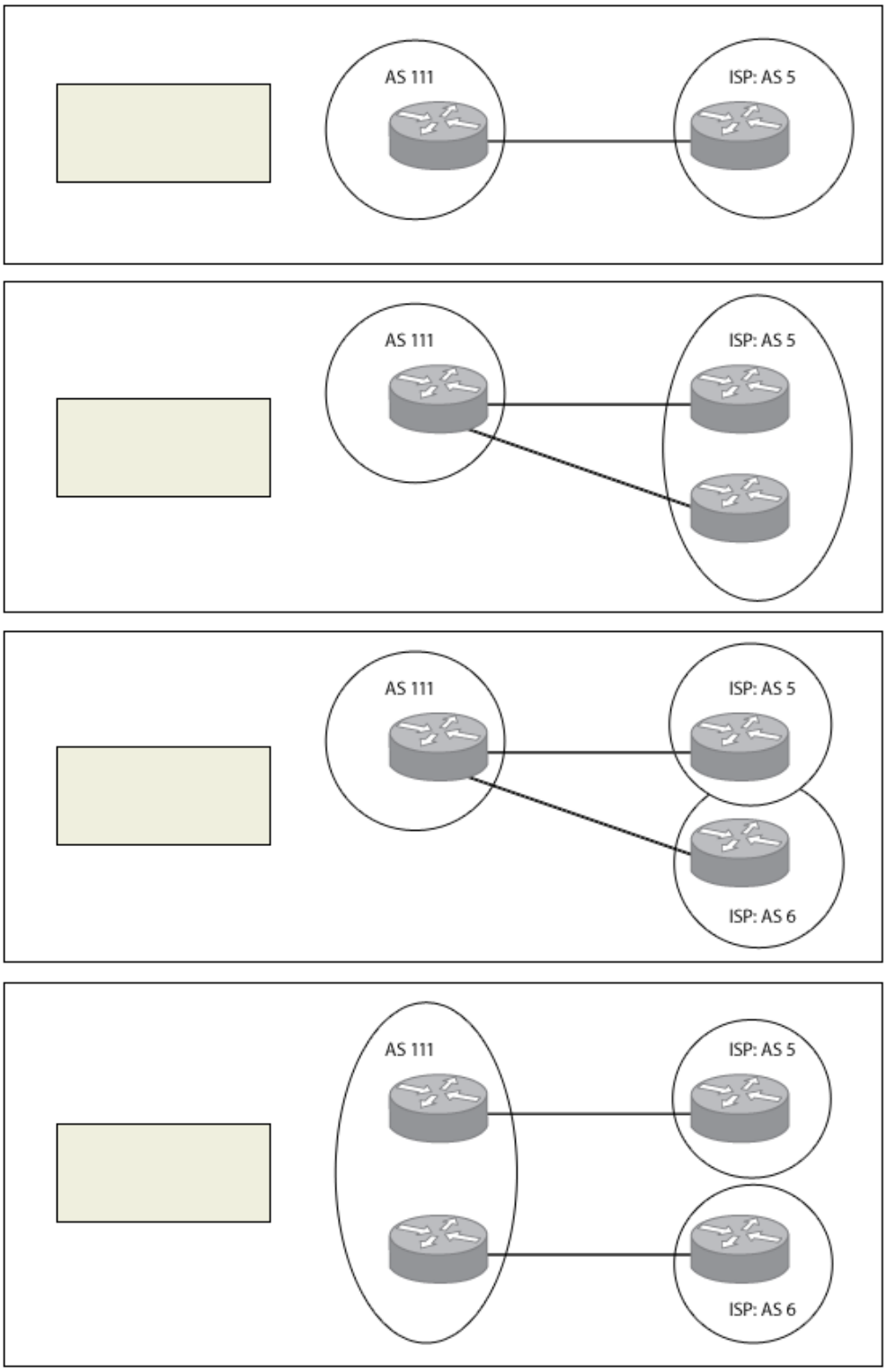
19. Drag the names of the different types of internet connectivity from the left to the diagram on the right that best describes it.

A. Dual Multihomed

B. Single Homed

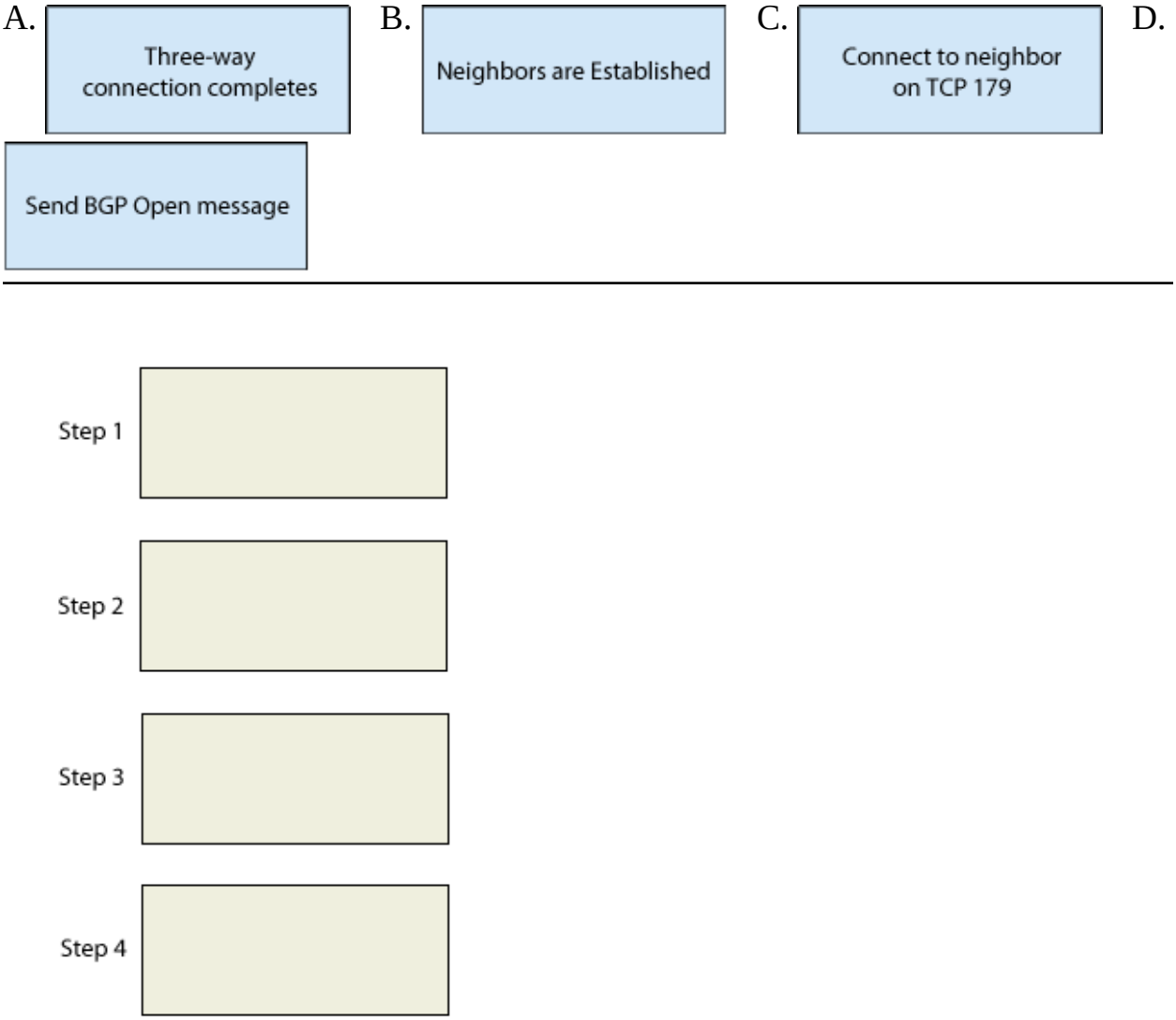
C. Single Multihomed

D. Dual Homed




Detailed Explanation p. 125

20. Drag the BGP neighbor peering steps on the left to the right and place them in the correct order of operation.




Detailed Explanation p. 127

Chapter 5
# Implement an IPv6 based solution, given a network design and a set of requirements

1. The following shortened IPv6 address of 2001:0:1:2::ABCD is which of the following addresses, expanded?Choose the best answer.

   - ❍ A. 2001:0000:0001:0002:0001:0000:0000:ABCD
   - ❍ B. 2001:0000:1001:0002:0000:0000:0000:ABCD
   - ❍ C. 2001:0000:0001:0002:0000:0000:0000:ABCD
   - ❍ D. 2001:0000:0001:0002:0000:0000:0001:ABCD

   Find the Answer p. 79

2. Which of the following is NOT a valid IPv6 address?Choose the best answer.

   - ❍ A. 2001:0db8:0000:0000:0000:0000:a134:1234
   - ❍ B. 2001::1345:2128::1a43:1234
   - ❍ C. 2001:33:ab:1:29:a:5:2
   - ❍ D. 2001:0ab5::1277:1234

   Find the Answer p. 79

3. Given the following IPv6 address and mask, what is the correct way to write the network prefix?2000:1234:5556:2344:4321:3456:a123:1111/56Choose the best answer.

   - ❍ A. 2000:1234:5556:2344::/56
   - ❍ B. 2000:1234:5556:2344:0000:0000:0000:0000/56
   - ❍ C. 2000:1234:5556:2300::/56
   - ❍ D. 2000:1234:5556::/56

   Find the Answer p. 79

4. Which of the following IPv6 address assignment methods uses the Neighbor Discovery Protocol (NDP)?Choose the best answer.

- ❍ A. Static configuration with EUI-64
- ❍ B. Static configuration
- ❍ C. Stateful DHCP
- ❍ D. Stateless auto-configuration

Find the Answer p. 79

5. What IPv6 feature allows multiple devices to use the same address with packets sent to the nearest server?Choose the best answer.

- ❍ A. Global address
- ❍ B. Multicast address
- ❍ C. Anycast address
- ❍ D. Broadcast address

Find the Answer p. 79

6. When configuring more than one IPv6 address on an interface of a Cisco router, what must be done?Choose the best answer.

- ❍ A. Nothing needs to be done other than configuring the additional address on the interface.
- ❍ B. A second IPv6 can be configured as long as it belongs to the same network prefix as the primary address.
- ❍ C. Only one IPv6 address can be configured on a single interface.
- ❍ D. The IPv6 secondary command must be used to add a second address to an interface that already is configured with a primary address.

Find the Answer p. 79

7. When IPv6 needs a MAC address for an interface and it does not have a built-in MAC address what happens?Choose the best answer.

- ❍ A. The router uses the MAC address of the lowest-numbered loopback interface.
- ❍ B. It uses the default MAC of 0E4A.0000.0000.0001
- ❍ C. The router uses the MAC address of the lowest-numbered LAN interface on the router.
- ❍ D. The engineer must statically assign the entire IPv6 manually.

Find the Answer p. 79

8. What debug command can best be used to determine whether a router is sending or receiving IPv6 ICMP neighbor discovery messages?Choose the best answer.

- ❍ A. debug ipv6 cef events
- ❍ B. debug ipv6 routing
- ❍ C. debug ipv6 nd
- ❍ D. debug ipv6 packet

Find the Answer p. 79

9. Which of the following commands correctly configures an IPv6 address on an interface and sets it to operate using RIPng with the name CCNP-lab?Choose the best answer.

- ❍ A. Router(Config)# interface FastEthernet0/0
  Router(Config-if)# ipv6 address 2011::1/64
  Router(Config-if)# ip ripng CCNP-lab enable
- ❍ B. Router(Config)# interface FastEthernet0/0
  Router(Config-if)# ipv6 address 2011::1/64
  Router(Config-if)# ipv6 rip CCNP-lab enable
- ❍ C. Router(Config-if)# interface FastEthernet0/0
  Router(Config-if)# ipv6 address 2011::1/64
- ❍ D. Router(Config-if)# interface FastEthernet0/0
  Router(Config-if)# ipv6 address 2011::1/64
  Router(Config-if)# ipv6 rip CCNP-lab

Find the Answer p. 79

10. Which of the following is NOT true regarding IPv6 EIGRP?Choose the best answer.

- ❍ A. IPv6 EIGRP requires neighbors to be in the same IPv6 subnet as a requirement to become neighbors.
- ❍ B. IPv6 EIGRP uses the neighbor's link local address as the next-hop IPv6 address.
- ❍ C. IPv6 EIGRP authentication relies on IPv6's built-in authentication.
- ❍ D. IPv6 EIGRP cannot perform any automatic network summarization.

Find the Answer p. 79

11. When running IPv6 EIGRP, which of the following is NOT a valid way the router assigns a RID?Choose two.

- ❑ A. An RID that is manually configured.
- ❑ B. Use the highest IPv4 address on an up/up loopback interface.
- ❑ C. Use the highest IPv4 address on an up/up nonloopback interface.
- ❑ D. Use the highest IPv6 address on an up/up loopback interface.
- ❑ E. Use the highest IPv6 address on an up/up nonloopback interface.

Find the Answer p. 79

12. Why would a network engineer choose to configure IPv6 tunnels over natively configuring IPv6 in a dual-stack environment?Choose the best answer.

- ❍ A. In case all routers on the network need to be IPv6 aware
- ❍ B. If IPv6 traffic needs to be encrypted
- ❍ C. To segment IPv4 traffic from IPv6 traffic
- ❍ D. If the network requirements are to support small pockets of IPv6 hosts

Find the Answer p. 79

13. What IPv6 tunneling option commonly requires fewer commands than other methods and uses the second and third quartets to store the IPv4 address.Choose the best answer.

- ❍ A. Static tunnel
- ❍ B. 6to4
- ❍ C. GRE
- ❍ D. ISATAP

Find the Answer p. 79

14. To enable NAT-PT to translate between IPv6 and IPv4 addressing, what must be configured on every interface on which traffic needs to be translated?Choose the best answer.

- ❍ A. ipv6 nat
- ❍ B. 6to4nat
- ❍ C. nat v6v4
- ❍ D. ip nat version 6

Find the Answer p. 79

15. A network engineer is reviewing a design document which specifies that a network supports a small number of LANs but only allows traffic at certain times of day. Which IPv6 tunnel is most appropriate?Choose the best answer.

- ❍ A. Native IPv6 tunnel
- ❍ B. P2P IPv6 tunnel
- ❍ C. Multipoint IPv6 tunnel
- ❍ D. 6to4 IPv6 tunnel

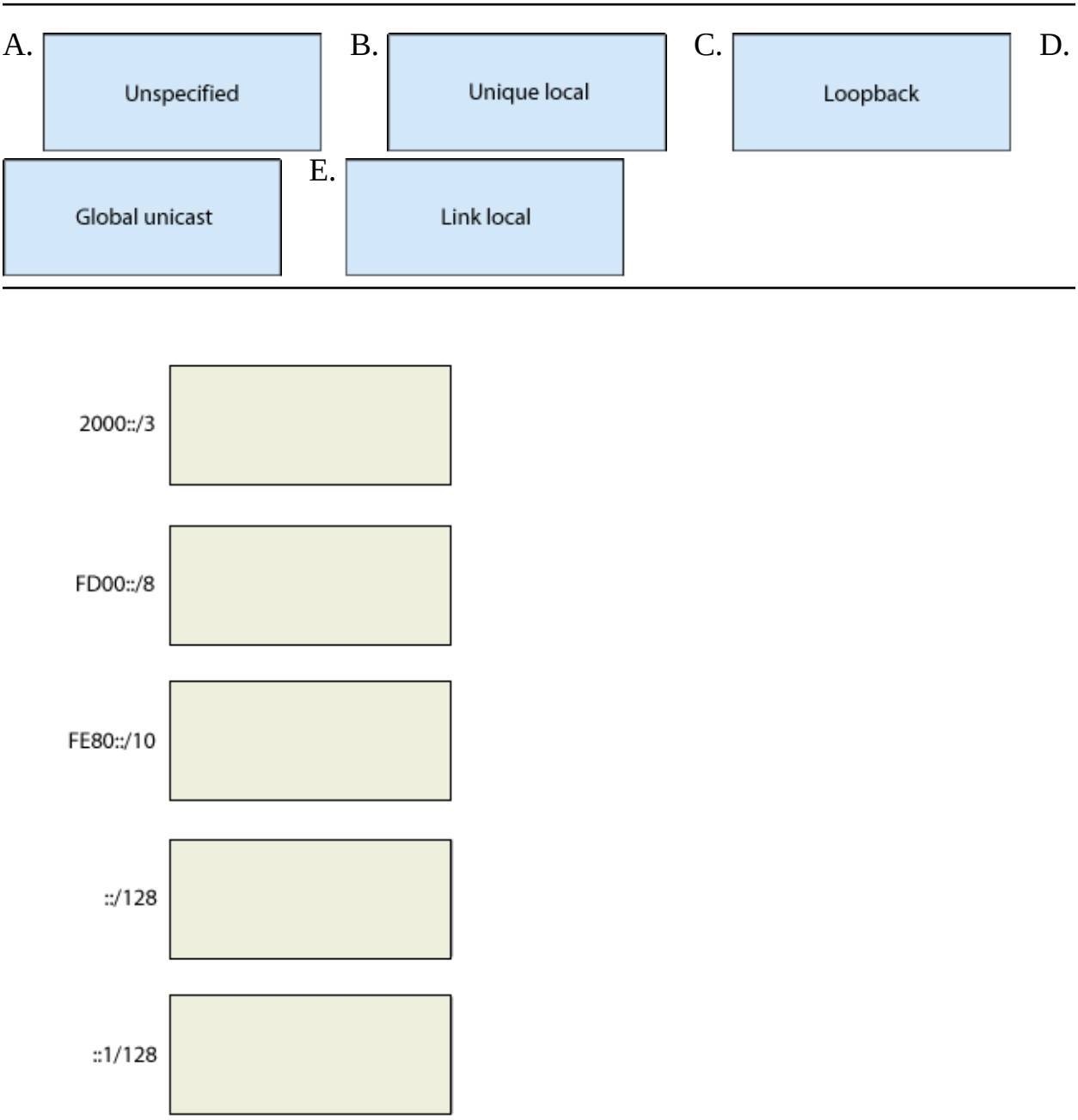
Find the Answer p. 79

16. A network engineer is reviewing IOS code on a Cisco router which tunnels IPv6 traffic. The command "tunnel mode ipv6ip" is found under the tunnel interface. What type of IPv6 tunneling is used on this router?Choose the best answer.

- ❍ A. ISATAP IPv6 tunnel
- ❍ B. Manual IPv6 tunnel
- ❍ C. GRE IPv6 tunnel
- ❍ D. 6to4 IPv6 tunnel

Find the Answer p. 79

17. Drag the IPv6 unicast address types on the left to the address that best illustrates them on the right.




Detailed Explanation p. 133

# Chapter 6
# Implement Layer 3 Path Control Solution

1. A network engineer is reviewing proposed EIGRP offset-list additions to the production network. The following configuration changes will be made:R1(config)# router eigrp 100R1(config-router)# offset-list Offset_1 in 2400R1(config-router)# offset-list Offset_2 in 2000 fa0/0Given this information, which of the following is true?Choose the best answer.

   - ❍ A. Only one offset list can be configured on a routing protocol instance.
   - ❍ B. The offset lists must specify an interface.
   - ❍ C. The offset amount is subtracted from the delay value in EIGRP.
   - ❍ D. The offset list that specifies an interface takes precedence over the list that does not.

Find the Answer p. 80

2. An engineer is reviewing a router configuration and finds the following commands:R1(config)# ip route 0.0.0.0 0.0.0.0 10.1.1.1 3 track 1R1(config)# ip route 0.0.0.0 0.0.0.0 172.16.1.1 2 track 2As long as the routes are reachable according to the SLA configuration, which static route will be placed into the routing table?Choose the best answer.

   - ❍ A. The route to 10.1.1.1 will be in the routing table because the AD is set to 3.
   - ❍ B. The route to 10.1.1.1 will be in the routing table because it is the first route being tracked.
   - ❍ C. The route to 172.16.1.1 will be in the routing table because the AD is set to 2.
   - ❍ D. The route to 172.16.1.1 will be in the routing table because the it is the highest route being tracked.

Find the Answer p. 80

3. Which of the following is NOT a benefit of policy routing?Choose the best answer.

- ❍ A. Ability to route based on traffic source
- ❍ B. Ability to set or modify QoS markings
- ❍ C. Ability to route based on NetFlow data
- ❍ D. Ability to force load sharing between unequal paths
- ❍ E. Ability to route traffic among multiple paths based on traffic attributes

Find the Answer p. 80

4. There are four possible methods to set IP Precedence based on IP address and interface using policy-based routing. If there are multiple set statements in the rule, what priority does the router put them in?Choose the best answer.

- ❍ A. 1. set next-hop <ip address>
  2. set interface <interface>
  3. set ip default next-hop <ip address>
  4. set default interface <interface>
- ❍ B. 1. set ip default next-hop <ip address>
  2. set default interface <interface>
  3. set next-hop ip <ip address>
  4. set interface <interface>
- ❍ C. 1. set next-hop ip <ip address>
  2. set ip default next-hop <ip address>
  3. set interface <interface>
  4. set default interface <interface>
- ❍ D. 1. set ip default next-hop <ip address>
  2. set next-hop ip <ip address>
  3. set interface <interface>
  4. set default interface <interface>

Find the Answer p. 80

5. Your network is mutually redistributing RIPv2 and OSPF. These routers redistribute routes between each other. You want to avoid setting up redistribution based on prefix/length because as your network grows, it can be difficult to maintain. Which of the following tools can be used with both routing protocols to prevent loops when redistributing using routes with multiple entry points?Choose the best answer.

   - ❍ A. Implement route tags.
   - ❍ B. Set the AD differently for internal and external routes.
   - ❍ C. Set the AD differently per route.
   - ❍ D. Set the metrics higher for external routes than for internal routes.

Find the Answer p. 80

6. Router R1 sets a route tag for subnet 10.1.1.0/24 when redistributing from OSPF into EIGRP. Which of the following is used to distinguish route tags?Choose the best answer.

   - ❍ A. Link speed of incoming interface
   - ❍ B. Current cost of the route
   - ❍ C. Hop count
   - ❍ D. Integer number

Find the Answer p. 80

7. Which of the following is a true statement regarding policy-based routing (PBR)?Choose two.

- ❑ A. PBR overrides the router's typical destination-based forwarding logic.
- ❑ B. PBR intercepts the packet before de-encapsulation on the incoming interface before the router performs the CEF table lookup.
- ❑ C. PBR intercepts the packet after de-encapsulation on the incoming interface, before the router performs the CEF table lookup.
- ❑ D. PBR complements the router's typical destination-based forwarding logic.

Find the Answer p. 80

8. What show command allows a network engineer to view the number of times a packet has matched a PBR rule?Choose the best answer.

- ❍ A. ship ip route-map statistics
- ❍ B. show ip route-map
- ❍ C. show ip policy-route
- ❍ D. show ip policy-route statistics

Find the Answer p. 80

9. What IOS method is the only way to view the types of packets that are PBR routed?Choose the best answer.

- ❍ A. debug ip policy
- ❍ B. debug ip packet
- ❍ C. show ip route-map
- ❍ D. show ip route-map packet

Find the Answer p. 80

10. A network engineer is reviewing an IP SLA track configuration as shown here:R1(config)# track 1 ip sla 10 stateR1(config-track)# delay up 60 down 60What does the "delay up 60 down 60" command specify?Choose the best answer.

- ❍ A. It is a timer for use by the dynamic routing protocol for hold-downs due to flapping interfaces.
- ❍ B. It is used to set the PBR trust level for the tracked object.
- ❍ C. It helps to regulate flapping of the tracking state by not placing the route into or out of the routing table until the timer has expired.
- ❍ D. It is a metric used to assist in load-balancing between SLA routes of the same network.

Find the Answer p. 80

11. Which IOS show command gives you the following SLA tracking information output to the screen as shown below:Track 1Interface Serial0/1/0 ip routingIP routing is Up27 changes, last change 00:03:37Tracked by:1207165940Choose the best answer.

- ❍ A. show ip sla
- ❍ B. show track
- ❍ C. show interfaces dampening
- ❍ D. show ip sla statistics

Find the Answer p. 80

12. When verifying an IPsec VPN tunnel, which of the following show commands lists the crypto ACLs, peers and the interface where the crypto map is applied?Choose the best answer.

- ❍ A. show crypto isakmp
- ❍ B. show crypto isakmp sa
- ❍ C. show crypto map
- ❍ D. show crypto ipsec sa

Find the Answer p. 80

13. When using an IPSec tunnel as a backup link in case a primary WAN link fails, what must a network engineer configure?Choose the best answer.

- ❍ A. A dynamic route with the AD set to lower than the primary WAN route
- ❍ B. A static route with the AD set to lower than the primary WAN route
- ❍ C. A dynamic route with the AD set to higher than the primary WAN route
- ❍ D. A static route with the AD set to higher than the primary WAN route

Find the Answer p. 80

14. If you wish to run a dynamic routing protocol across an IPsec tunnel, you must configure a tunnel to route the traffic. Why?Choose the best answer.

- ❍ A. VPNs do not carry broadcast traffic.
- ❍ B. VPNs do not carry broadcast or multicast traffic.
- ❍ C. VPNs do not carry multicast traffic.
- ❍ D. VPNs carry only broadcast traffic.

Find the Answer p. 80

15. A network engineer is opening up ports/protocols on a firewall to allow a VPN connection. One requirement is to allow ESP to pass through to the VPN endpoint. What port/protocol is this?Choose the best answer.

- ❍ A. UDP 500
- ❍ B. UDP 4500
- ❍ C. IP Protocol 50
- ❍ D. IP Protocol 51

Find the Answer p. 80

16. Which IPsec VPN tunnel type is best suited and has the fewest configuration steps when a secure spoke-to-spoke connection is needed?Choose the best answer.

- ❍ A. DMVPN
- ❍ B. GET VPN
- ❍ C. VTI
- ❍ D. GRE

Find the Answer p. 80

17. Which of the following is NOT an RFC 1918 IPv4 private address?Choose the best answer.

- ❍ A. 192.168.254.254
- ❍ B. 172.31.248.10
- ❍ C. 127.0.0.1
- ❍ D. 10.0.0.1

Find the Answer p. 80

18. What has the ICANN done to help reduce the size of Internet IPv4 routing tables?Choose the best answer.

- ❍ A. It has implemented classless addressing.
- ❍ B. It has promoted PAT and NAT to multiplex multiple RFC 1918 private addresses behind a very small number of public IP addresses.
- ❍ C. Allocating IP spaces in large global chunks to allow for summarization.
- ❍ D. Discontinue handing out IPv4 address class A and B blocks.

Find the Answer p. 80

19. How many clients can be masked behind a single public IP address using PAT?Choose the best answer.

- ❍ A. 16364
- ❍ B. 65534
- ❍ C. 65535
- ❍ D. Unknown

Find the Answer p. 80

20. What does the following diagram depict?Choose the best answer.

- ❍ A. A dynamic NAT table
- ❍ B. A dynamic NAT table with overloading
- ❍ C. A static NAT table
- ❍ D. A static NAT table with overloading

Find the Answer p. 80

Exhibit(s):

| Inside Local | Inside Global |
|---|---|
| 10.1.1.1.1024 | 200.1.1.2:1024 |
| 10.1.1.2:1024 | 200.1.1.2:1025 |
| 10.1.1.3:1033 | 200.1.1.2:1026 |

21. A remote site is being designed to use a VPN over the Internet as a secure method to access resources at the home office. In addition, the remote site should route all Internet traffic through the tunnel so it can be properly secured behind the corporate firewall and IPS. What type of VPN tunnel should be configured?Choose the best answer.

- ❍ A. GRE Tunnel
- ❍ B. IPsec tunnel with split tunneling
- ❍ C. IPsec tunnel without split tunneling
- ❍ D. Wireless tunnel

Find the Answer p. 80

22. How is it that a phone line can provide both legacy voice calls and data communication over the same analog line that is common in most homes and offices?Choose the best answer.

- ❍ A. Analog voice uses frequencies at 4000 Hz and below. DSL uses frequencies above 4000 Hz for data so it does not interfere with the analog voice communications.
- ❍ B. Analog voice uses frequencies at 4000 Hz and above. DSL uses frequencies below 4000 Hz for data so it does not interfere with the analog voice communications.
- ❍ C. The voice calls are digitized at the CO DSLAM and then turned back into analog form on the DSL router. That allows voice and data to be transported together.
- ❍ D. Data is converted into analog and multiplexed with analog voice communication. The data is then put back into a digital format when it reaches the DSL router.

Find the Answer p. 80

23. What does the Telco have at the CO to separate the analog signal (that handles traditional analog voice calls) from the digital traffic (for DSL data)?Choose the best answer.

- ❍ A. Layer 3 switch
- ❍ B. DSLAM
- ❍ C. Digital media converter
- ❍ D. ATM switch

Find the Answer p. 80

24. When using ATM, what size are the payload segments?Choose the best answer.

- ❍ A. The payloads vary in size depending on the type of data being transported.
- ❍ B. The payloads vary in size depending on the QoS policy implemented.
- ❍ C. The payloads are fixed 48 bytes.
- ❍ D. The payloads are a fixed 53 bytes.

Find the Answer p. 81

25. An engineer is configuring DHCP on a router. What command excludes IP addresses 10.1.1.1 to 10.1.1.10 from being included in the DHCP pool?Choose the best answer.

- ❍ A. Router(config)# ip dhcp included-address 10.1.1.1 10.1.1.10
- ❍ B. Router(config)# ip dhcp excluded-address 10.1.1.1 10.1.1.10
- ❍ C. Router(dhcp-config)# ip dhcp included-address 10.1.1.1 10.1.1.10
- ❍ D. Router(dhcp-config)# ip dhcp excluded-address 10.1.1.1 10.1.1.10

Find the Answer p. 81

26. You are designing a remote site that uses DSL with PPPoE. Which of the following is true about PPPoE?Choose two.

- ❑ A. Ethernet is used as the network layer protocol.
- ❑ B. Ethernet is used as the data link layer protocol.
- ❑ C. Authentication using CHAP.
- ❑ D. Authentication using RSA keys.

Find the Answer p. 81

27. What Cisco IOS feature is not typically handled by a router in large central site environments but is more commonly used at smaller remote sites?Choose two.

- ❍ A. Dynamic routing protocol
- ❍ B. ACL filtering
- ❍ C. DHCP services
- ❍ D. System logging

Find the Answer p. 81

28. Which of the following is NOT a VPN authentication option?Choose the best answer.

- ❍ A. Username and password.
- ❍ B. Simple password.
- ❍ C. Fingerprint scan.
- ❍ D. One-time password.

Find the Answer p. 81

29. Drag the IP SLA steps listed on the left to the right, placing them in the correct order of configuration.

A. Schedule when the SLA should run and for how long.

B. Set a frequency that the operation should be sent to the remote host.

C.

Define the IP SLA operation type and monitoring parameters.

D. Create the IP SLA operation and assign it a number.

Step 1

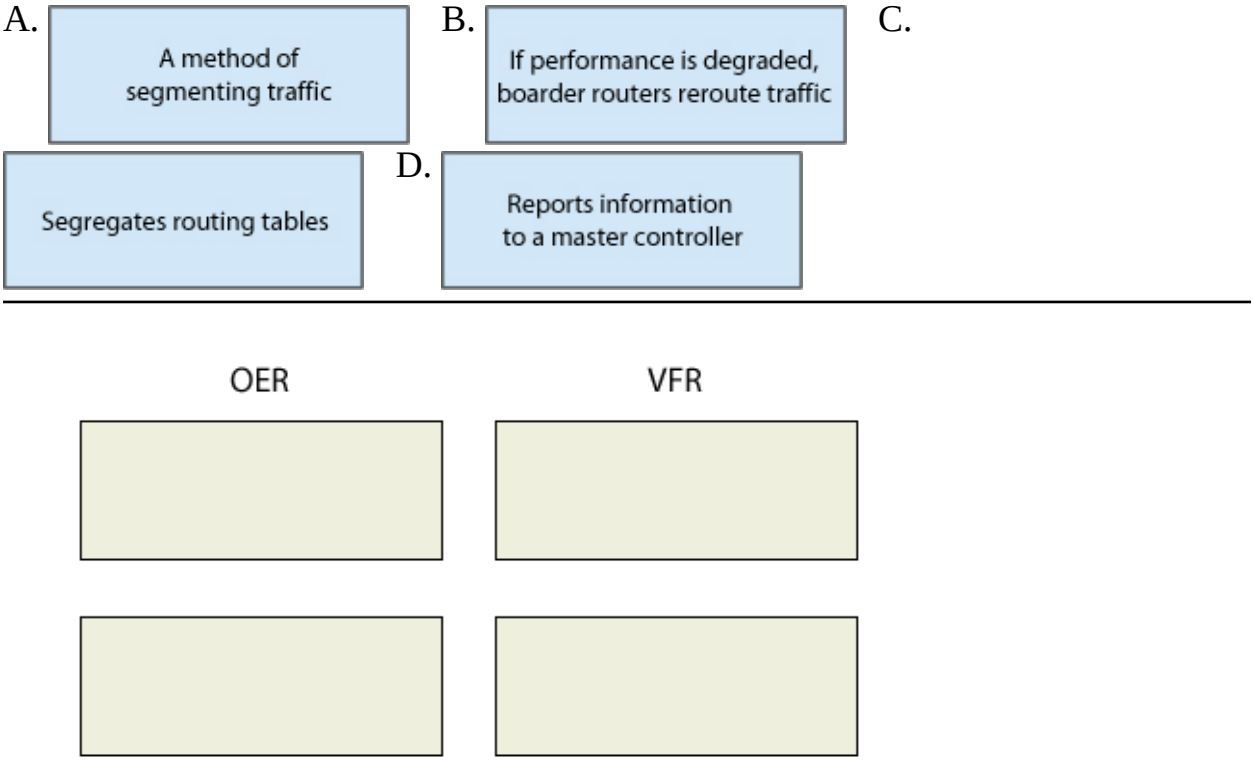
Step 2

Step 3

Step 4

Detailed Explanation p. 145

30. Drag the statements on the left to one of the two columns on the right that best describe path control options of OER and VRF.




Detailed Explanation p. 145

31. Drag the IP addressing scheme on the left to the right to the text box that best describes it.

A. 192.0.2.0/24

B. 192.88.99.0/24

C. 0.0.0.0/8

D. 27.0.0.0/8

| | |
|---|---|
| | Self-identification of a local subnet |
| | Local Loopback testing |
| | Reserved for use in documentation code |
| | Used for IPv6 to IPv4 relay |

Detailed Explanation p. 146

# Answers: Chapter 1

| | | |
|---|---|---|
| 1. **C** | Review Question p. 2 | Detailed Explanation p. 83 |
| 2. **A** | Review Question p. 2 | Detailed Explanation p. 83 |
| 3. **B** | Review Question p. 3 | Detailed Explanation p. 83 |
| 4. **C** | Review Question p. 3 | Detailed Explanation p. 84 |
| 5. **D** | Review Question p. 4 | Detailed Explanation p. 84 |
| 6. **A** | Review Question p. 4 | Detailed Explanation p. 85 |
| 7. **A** | Review Question p. 4 | Detailed Explanation p. 85 |
| 8. **C** | Review Question p. 5 | Detailed Explanation p. 85 |
| 9. **E** | Review Question p. 5 | Detailed Explanation p. 86 |
| 10. **A, D** | Review Question p. 6 | Detailed Explanation p. 86 |
| 11. **C** | Review Question p. 6 | Detailed Explanation p. 87 |
| 12. **C** | Review Question p. 7 | Detailed Explanation p. 87 |
| 13. **B, D** | Review Question p. 7 | Detailed Explanation p. 87 |
| 14. **C** | Review Question p. 8 | Detailed Explanation p. 88 |
| 15. **C** | Review Question p. 8 | Detailed Explanation p. 88 |
| 16. **C** | Review Question p. 8 | Detailed Explanation p. 89 |
| 17. **B** | Review Question p. 9 | Detailed Explanation p. 89 |
| 18. **A** | Review Question p. 9 | Detailed Explanation p. 89 |
| 19. **D** | Review Question p. 9 | Detailed Explanation p. 90 |
| 20. **A** | Review Question p. 10 | Detailed Explanation p. 90 |
| 21. **B** | Review Question p. 10 | Detailed Explanation p. 90 |
| 22. **C** | Review Question p. 11 | Detailed Explanation p. 91 |
| 23. **D** | Review Question p. 11 | Detailed Explanation p. 91 |

| | | |
|---|---|---|
| 24. **D** | Review Question p. 11 | Detailed Explanation p. 91 |
| 25. **A** | Review Question p. 12 | Detailed Explanation p. 92 |
| 26. **A, B** | Review Question p. 12 | Detailed Explanation p. 92 |
| 27. **D** | Review Question p. 12 | Detailed Explanation p. 92 |
| 28. See Explanation | Review Question p. 13 | Detailed Explanation p. 93 |
| 29. See Explanation | Review Question p. 14 | Detailed Explanation p. 93 |
| 30. See Explanation | Review Question p. 15 | Detailed Explanation p. 94 |

# Answers: Chapter 2

| | | |
|---|---|---|
| 1. **B** | Review Question p. 16 | Detailed Explanation p. 96 |
| 2. **C** | Review Question p. 16 | Detailed Explanation p. 96 |
| 3. **A** | Review Question p. 16 | Detailed Explanation p. 96 |
| 4. **B** | Review Question p. 17 | Detailed Explanation p. 97 |
| 5. **B** | Review Question p. 17 | Detailed Explanation p. 97 |
| 6. **D** | Review Question p. 18 | Detailed Explanation p. 98 |
| 7. **C** | Review Question p. 18 | Detailed Explanation p. 98 |
| 8. **A** | Review Question p. 18 | Detailed Explanation p. 99 |
| 9. **D** | Review Question p. 19 | Detailed Explanation p. 99 |
| 10. **B** | Review Question p. 19 | Detailed Explanation p. 100 |
| 11. **B** | Review Question p. 20 | Detailed Explanation p. 100 |
| 12. **C** | Review Question p. 21 | Detailed Explanation p. 100 |
| 13. **A, C** | Review Question p. 21 | Detailed Explanation p. 101 |
| 14. **B** | Review Question p. 22 | Detailed Explanation p. 101 |
| 15. **C** | Review Question p. 22 | Detailed Explanation p. 101 |
| 16. **C** | Review Question p. 23 | Detailed Explanation p. 102 |
| 17. **B** | Review Question p. 23 | Detailed Explanation p. 102 |
| 18. **B** | Review Question p. 24 | Detailed Explanation p. 103 |
| 19. **B** | Review Question p. 24 | Detailed Explanation p. 103 |
| 20. **A** | Review Question p. 24 | Detailed Explanation p. 103 |
| 21. **B** | Review Question p. 25 | Detailed Explanation p. 104 |
| 22. **D** | Review Question p. 25 | Detailed Explanation p. 104 |
| 23. **C** | Review Question p. 25 | Detailed Explanation p. 104 |

| | | |
|---|---|---|
| 24. **B** | Review Question p. 26 | Detailed Explanation p. 105 |
| 25. **A** | Review Question p. 26 | Detailed Explanation p. 105 |
| 26. **A** | Review Question p. 27 | Detailed Explanation p. 105 |
| 27. **A, E** | Review Question p. 27 | Detailed Explanation p. 106 |
| 28. See Explanation | Review Question p. 28 | Detailed Explanation p. 106 |
| 29. See Explanation | Review Question p. 30 | Detailed Explanation p. 107 |

# Answers: Chapter 3

| | | |
|---|---|---|
| 1. **C** | Review Question p. 31 | Detailed Explanation p. 109 |
| 2. **A** | Review Question p. 31 | Detailed Explanation p. 109 |
| 3. **C** | Review Question p. 32 | Detailed Explanation p. 109 |
| 4. **A** | Review Question p. 32 | Detailed Explanation p. 110 |
| 5. **A, D** | Review Question p. 33 | Detailed Explanation p. 110 |
| 6. **D** | Review Question p. 33 | Detailed Explanation p. 110 |
| 7. **C** | Review Question p. 33 | Detailed Explanation p. 111 |
| 8. **B** | Review Question p. 34 | Detailed Explanation p. 111 |
| 9. **C** | Review Question p. 34 | Detailed Explanation p. 112 |
| 10. **B** | Review Question p. 34 | Detailed Explanation p. 112 |
| 11. **D** | Review Question p. 35 | Detailed Explanation p. 112 |
| 12. **C, D** | Review Question p. 35 | Detailed Explanation p. 113 |
| 13. **C** | Review Question p. 35 | Detailed Explanation p. 113 |
| 14. **A** | Review Question p. 36 | Detailed Explanation p. 113 |
| 15. **D** | Review Question p. 36 | Detailed Explanation p. 114 |
| 16. **B** | Review Question p. 36 | Detailed Explanation p. 114 |
| 17. **B, C** | Review Question p. 37 | Detailed Explanation p. 115 |
| 18. **D** | Review Question p. 37 | Detailed Explanation p. 115 |
| 19. **B, D** | Review Question p. 37 | Detailed Explanation p. 115 |
| 20. **C, D** | Review Question p. 38 | Detailed Explanation p. 116 |
| 21. See Explanation | Review Question p. 39 | Detailed Explanation p. 116 |
| 22. See Explanation | Review Question p. 40 | Detailed Explanation p. 117 |

# Answers: Chapter 4

| | | |
|---|---|---|
| 1. **B** | Review Question p. 41 | Detailed Explanation p. 119 |
| 2. **B, D** | Review Question p. 41 | Detailed Explanation p. 119 |
| 3. **C, D** | Review Question p. 41 | Detailed Explanation p. 119 |
| 4. **A** | Review Question p. 42 | Detailed Explanation p. 120 |
| 5. **A** | Review Question p. 42 | Detailed Explanation p. 120 |
| 6. **A** | Review Question p. 42 | Detailed Explanation p. 121 |
| 7. **A** | Review Question p. 43 | Detailed Explanation p. 121 |
| 8. **A, D** | Review Question p. 43 | Detailed Explanation p. 121 |
| 9. **B** | Review Question p. 44 | Detailed Explanation p. 122 |
| 10. **D** | Review Question p. 44 | Detailed Explanation p. 122 |
| 11. **C** | Review Question p. 44 | Detailed Explanation p. 122 |
| 12. **C** | Review Question p. 45 | Detailed Explanation p. 123 |
| 13. **B** | Review Question p. 45 | Detailed Explanation p. 123 |
| 14. **D** | Review Question p. 46 | Detailed Explanation p. 123 |
| 15. **B** | Review Question p. 46 | Detailed Explanation p. 124 |
| 16. **B** | Review Question p. 46 | Detailed Explanation p. 124 |
| 17. **C** | Review Question p. 47 | Detailed Explanation p. 124 |
| 18. **A** | Review Question p. 47 | Detailed Explanation p. 125 |
| 19. See Explanation | Review Question p. 49 | Detailed Explanation p. 125 |
| 20. See Explanation | Review Question p. 50 | Detailed Explanation p. 127 |

# Answers: Chapter 5

| | | |
|---|---|---|
| 1. **C** | Review Question p. 51 | Detailed Explanation p. 128 |
| 2. **B** | Review Question p. 51 | Detailed Explanation p. 128 |
| 3. **C** | Review Question p. 51 | Detailed Explanation p. 128 |
| 4. **D** | Review Question p. 52 | Detailed Explanation p. 129 |
| 5. **C** | Review Question p. 52 | Detailed Explanation p. 129 |
| 6. **A** | Review Question p. 52 | Detailed Explanation p. 129 |
| 7. **C** | Review Question p. 53 | Detailed Explanation p. 130 |
| 8. **C** | Review Question p. 53 | Detailed Explanation p. 130 |
| 9. **B** | Review Question p. 54 | Detailed Explanation p. 130 |
| 10. **A** | Review Question p. 54 | Detailed Explanation p. 131 |
| 11. **D, E** | Review Question p. 55 | Detailed Explanation p. 131 |
| 12. **D** | Review Question p. 55 | Detailed Explanation p. 131 |
| 13. **B** | Review Question p. 55 | Detailed Explanation p. 132 |
| 14. **A** | Review Question p. 56 | Detailed Explanation p. 132 |
| 15. **C** | Review Question p. 56 | Detailed Explanation p. 132 |
| 16. **B** | Review Question p. 56 | Detailed Explanation p. 133 |
| 17. See Explanation | Review Question p. 57 | Detailed Explanation p. 133 |

# Answers: Chapter 6

| | | |
|---|---|---|
| 1. **D** | Review Question p. 58 | Detailed Explanation p. 135 |
| 2. **C** | Review Question p. 58 | Detailed Explanation p. 135 |
| 3. **C** | Review Question p. 59 | Detailed Explanation p. 135 |
| 4. **A** | Review Question p. 59 | Detailed Explanation p. 136 |
| 5. **A** | Review Question p. 60 | Detailed Explanation p. 136 |
| 6. **D** | Review Question p. 60 | Detailed Explanation p. 136 |
| 7. **A, C** | Review Question p. 61 | Detailed Explanation p. 137 |
| 8. **B** | Review Question p. 61 | Detailed Explanation p. 137 |
| 9. **A** | Review Question p. 61 | Detailed Explanation p. 137 |
| 10. **C** | Review Question p. 62 | Detailed Explanation p. 138 |
| 11. **B** | Review Question p. 62 | Detailed Explanation p. 138 |
| 12. **C** | Review Question p. 62 | Detailed Explanation p. 138 |
| 13. **D** | Review Question p. 63 | Detailed Explanation p. 139 |
| 14. **B** | Review Question p. 63 | Detailed Explanation p. 139 |
| 15. **C** | Review Question p. 63 | Detailed Explanation p. 140 |
| 16. **B** | Review Question p. 64 | Detailed Explanation p. 140 |
| 17. **C** | Review Question p. 64 | Detailed Explanation p. 140 |
| 18. **C** | Review Question p. 64 | Detailed Explanation p. 141 |
| 19. **D** | Review Question p. 65 | Detailed Explanation p. 141 |
| 20. **B** | Review Question p. 65 | Detailed Explanation p. 142 |
| 21. **C** | Review Question p. 66 | Detailed Explanation p. 142 |
| 22. **A** | Review Question p. 66 | Detailed Explanation p. 142 |
| 23. **B** | Review Question p. 67 | Detailed Explanation p. 143 |

| | | |
|---|---|---|
| 24. **C** | Review Question p. 67 | Detailed Explanation p. 143 |
| 25. **B** | Review Question p. 67 | Detailed Explanation p. 143 |
| 26. **B, C** | Review Question p. 68 | Detailed Explanation p. 144 |
| 27. **C** | Review Question p. 68 | Detailed Explanation p. 144 |
| 28. **B** | Review Question p. 68 | Detailed Explanation p. 145 |
| 29. See Explanation | Review Question p. 69 | Detailed Explanation p. 145 |
| 30. See Explanation | Review Question p. 70 | Detailed Explanation p. 145 |
| 31. See Explanation | Review Question p. 71 | Detailed Explanation p. 146 |

# Explanations: Chapter 1

1. Review Question p. 2

**Answers: C**

**Explanation A.** Incorrect. The EIGRP hello timer was not modified from the default so these timers properly match.

**Explanation B.** Incorrect. The reason the neighbor relationship failed is because the EIGRP hold timers do not match. Once you change the neighbor router to have hold timer of 10 seconds, the neighbor relationship will automatically be reestablished.

**Explanation C.** Correct. The EIGRP hold timers must match for routers to become neighbors. By default, the hold timer is three times the hello interval, 15 seconds and 180 seconds (NBMA networks).

**Explanation D.** Incorrect. Broadcast networks such as Ethernet have a default hold timer of 15 seconds. This timer can be modified, but must match between neighbors to form a relationship.

PrepLogic Question: 12374-1000

2. Review Question p. 2

**Answers: A**

**Explanation A.** Correct. EIGRP authentication key numbers do not need to match as long as the passwords do.

**Explanation B.** Incorrect. If one neighbor's interface is passive, no relationship will form.

**Explanation C.** Incorrect. The EIGRP hello timers must match on both neighbors.

**Explanation D.** Incorrect. The EIGRP hold timers must match on both neighbors.

PrepLogic Question: 12374-1001

3. Review Question p. 3

**Answers: B**

**Explanation A.** Incorrect. EIGRP only supports MD5 authentication.

**Explanation B.** Correct. The log messages indicate that the authentication key numbers

between members do not match.

**Explanation C.** Incorrect. If the MD5 passwords did not match, you would see different log messages.

**Explanation D.** Incorrect. If authentication was not configured on the remote router, you would see different log messages.

**Explanation E.** Incorrect. If authentication was not configured on the local router, you would see different log messages.

PrepLogic Question: 12374-1002

4. Review Question p. 3

**Answers: C**

**Explanation A.** Incorrect. This statement would cover interfaces that range from 192.168.18.1 to 192.168.18.6

**Explanation B.** Incorrect. This statement would cover interfaces that range from 192.168.18.17 to 192.168.18.18

**Explanation C.** Correct. This statement covers interfaces that range from 192.168.18.17 to 192.168.18.30

**Explanation D.** Incorrect. This statement would cover IP endpoints that range from 192.168.18.1 to 192.168.18.6

PrepLogic Question: 12374-1003

5. Review Question p. 4

**Answers: D**

**Explanation A.** Incorrect. A wildcard mask is the inverse of the subnet mask.

**Explanation B.** Incorrect. This wildcard mask is for class A networks. These networks range from 0.0.0.0 to 127.255.255.255

**Explanation C.** Incorrect. A wildcard mask is the inverse of the subnet mask.

**Explanation D.** Correct. The IP address in the network statement above is a class B legacy address. By default, EIGRP uses legacy classful wildcard masks to network statements unless they are explicitly defined. A legacy class B address falls between 128.0.0.0 and 191.255.255.255

PrepLogic Question: 12374-1004

6. Review Question p. 4

**Answers: A**

**Explanation A.** Correct. This command shows the interfaces that are enabled with EIGRP because the IP subnet of the interface is included in the EIGRP network statement.

**Explanation B.** Incorrect. This is not a valid IOS show command.

**Explanation C.** Incorrect. This command lists all of the EIGRP successor and feasible successor routes known to the router.

**Explanation D.** Incorrect. This is not a valid IOS show command.

**Explanation E.** Incorrect. This command lists all interfaces configured with IP addressing. It does not specifically list anything related to EIGRP.

PrepLogic Question: 12374-1005

7. Review Question p. 4

**Answers: A**

**Explanation A.** Correct. EIGRP uses a multicast on the designated IP of 224.0.0.10 to exchange topology information.

**Explanation B.** Incorrect. EIGRP uses a multicast for communicating to neighbor routers.

**Explanation C.** Incorrect. This multicast address is used when running the OSPF routing protocol.

**Explanation D.** Incorrect. This multicast address is used when running the OSPF routing protocol.

PrepLogic Question: 12374-1006

8. Review Question p. 5

**Answers: C**

**Explanation A.** Incorrect. RTP is connection-oriented. If packets are lost in transit, the protocol resends routing updates.

**Explanation B.** Incorrect. While RTP is most well known for sending voice and video traffic, it has nothing to do with the routers ability to route both voice and video traffic.

**Explanation C.** Correct. The reason EIGRP uses RTP is because it has the ability to retransmit lost update packets. This helps to insure that updates are properly received by all neighbors preventing routing loops.

**Explanation D.** Incorrect. RTP uses TCP which provides error detection and correction.

PrepLogic Question: 12374-1007

9. Review Question p. 5

**Answers: E**

**Explanation A.** Incorrect. Bandwidth can be used to calculate EIGRP route metrics and is used by default.

**Explanation B.** Incorrect. Delay can be used to calculate EIGRP route metrics and is used by default.

**Explanation C.** Incorrect. Load can be used to calculate EIGRP route metrics.

**Explanation D.** Incorrect. Reliability can be used to calculate EIGRP route metrics.

**Explanation E.** Correct. MTU is never used to calculate EIGRP route metrics.

PrepLogic Question: 12374-1008

10. Review Question p. 6

**Answers: A, D**

**Explanation A.** Correct. You can disable EIGRP advertisements from an interface by using the passive-interface command.

**Explanation B.** Incorrect. If you want to use the passive-interface option, you must enable EIGRP on the interface by using the network command.

**Explanation C.** Incorrect. The correct way to redistribute directly connected networks that are not defined with an EIGRP network statement is to use the redistribute connected command.

**Explanation D.** Correct. A second method to limit EIGRP multicast messages on interfaces is to not enable EIGRP on the interface and use the redistribute connected command to advertise those networks from EIGRP.

**Explanation E.** Incorrect. If you use the redistribute connected command, you should NOT advertise those networks using the EIGRP network command.

PrepLogic Question: 12374-1009

11. Review Question p. 6

**Answers: C**

**Explanation A.** Incorrect. The router will only send the EIGRP password of the lowest key number configured on the router.

**Explanation B.** Incorrect. The router will only send the EIGRP password of the lowest key number configured on the router.

**Explanation C.** Correct. The router will only send the EIGRP password of the lowest key number configured on the router.

**Explanation D.** Incorrect. The router will only send the EIGRP password of the lowest key number configured on the router.

PrepLogic Question: 12374-1010

12. Review Question p. 7

**Answers: C**

**Explanation A.** Incorrect. EIGRP uses multicast messages to form neighbor relationships.

**Explanation B.** Incorrect. Frame Relay cannot send multicast messages, which are used for EIGRP to establish neighbors dynamically, so the router has to send multiple copies of the same EIGRP hello and update packets to each Frame Relay PVC configured.

**Explanation C.** Correct. Frame Relay cannot send multicast messages, which are used for EIGRP to establish neighbors dynamically, so the router has to send multiple copies of the same EIGRP hello and update packets to each Frame Relay PVC configured.

**Explanation D.** Incorrect. EIGRP uses multicast messages to form neighbor relationships.

PrepLogic Question: 12374-1011

13. Review Question p. 7

**Answers: B, D**

**Explanation A.** Incorrect. MPLS VPN operates at layer 3.

**Explanation B.** Correct. MPLS VPN operates at layer 3.

**Explanation C.** Incorrect. MPLS VPN operates at layer 3.

**Explanation D.** Correct. Metro Ethernet operates at layer 2.

**Explanation E.** Incorrect. Metro Ethernet operates at layer 2.

PrepLogic Question: 12374-1012

14. Review Question p. 8

**Answers: C**

**Explanation A.** Incorrect. This is a valid method of adding subnets to a local EIGRP topology table.

**Explanation B.** Incorrect. This is a valid method of adding subnets to a local EIGRP topology table.

**Explanation C.** Correct. The question asks how a router can add LOCAL routes to the EIGRP topology table. Routes from neighbor routers are not locally learned.

**Explanation D.** Incorrect. This is a valid method of adding subnets to a local EIGRP topology table.

PrepLogic Question: 12374-1013

15. Review Question p. 8

**Answers: C**

**Explanation A.** Incorrect. This information is sent inside EIGRP update messages.

**Explanation B.** Incorrect. This information is sent inside EIGRP update messages.

**Explanation C.** Correct. This information is not sent inside EIGRP update messages.

**Explanation D.** Incorrect. This information is sent inside EIGRP update messages.

**Explanation E.** Incorrect. This information is sent inside EIGRP update messages.

PrepLogic Question: 12374-1014

16. Review Question p. 8

**Answers: C**

**Explanation A.** Incorrect. Using this command will not let EIGRP load balance across unequal metric routes.

**Explanation B.** Incorrect. Using this command will not let EIGRP load balance across unequal metric routes.

**Explanation C.** Correct. Configuring the variance command will allow EIGRP to load balance across unequal metric routes.

**Explanation D.** Incorrect. Using this command will not let EIGRP load balance across unequal metric routes.

PrepLogic Question: 12374-1015

17. Review Question p. 9

**Answers: B**

**Explanation A.** Incorrect. This factor influences the scalability of EIGRP.

**Explanation B.** Correct. This does not factor into the scalability of EIGRP.

**Explanation C.** Incorrect. This factor influences the scalability of EIGRP.

**Explanation D.** Incorrect. This factor influences the scalability of EIGRP.

**Explanation E.** Incorrect. This factor influences the scalability of EIGRP.

PrepLogic Question: 12374-1016

18. Review Question p. 9

**Answers: A**

**Explanation A.** Correct. The goodbye message is sent in an EIGRP packet.

**Explanation B.** Incorrect. The goodbye message is sent in an EIGRP packet.

**Explanation C.** Incorrect. The goodbye message is sent in an EIGRP packet.

**Explanation D.** Incorrect. The goodbye message is sent in an EIGRP packet.

PrepLogic Question: 12374-1017

19. Review Question p. 9

**Answers: D**

**Explanation A.** Incorrect. The router will first exchange full topology table information.

**Explanation B.** Incorrect. The router will first exchange full topology table information. While split-horizon is used on most EIGRP interfaces by default, the feature does not use any kind of timer.

**Explanation C.** Incorrect. The router will first exchange full topology table information.

**Explanation D.** Correct. the router will first exchange full topology table information by flooding all known routing information to its neighbors.

PrepLogic Question: 12374-1018

20. Review Question p. 10

**Answers: A**

**Explanation A.** Correct. Frame Relay point-to-point connections should use the split-horizon feature that is enabled by default when running EIGRP.

**Explanation B.** Incorrect. This is a scenario where you would disable split-horizon.

**Explanation C.** Incorrect. This is a scenario where you would disable split-horizon.

**Explanation D.** Incorrect. This is a scenario where you would disable split-horizon.

PrepLogic Question: 12374-1019

21. Review Question p. 10

**Answers: B**

**Explanation A.** Incorrect. By default k1 and k3 are set to = 1 and all other values are set to 0

**Explanation B.** Correct. By default k1 and k3 are set to = 1 and all other values are set to 0

**Explanation C.** Incorrect. By default k1 and k3 are set to = 1 and all other values are set to 0

**Explanation D.** Incorrect. By default k1 and k3 are set to = 1 and all other values are

set to 0

PrepLogic Question: 12374-1020

22. Review Question p. 11

**Answers: C**

**Explanation A.** Incorrect. Offset-lists have this functionality.

**Explanation B.** Incorrect. Offset-lists have this functionality.

**Explanation C.** Correct. This is not an offset list function. Here are the offset list configuration options:
offset-list {access-list-number | access-list-name} {in | out} offset [interface-type interface-number]

**Explanation D.** Incorrect. Offset-lists have this functionality.

**Explanation E.** Incorrect. Offset-lists have this functionality.

PrepLogic Question: 12374-1021

23. Review Question p. 11

**Answers: D**

**Explanation A.** Incorrect. The show ip eigrp topology command lists all known EIGRP successor and feasible successor routes.

**Explanation B.** Incorrect. The show ip eigrp topology command lists all known EIGRP successor and feasible successor routes.

**Explanation C.** Incorrect. This is not a valid IOS show command.

**Explanation D.** Correct. This command lists all known EIGRP successor and feasible successor routes.

PrepLogic Question: 12374-1022

24. Review Question p. 11

**Answers: D**

**Explanation A.** Incorrect. This configuration will not produce the desired results.

**Explanation B.** Incorrect. This configuration will not produce the desired results.

**Explanation C.** Incorrect. This configuration will not produce the desired results.

**Explanation D.** Correct. Stub routers are not queried after a topology change. The other method would be route summarization.

PrepLogic Question: 12374-1023

25. Review Question p. 12

**Answers: A**

**Explanation A.** Correct. This command turns on route filtering using ACL 1 for routes coming into the router interfaces.

**Explanation B.** Incorrect. This is not the correct command for enabling EIGRP route filtering.

**Explanation C.** Incorrect. This is not the correct command for enabling EIGRP route filtering.

**Explanation D.** Incorrect. This command turns on route filtering using ACL 1 for routes but filters on outbound routes instead of inbound routes.

PrepLogic Question: 12374-1024

26. Review Question p. 12

**Answers: A, B**

**Explanation A.** Correct. Distribute-lists can be used to match IP routes to be filtered.

**Explanation B.** Correct. IP prefix-lists can be used to match IP routes to be filtered.

**Explanation C.** Incorrect. This is not a valid method to match IP routes to filter EIGRP routes.

**Explanation D.** Incorrect. This is not a valid method to match IP routes to filter EIGRP routes.

PrepLogic Question: 12374-1025

27. Review Question p. 12

**Answers: D**

**Explanation A.** Incorrect. This is not a valid summary statement for the three networks that need to be summarized.

**Explanation B.** Incorrect. This is not the smallest network summary statement for the three given subnets.

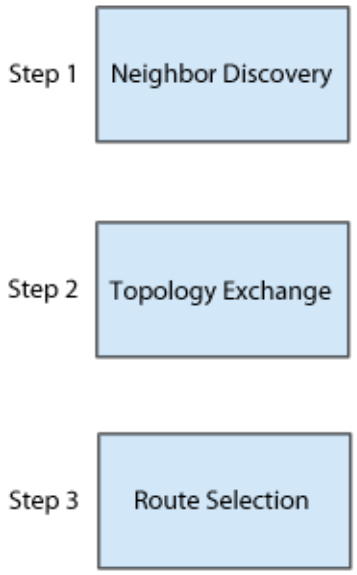
**Explanation C.** Incorrect. This is not the smallest network summary statement for the three given subnets.

**Explanation D.** Correct. This statement is the correct and most specific statement possible.

PrepLogic Question: 12374-1026

28. Review Question p. 13

**Answer:**

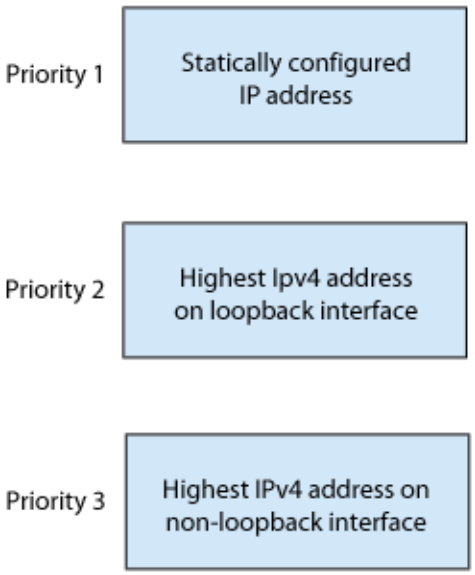



**Explanation:**

PrepLogic Question: 12374-10

29. Review Question p. 14

**Answer:**

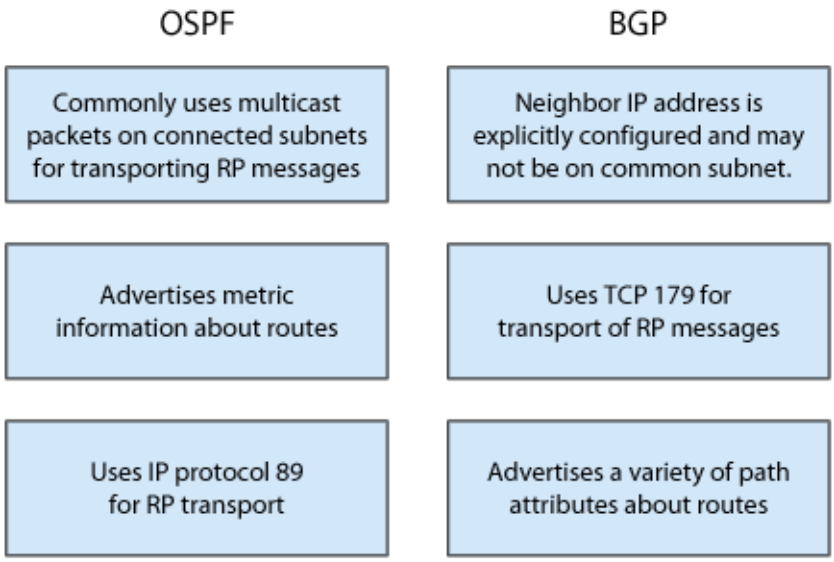



**Explanation:**

PrepLogic Question: 12374-11

30. Review Question p. 15

**Answer:**




**Explanation:**

PrepLogic Question: [12374-19]

# Explanations: Chapter 2

1. Review Question p. 16

   **Answers: B**

   **Explanation A.** Incorrect. The Router ID is included in LSDB updates.

   **Explanation B.** Correct. Successors and feasible successors are part of EIGRP and not OSPF.

   **Explanation C.** Incorrect. The router interface information is included in LSDD updates.

   **Explanation D.** Incorrect. The list of OSPF routers which are reachable on the network are included in LSDD updates.

   PrepLogic Question: 12374-1028

2. Review Question p. 16

   **Answers: C**

   **Explanation A.** Incorrect. OSPF route summarization can be configured on ABR and ASBR routers.

   **Explanation B.** Incorrect. OSPF route summarization can be configured on ABR and ASBR routers.

   **Explanation C.** Correct. OSPF route summarization can be configured on ABR and ASBR routers.

   **Explanation D.** Incorrect. OSPF route summarization can be configured on ABR and ASBR routers.

   PrepLogic Question: 12374-1029

3. Review Question p. 16

   **Answers: A**

   **Explanation A.** Correct. This multicast address is designated to send OSFP updates to all DR routers.

   **Explanation B.** Incorrect. This multicast address is designated for use with the EIGRP routing protocol.

**Explanation C.** Incorrect. This multicast address is not designated for use by any routing protocol.

**Explanation D.** Incorrect. This multicast address is designated to send OSFP updates to ALL routers.

PrepLogic Question: 12374-1030

4. Review Question p. 17

**Answers: B**

**Explanation A.** Incorrect. The router is configured with cleartext authentication. We know this because the log message says we use type 1. Type 0 is no authentication, type 1 is cleartext authentication and type 2 is MD5 authentication. The correct command therefore is ip ospf authentication.

**Explanation B.** Correct. The router is configured with clear text authentication. We know this because the log message says we use type 1. Type 0 is no authentication, type 1 is clear text authentication and type 2 is MD5 authentication. The correct command therefore is ip ospf authentication.

**Explanation C.** Incorrect. The router is configured with cleartext authentication. We know this because the log message says we use type 1. Type 0 is no authentication. Type 1 is cleartext authentication and type 2 is MD5 authentication. The correct command therefore is ip ospf authentication.

**Explanation D.** Incorrect. The router is configured with cleartext authentication. We know this because the log message says we use type 1. Type 0 is no authentication, type 1 is cleartext authentication and type 2 is MD5 authentication. The correct command therefore is ip ospf authentication.

PrepLogic Question: 12374-1031

5. Review Question p. 17

**Answers: B**

**Explanation A.** Incorrect. The remote site router will only be adjacent to the central site router.

**Explanation B.** Correct. The central site router will become fully adjacent with each of the 20 remote site routers.

**Explanation C.** Incorrect. Frame Relay is a layer 2 technology and therefore never participates in any type of IP routing.

**Explanation D.** Incorrect. Frame Relay is a layer 2 technology and therefore never participates in any type of IP routing.

PrepLogic Question: 12374-1032

6. Review Question p. 18

**Answers: D**

**Explanation A.** Incorrect. The ABR connects area 0 and 10 together. They will have LSDB entries for both area 0 and area 10 listed. In Area 0, the ABR learns Type 1 LSAs from the four routers internal to the backbone, plus 1 for the area 0 Type 1 LSA the ABR creates for itself. In area 10, the ABR learns 1 each for the three routers internal to area 10, plus the 1 Type 1 LSA the ABSR2 created for itself inside area 10. The total is 9.

**Explanation B.** Incorrect. The ABR connects area 0 and 10 together. The will have LSDB entries for both area 0 and area 10 listed. In Area 0, the ABR learns Type 1 LSAs from the four routers internal to the backbone, plus 1 for the area 0 Type 1 LSA the ABR creates for itself. In area 10, the ABR learns 1 each for the three routers internal to area 10, plus the Type 1 LSA the ABSR2 created for itself inside area 10. The total is 9.

**Explanation C.** Incorrect. The ABR connects area 0 and 10 together. The will have LSDB entries for both area 0 and area 10 listed. In Area 0, the ABR learns Type 1 LSAs from the four routers internal to the backbone, plus 1 for the area 0 Type 1 LSA the ABR creates for itself. In area 10, the ABR learns 1 each for the three routers internal to area 10, plus the Type 1 LSA the ASBR2 created for itself inside area 10. The total is 9.

**Explanation D.** Correct. The ABR connects area 0 and 10 together. The will have LSDB entries for both area 0 and area 10 listed. In Area 0, the ABR learns Type 1 LSAs from the four routers internal to the backbone, plus 1 for the area 0 Type 1 LSA the ABR creates for itself. In area 10, the ABR learns 1 each for the three routers internal to area 10, plus the Type 1 LSA the ASBR2 created for itself inside area 10. The total is 9.

PrepLogic Question: 12374-1033

7. Review Question p. 18

**Answers: C**

**Explanation A.** Incorrect. Ethernet is a broadcast network technology. Type 2 LSAs are used by DR routers after the DR election has occurred.

**Explanation B.** Incorrect. Because Ethernet is a broadcast technology, Type 2 LSAs are used by DR routers after the DR election has occurred.

**Explanation C.** Correct. Because Ethernet is a broadcast technology, Type 2 LSAs are used by DR routers after the DR election has occurred.

**Explanation D.** Incorrect. Because Ethernet is a broadcast technology, Type 2 LSAs are used by DR routers after the DR election has occurred.

PrepLogic Question: 12374-1034

8. Review Question p. 18

**Answers: A**

**Explanation A.** Correct. By default, when 30 minutes pass with no changes to the network, the LSA timer expires for that LSA and it causes a reflooding of the LSA. The router increments the sequence number, resets the timer to 0, and refloods the LSA. Reflooding LSAs based on the age variable ensures that the network does not flood the entire network all at once as RIP does.

**Explanation B.** Incorrect. The router refloods LSAs every 30 minutes based on each LSAs age variable.

**Explanation C.** Incorrect. The router refloods LSAs every 30 minutes based on each LSAs age variable.

**Explanation D.** Incorrect. The router refloods LSAs every 30 minutes based on each LSAs age variable.

PrepLogic Question: 12374-1035

9. Review Question p. 19

**Answers: D**

**Explanation A.** Incorrect. ABRs create and flood Type 3 summary LSAs into an area that contains basic routing information about other area networks.

**Explanation B.** Incorrect. ABRs create and flood Type 3 summary LSAs into an area that contains basic routing information about other area networks.

**Explanation C.** Incorrect. ABRs create and flood Type 3 summary LSAs into an area that contains basic routing information about other area networks.

**Explanation D.** Correct. ABRs create and flood Type 3 summary LSAs into an area that contains basic routing information about other area networks.

PrepLogic Question: 12374-1036

10. Review Question p. 19

**Answers: B**

**Explanation A.** Incorrect. This information is contained in type 3 LSAs.

**Explanation B.** Correct. This information is not contained in type 3 LSAs.

**Explanation C.** Incorrect. This information is contained in type 3 LSAs.

**Explanation D.** Incorrect. This information is contained in type 3 LSAs.

PrepLogic Question: 12374-1037

11. Review Question p. 20

**Answers: B**

**Explanation A.** Incorrect. This is not the proper OSPF calculation order for choosing internal OSPF routes.

**Explanation B.** Correct. This is the correct OSPF calculation for choosing internal OSPF routes.

**Explanation C.** Incorrect. This is not the proper OSPF calculation order for choosing internal OSPF routes.

**Explanation D.** Incorrect. This is not the proper OSPF calculation order for choosing internal OSPF routes.

PrepLogic Question: 12374-1038

12. Review Question p. 21

**Answers: C**

**Explanation A.** Incorrect. This command modifies the "reference bandwidth" from 100 to 1000, but the command is performed in OSPF router configuration mode.

**Explanation B.** Incorrect. This command modifies the "reference bandwidth from" 100 to 1000, but the command is performed in OSPF router configuration mode.

**Explanation C.** Correct. This command modifies the "reference bandwidth" from 100 to 1000 and the command is performed in OSPF router configuration mode.

**Explanation D.** Incorrect. This command does not modify the "reference bandwidth".

**Explanation E.** Incorrect. This command does not modify the "reference bandwidth".

**Explanation F.** Incorrect. This command does not modify the "reference bandwidth".

PrepLogic Question: 12374-1039

13. Review Question p. 21

**Answers: A, C**

**Explanation A.** Correct. for intra-area route selection, the router has access to the full network topology.

**Explanation B.** Incorrect. for intra-area route selection, the router has access to the full network topology and therefore uses link state logic when selecting routes to be put into the routing table.

**Explanation C.** Correct. Because ABRs only hand out type 3 LSA information, a router uses distance vector logic by adding its known metric to reach the ABR and adds the metric for that subnet as advertised by the ABR.

**Explanation D.** Incorrect. Inter-area routing does not have the full topology database. Therefore, to route between areas, the router uses distance-vector logic.

PrepLogic Question: 12374-1040

14. Review Question p. 22

**Answers: B**

**Explanation A.** Incorrect. This command affects Type 3 LSA messages that are sent to non-backbone areas.

**Explanation B.** Correct. This command affects Type 3 LSA messages that are sent to non-backbone areas.

**Explanation C.** Incorrect. This command only affects Type 3 LSA messages that are sent to non-backbone areas.

**Explanation D.** Incorrect. This command affects Type 3 LSA messages that are sent to non-backbone areas.

PrepLogic Question: 12374-1041

15. Review Question p. 22

**Answers: C**

**Explanation A.** Incorrect. Type 5 LSAs are used to send information about

redistributed routes into OSPF.

**Explanation B.** Incorrect. Type 5 LSAs are used to send information about redistributed routes into OSPF.

**Explanation C.** Correct. Type 5 LSAs are used to send information about redistributed routes into OSPF.

**Explanation D.** Incorrect. Type 5 LSAs are used to send information about redistributed routes into OSPF.

PrepLogic Question: 12374-1042

16. Review Question p. 23

**Answers: C**

**Explanation A.** Incorrect. This is a manual command that consolidates multiple redistributed subnets into a single summary route. This summary route is the only one advertised using Type 5 LSAs.

**Explanation B.** Incorrect. This is a manual command that consolidates multiple redistributed subnets into a single summary route. This summary route is the only one advertised using Type 5 LSAs.

**Explanation C.** Correct. This is a manual command that consolidates multiple redistributed subnets into a single summary route. This summary route is the only one advertised using Type 5 LSAs.

**Explanation D.** Incorrect. This is a manual command that consolidates multiple redistributed subnets into a single summary route. This summary route is the only one advertised using Type 5 LSAs.

PrepLogic Question: 12374-1043

17. Review Question p. 23

**Answers: B**

**Explanation A.** Incorrect. The default route is flooded from the ASBR to other OSPF routers if the default route is also currently in the ASBR's local routing table.

**Explanation B.** Correct. The default route is flooded from the ASBR to other OSPF routers only if the default route is also in the ASBR's local routing table.

**Explanation C.** Incorrect. The default route is flooded from the ASBR to other OSPF

routers if the default route is also currently in the ASBR's local routing table.

**Explanation D.** Incorrect. The default route is flooded from the ASBR to other OSPF routers if the default route is also currently in the ASBR's local routing table.

PrepLogic Question: 12374-1044

18. Review Question p. 24

**Answers: B**

**Explanation A.** Incorrect. The proper command is default-information originate always.

**Explanation B.** Correct. This is the correct command to satisfy the requirements listed in the question.

**Explanation C.** Incorrect. The proper command is default-information originate always.

**Explanation D.** Incorrect. The proper command is default-information originate always.

PrepLogic Question: 12374-1045

19. Review Question p. 24

**Answers: B**

**Explanation A.** Incorrect. This is a true statement about totally stubby areas.

**Explanation B.** Correct. For all types of stub areas (stub, totally stubby and NSSA), the ABR always filters Type 5 LSAs.

**Explanation C.** Incorrect. This is a true statement about totally stubby areas. This is true for totally stubby and NSSA areas but not for regular stub areas.

**Explanation D.** Incorrect. This is a true statement about totally stubby areas.

PrepLogic Question: 12374-1046

20. Review Question p. 24

**Answers: A**

**Explanation A.** Correct. The no-summary statement changes this stub area into a totally stubby area which filters Type 3 LSA updates.

**Explanation B.** Incorrect. The correct command is area 5 stub no-summary.

**Explanation C.** Incorrect. The correct command is area 5 stub no-summary.

**Explanation D.** Incorrect. The correct command is area 5 stub no-summary.

PrepLogic Question: 12374-1047

21. Review Question p. 25

**Answers: B**

**Explanation A.** Incorrect. This is a valid implementation method.

**Explanation B.** Correct. Type 5 LSAs are used on ASBR's when redistributing non-OSPF networks into OSPF. The design called for an OSPF-only network, so this is not a valid option.

**Explanation C.** Incorrect. This is a valid implementation method.

**Explanation D.** Incorrect. This is a valid implementation method.

PrepLogic Question: 12374-1048

22. Review Question p. 25

**Answers: D**

**Explanation A.** Incorrect. The correct command is show ip ospf neighbors.

**Explanation B.** Incorrect. The correct command is show ip ospf neighbors.

**Explanation C.** Incorrect. The correct command is show ip ospf neighbors.

**Explanation D.** Correct. This command identifies neighbor adjacency status and shows both the designated router and backup designated router.

PrepLogic Question: 12374-1049

23. Review Question p. 25

**Answers: C**

**Explanation A.** Incorrect. The Point-to-multipoint nonbroadcast network requires you to manually configure OSPF neighbors.

**Explanation B.** Incorrect. The Point-to-multipoint nonbroadcast network requires you

to manually configure OSPF neighbors.

**Explanation C.** Correct. The Point-to-multipoint nonbroadcast network requires you to manually configure OSPF neighbors.

**Explanation D.** Incorrect. The Point-to-multipoint nonbroadcast network requires you to manually configure OSPF neighbors.

PrepLogic Question: 12374-1050

24. Review Question p. 26

**Answers: B**

**Explanation A.** Incorrect. The ABR will send Type 3 updates into non-backbone areas only.

**Explanation B.** Correct. The ABR will send Type 3 updates into non-backbone areas only.

**Explanation C.** Incorrect. The diagram is inaccurate as the ABR will send Type 3 updates into non-backbone areas only.

**Explanation D.** Incorrect. The ABR will send Type 3 updates into non-backbone areas only.

PrepLogic Question: 12374-1051

25. Review Question p. 26

**Answers: A**

**Explanation A.** Correct. This command was used to configure the virtual-line on R1.

**Explanation B.** Incorrect. The information provided makes this answer incorrect.

**Explanation C.** Incorrect. The cost is 2.

**Explanation D.** Incorrect. The transit area is area 3. Area 0 can never be a transit area.

PrepLogic Question: 12374-1052

26. Review Question p. 27

**Answers: A**

**Explanation A.** Correct. The IP address configured in the area 1 virtual-link 1.1.1.1

command is the remote side router ID (RID).

**Explanation B.** Incorrect. While technically, the 1.1.1.1 address is the remote side router ID (RID), the IP address of the remote FastEthernet interface must be on the 10.1.1.0/24 subnet.

**Explanation C.** Incorrect. The virtual-link transit area is area 1.

**Explanation D.** Incorrect. The virtual-link transit area is area 1.

PrepLogic Question: 12374-1053

27. Review Question p. 27

**Answers: A, E**

**Explanation A.** Correct. This is the simple method but it does tend to waste IP addresses.

**Explanation B.** Incorrect. This method requires point-to-point subinterfaces.

**Explanation C.** Incorrect. This method works when you configure a single point-to-multipoint subinterface associated to multiple PVCs.

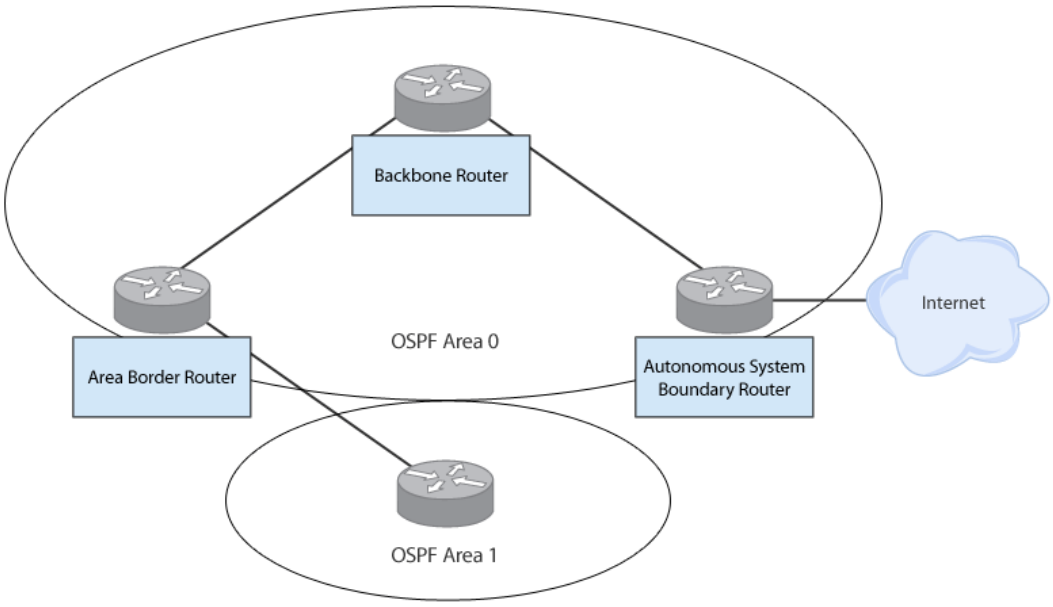
**Explanation D.** Incorrect. This method works when you configure a point-to-multipoint subinterface.

**Explanation E.** Correct. This method conserves IP address space but is more complex to setup.

PrepLogic Question: 12374-1054

28. Review Question p. 28

**Answer:**

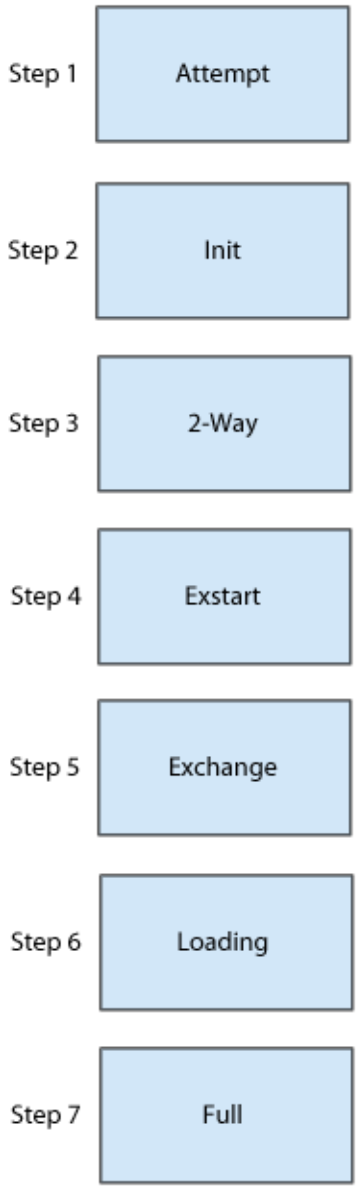



**Explanation:**

PrepLogic Question: 12374-12

29. Review Question p. 30

**Answer:**




## Explanation:

PrepLogic Question: 12374-13

# Explanations: Chapter 3

1. Review Question p. 31

**Answers: C**

**Explanation A.** Incorrect. This occurs often as companies merge. If the two networks use different routing methods, they need to be redistributed when merged together.

**Explanation B.** Incorrect. This is a valid reason as different management groups control their own routing methods, protocols and policies.

**Explanation C.** Correct. This statement is not a valid reason for using route redistribution.

**Explanation D.** Incorrect. Remember that EIGRP is proprietary. Therefore, if you need to use non-Cisco routers, you will need to choose a non-proprietary protocol such as OSPF. You can then redistribute OSPF and EIGRP respectively.

**Explanation E.** Incorrect. Redistribution is often needed when using MPLS connections.

PrepLogic Question: 12374-1055

2. Review Question p. 31

**Answers: A**

**Explanation A.** Correct. This statement will redistribute OSPF process 100 into EIGRP. Keep in mind that when redistributing OSPF into EIGRP, a metric must be defined. This can be accomplished when using the redistribute command or by using the separate default-metric command.

**Explanation B.** Incorrect. This statement is correct but the OSPF process number is 100.

**Explanation C.** Incorrect. The correct EIGRP router command is redistribute ospf 100.

**Explanation D.** Incorrect. The correct EIGRP router command is redistribute ospf 100.

PrepLogic Question: 12374-1056

3. Review Question p. 32

**Answers: C**

**Explanation A.** Incorrect. There are 4 options available for you to configure.

**Explanation B.** Incorrect. There are 4 options available for you to configure. MTU is not a configurable metric option.

**Explanation C.** Correct. There are the 4 options available for you to configure.

**Explanation D.** Incorrect. There are 4 options available for you to configure.

PrepLogic Question: 12374-1057

4. Review Question p. 32

**Answers: A**

**Explanation A.** Correct. The tag command can be later used with route-maps to manipulate how the redistributed routes are used.

**Explanation B.** Incorrect. The tag command can be later used with route-maps to manipulate how the redistributed routes are used.

**Explanation C.** Incorrect. The tag command can be later used with route-maps to manipulate how the redistributed routes are used.

**Explanation D.** Incorrect. The tag command can be later used with route-maps to manipulate how the redistributed routes are used.

PrepLogic Question: 12374-1058

5. Review Question p. 33

**Answers: A, D**

**Explanation A.** Correct. This is a valid statement.

**Explanation B.** Incorrect. This is not a valid statement.

**Explanation C.** Incorrect. This is not a valid statement.

**Explanation D.** Correct. You must configure default metric values in EIGRP to redistribute any routing protocol or static/connected networks. The only exception is when you want to redistribute EIGRP into EIGRP that uses different AS numbers.

PrepLogic Question: 12374-1059

6. Review Question p. 33

**Answers: D**

**Explanation A.** Incorrect. This is a valid method for setting EIGRP metrics needed for route redistribution.

**Explanation B.** Incorrect. This is a valid method for setting EIGRP metrics needed for route redistribution.

**Explanation C.** Incorrect. This is a valid method for setting EIGRP metrics needed for route redistribution.

**Explanation D.** Correct. You cannot use a route-map with the default-metric command.

PrepLogic Question: 12374-1060

7. Review Question p. 33

**Answers: C**

**Explanation A.** Incorrect. The correct answer is show ip eigrp topology.

**Explanation B.** Incorrect. The correct answer is show ip eigrp topology.

**Explanation C.** Correct. This command will show metrics set for all external routes.

**Explanation D.** Incorrect. The correct answer is show ip eigrp topology.

PrepLogic Question: 12374-1061

8. Review Question p. 34

**Answers: B**

**Explanation A.** Incorrect. You must use the "subnets" keyword to redistribute classless networks into OSPF.

**Explanation B.** Correct. Without the "subnets" keyword, only classful networks are redistributed.

**Explanation C.** Incorrect. You must use the "subnets" keyword to redistribute classless networks into OSPF.

**Explanation D.** Incorrect. You must use the "subnets" keyword to redistribute classless networks into OSPF.

PrepLogic Question: 12374-1062

9. Review Question p. 34

**Answers: C**

**Explanation A.** Incorrect. This is the default.

**Explanation B.** Incorrect. This is the default.

**Explanation C.** Correct. The default is to use a type 2 external metric.

**Explanation D.** Incorrect. This is the default.

PrepLogic Question: 12374-1063

10. Review Question p. 34

**Answers: B**

**Explanation A.** Incorrect. The main benefit is found when multiple ASBRs advertise the same subnet.

**Explanation B.** Correct. The benefits of using different external routes types are found when multiple ASBRs advertise the same subnet. The different route types let the router automatically set different metrics to the same subnet which forces the router to choose the E1 routes over the E2 routes.

**Explanation C.** Incorrect. The main benefit is found when multiple ASBRs advertise the same subnet.

**Explanation D.** Incorrect. The main benefit is found when multiple ASBRs advertise the same subnet.

PrepLogic Question: 12374-1064

11. Review Question p. 35

**Answers: D**

**Explanation A.** Incorrect. As long as the connected networks are running under EIGRP AS 100, they will be redistributed with all the other EIGRP networks and no other configuration is needed.

**Explanation B.** Incorrect. As long as the connected networks are running under EIGRP AS 100, they will be redistributed with all the other EIGRP networks and no other configuration is needed.

**Explanation C.** Incorrect. As long as the connected networks are running under EIGRP AS 100, they will be redistributed with all the other EIGRP networks and no other

configuration is needed.

**Explanation D.** Correct. As long as the connected networks are running under EIGRP AS 100, they will be redistributed with all the other EIGRP networks.

PrepLogic Question: 12374-1065

12. Review Question p. 35

**Answers: C, D**

**Explanation A.** Incorrect. This is not a way to filter routes.

**Explanation B.** Incorrect. This is not a way to filter routes.

**Explanation C.** Correct. The match command is one way to filter routes.

**Explanation D.** Correct. The route-map command is one way to filter routes.

PrepLogic Question: 12374-1066

13. Review Question p. 35

**Answers: C**

**Explanation A.** Incorrect. The set tag command sets the tag value in the route. This tag can be used to easily filter these routes upstream.

**Explanation B.** Incorrect. The set tag command sets the tag value in the route. This tag can be used to easily filter these routes upstream.

**Explanation C.** Correct. The set tag command sets the tag value in the route. This tag can be used to easily filter these routes upstream.

**Explanation D.** Incorrect. The set tag command sets the tag value in the route. This tag can be used to easily filter these routes upstream.

PrepLogic Question: 12374-1067

14. Review Question p. 36

**Answers: A**

**Explanation A.** Correct. This statement will show hit counters on each prefix-list entry.

**Explanation B.** Incorrect. The show ip prefix-list detail cisco1 command will show hit counters on each prefix-list entry.

**Explanation C.** Incorrect. The show ip prefix-list detail cisco1 command will show hit counters on each prefix-list entry.

**Explanation D.** Incorrect. The show ip prefix-list detail cisco1 command will show hit counters on each prefix-list entry.

**Explanation E.** Incorrect. The show ip prefix-list detail cisco1 command will show hit counters on each prefix-list entry.

**Explanation F.** Incorrect. The show ip prefix-list detail cisco1 command will show hit counters on each prefix-list entry.

PrepLogic Question: 12374-1068

15. Review Question p. 36

**Answers: D**

**Explanation A.** Incorrect. When redistributing into EIGRP, this command has five parameters while OSPF only has one parameter.

**Explanation B.** Incorrect. When redistributing into EIGRP, this command has five parameters while RIP only has one parameter.

**Explanation C.** Incorrect. When redistributing into EIGRP, this command has five parameters while RIPv2 only has one parameter.

**Explanation D.** Correct. When redistributing into EIGRP, this command has five parameters while OSPF and RIP only have one parameter.

PrepLogic Question: 12374-1069

16. Review Question p. 36

**Answers: B**

**Explanation A.** Incorrect. The correct distribute list keyword is out.

**Explanation B.** Correct. Using this distribute-list keyword, you can filter, modify metrics and assign route types to routes after they have been redistributed.

**Explanation C.** Incorrect. The correct distribute list keyword is out.

**Explanation D.** Incorrect. The correct distribute list keyword is out.

PrepLogic Question: 12374-1070

17. Review Question p. 37

**Answers: B, C**

**Explanation A.** Incorrect. This is not a valid method for preventing routing loops when redistributing routes.

**Explanation B.** Correct. Route metrics are used to prevent routing loops. You may be able to leave the metric default settings or manually change them to prevent loops on your network.

**Explanation C.** Correct. Administrative distance can be a tool to prevent routing loops when redistributing routes on your network.

**Explanation D.** Incorrect. This is not a valid method for preventing routing loops when redistributing routes.

PrepLogic Question: 12374-1071

18. Review Question p. 37

**Answers: D**

**Explanation A.** Incorrect. This is the AD for EIGRP summary routes.

**Explanation B.** Incorrect. This is the AD for IS-IS.

**Explanation C.** Incorrect. This is the AD for EIGRP internal routes.

**Explanation D.** Correct. This is the AD for EIGRP external routes.

**Explanation E.** Incorrect. This is the AD for BGP internal routes.

PrepLogic Question: 12374-1072

19. Review Question p. 37

**Answers: B, D**

**Explanation A.** Incorrect. This is the RID of the neighbor router.

**Explanation B.** Correct. This is the RID of the remote neighbor.

**Explanation C.** Incorrect. OSPF will only set the AD for routes coming from 10.1.10.1 neighbor that fall in the 172.16.0.0/16 range.

**Explanation D.** Correct. OSPF will only set the AD for routes coming from 10.1.10.1 neighbor that fall in the 172.16.0.0/16 range.

PrepLogic Question: 12374-1073

20. Review Question p. 38

**Answers: C, D**

**Explanation A.** Incorrect. By default, the tag value is set to null.

**Explanation B.** Incorrect. This is not a valid technique.

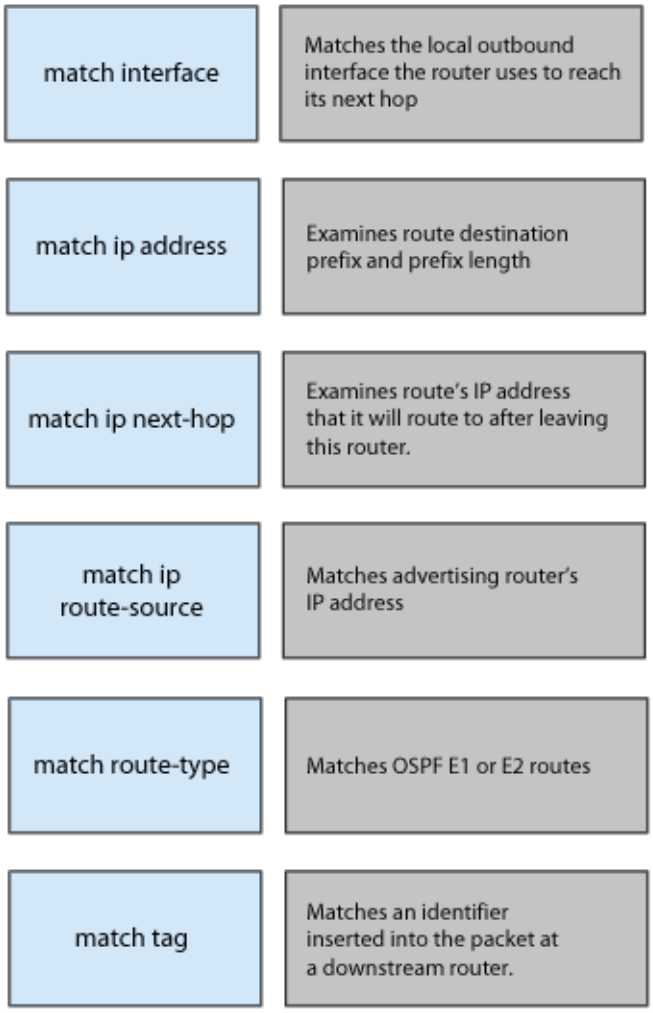
**Explanation C.** Correct. This is a valid technique for using tags to prevent domain loop problems.

**Explanation D.** Correct. This is a valid technique for using tags to prevent domain loop problems.

PrepLogic Question: 12374-1074

21. Review Question p. 39

**Answer:**

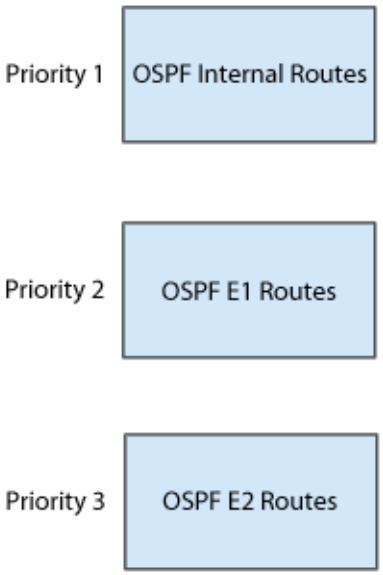



**Explanation:**

PrepLogic Question: 12374-14

22. Review Question p. 40

**Answer:**




## Explanation:

PrepLogic Question: 12374-15

# Explanations: Chapter 4

1. Review Question p. 41

   **Answers: B**

   **Explanation A.** Incorrect. BGP lets peers connect directly even though they are not on the subnet by transporting messages using TCP port 179. IP protocol 89 is used by the OSPF routing protocol.

   **Explanation B.** Correct. BGP lets peers connect directly even though they are not on the subnet by transporting messages using TCP port 179.

   **Explanation C.** Incorrect. BGP lets peers connect directly even though they are not on the subnet by transporting messages using TCP port 179.

   **Explanation D.** Incorrect. BGP lets peers connect directly even though they are not on the subnet by transporting messages using TCP port 179.

   PrepLogic Question: 12374-1075

2. Review Question p. 41

   **Answers: B, D**

   **Explanation A.** Incorrect. This is not one of the two key functions of the AS Path attribute.

   **Explanation B.** Correct. This is one of the two key functions of the AS Path attribute.

   **Explanation C.** Incorrect. This is not one of the two key functions of the AS Path attribute.

   **Explanation D.** Correct. This is one of the two key functions of the AS Path attribute.

   PrepLogic Question: 12374-1076

3. Review Question p. 41

   **Answers: C, D**

   **Explanation A.** Incorrect. This is not the correct name for one of the two classes of BGP peers.

   **Explanation B.** Incorrect. This is not the correct name for one of the two classes of BGP peers.

**Explanation C.** Correct. The two classes are external BGP (eBGP) and internal BGP (iBGP).

**Explanation D.** Correct. The two classes are external BGP (eBGP) and internal BGP (iBGP).

**Explanation E.** Incorrect. This is not the correct name for one of the two classes of BGP peers.

**Explanation F.** Incorrect. This is not the correct name for one of the two classes of BGP peers.

PrepLogic Question: 12374-1077

4. Review Question p. 42

**Answers: A**

**Explanation A.** Correct. BGP adds its own ASN to the AS Path when advertising to external peers.

**Explanation B.** Incorrect. Internal peers do not send AS information to each other because they belong to the same AS.

**Explanation C.** Incorrect. BGP adds its own ASN to the AS Path when advertising to external peers.

**Explanation D.** Incorrect. BGP adds its own ASN to the AS Path when advertising to external peers.

PrepLogic Question: 12374-1078

5. Review Question p. 42

**Answers: A**

**Explanation A.** Correct. 0 is a valid but reserved ASN.

**Explanation B.** Incorrect. This is a public ASN.

**Explanation C.** Incorrect. This is a public ASN.

**Explanation D.** Incorrect. This is a public ASN.

PrepLogic Question: 12374-1079

6. Review Question p. 42

**Answers: A**

**Explanation A.** Correct. These ASNs are reserved for private use and are not Internet routable.

**Explanation B.** Incorrect. The correct range is 64,512 - 65,534.

**Explanation C.** Incorrect. The correct range is 64,512 - 65,534.

**Explanation D.** Incorrect. This range is reserved for use in documentation and examples.

PrepLogic Question: 12374-1080

7. Review Question p. 43

**Answers: A**

**Explanation A.** Correct. This is not a possible BGP route advertisement choice from an ISP.

**Explanation B.** Incorrect. This is a valid choice.

**Explanation C.** Incorrect. This is a valid choice.

**Explanation D.** Incorrect. This is a valid choice.

PrepLogic Question: 12374-1081

8. Review Question p. 43

**Answers: A, D**

**Explanation A.** Correct. Because there is only one Internet connection, there is no reason to pull in BGP partial or full routes since they would all point to the same place.

**Explanation B.** Incorrect. Because there is only one Internet connection, there is no reason to pull in BGP partial or full routes since they would all point to the same place.

**Explanation C.** Incorrect. Because there is only one Internet connection, there is no reason to pull in BGP partial or full routes since they would all point to the same place.

**Explanation D.** Correct. Because there is only one Internet connection, there is no reason to pull in BGP partial or full routes since they would all point to the same place.

PrepLogic Question: 12374-1082

9. Review Question p. 44

**Answers: B**

**Explanation A.** Incorrect. The only two eBGP links will be the connection from the two edge routers to the ISP routers.

**Explanation B.** Correct. The only two eBGP links will be the connection from the two edge routers to the ISP routers.

**Explanation C.** Incorrect. The only two eBGP links will be the connection from the two edge routers to the ISP routers.

**Explanation D.** Incorrect. The only two eBGP links will be the connection from the two edge routers to the ISP routers.

PrepLogic Question: 12374-1083

10. Review Question p. 44

**Answers: D**

**Explanation A.** Incorrect. The correct answer is neighbor 10.99.99.254 remote-as 1.

**Explanation B.** Incorrect. The correct answer is neighbor 10.99.99.254 remote-as 1.

**Explanation C.** Incorrect. The correct answer is neighbor 10.99.99.254 remote-as 1.

**Explanation D.** Correct. This command configures a neighbor at IP 10.99.99.254 on AS 1.

PrepLogic Question: 12374-1084

11. Review Question p. 44

**Answers: C**

**Explanation A.** Incorrect. The correct term is inter-domain routing.

**Explanation B.** Incorrect. The correct term is inter-domain routing.

**Explanation C.** Correct. Routing between autonomous systems is called inter-domain routing. In regards to the Internet, BGP is used for inter-domain routing.

**Explanation D.** Incorrect. The correct term is inter-domain routing.

PrepLogic Question: 12374-1085

12. Review Question p. 45

**Answers: C**

**Explanation A.** Incorrect. Because we are in AS 65101, the routers will not see their own AS number.

**Explanation B.** Incorrect. Because we are in AS 65101, the routers will not see their own AS number. Also, AS 65300 is not in the path to 65400 so it will not be in the AS Path to 65401

**Explanation C.** Correct. When viewing the AS Path from AS 65101, this is what it will look like.

**Explanation D.** Incorrect. AS 65300 is not in the path to 65400 so it will not be in the AS Path to 65401

PrepLogic Question: 12374-1086

13. Review Question p. 45

**Answers: B**

**Explanation A.** Incorrect. The command shows the BGP neighbor database.

**Explanation B.** Correct. The command shows a summary of BGP info, table version, number of networks, etc.

**Explanation C.** Incorrect. The command shows the BGP neighbor database.

**Explanation D.** Incorrect. The command shows the BGP neighbor database.

PrepLogic Question: 12374-1087

14. Review Question p. 46

**Answers: D**

**Explanation A.** Incorrect. The local routers ASN must be referenced by the neighbor router in the neighbor remote-as command.

**Explanation B.** Incorrect. The router IDs of directly connected neighbors cannot match.

**Explanation C.** Incorrect. The router neighbors must have matching MD5 authentication if it is configured.

**Explanation D.** Correct. The ASN doesn't have to match.

PrepLogic Question: 12374-1088

15. Review Question p. 46

**Answers: B**

**Explanation A.** Incorrect. Cisco sets the TTL to 1 which means if you use a loopback interface, you need to use the ebgp-multihop command and specify a TTL of 2 or higher.

**Explanation B.** Correct. Cisco sets the TTL to 1 which means if you use a loopback interface, you need to use the ebgp-multihop command and specify a TTL of 2 or higher.

**Explanation C.** Incorrect. Cisco sets the TTL to 1 which means if you use a loopback interface, you need to use the ebgp-multihop command and specify a TTL of 2 or higher.

**Explanation D.** Incorrect. Cisco sets the TTL to 1 which means if you use a loopback interface, you need to use the ebgp-multihop command and specify a TTL of 2 or higher.

PrepLogic Question: 12374-1089

16. Review Question p. 46

**Answers: B**

**Explanation A.** Incorrect. The correct term is Active.

**Explanation B.** Correct. The active state is when the peers have established a connection but no open messages have yet been exchanged.

**Explanation C.** Incorrect. The correct term is Active.

**Explanation D.** Incorrect. The correct term is Active.

PrepLogic Question: 12374-1090

17. Review Question p. 47

**Answers: C**

**Explanation A.** Incorrect. The correct term is Connect.

**Explanation B.** Incorrect. The correct term is Connect.

**Explanation C.** Correct. This state is waiting for TCP to complete the handshake.

**Explanation D.** Incorrect. The correct term is Connect.

PrepLogic Question: 12374-1091

18. Review Question p. 47

**Answers: A**

**Explanation A.** Correct. This is the correct statement to set a prefix-list to a BGP peer.

**Explanation B.** Incorrect. The correct statement is neighbor 10.100.100.1 prefix-list filter_me out.

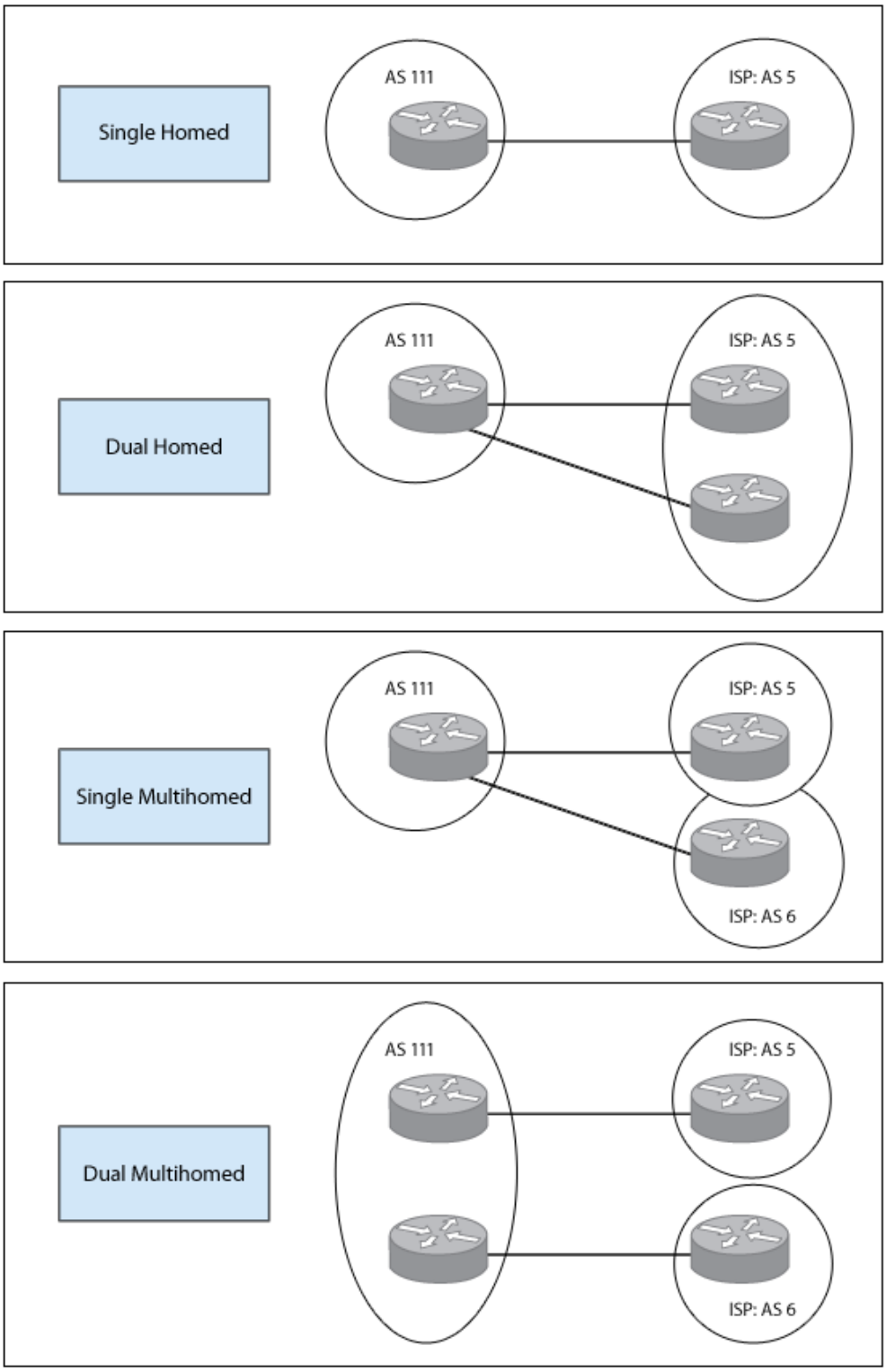
**Explanation C.** Incorrect. The correct statement is neighbor 10.100.100.1 prefix-list filter_me out.

**Explanation D.** Incorrect. The correct statement is neighbor 10.100.100.1 prefix-list filter_me out.

PrepLogic Question: 12374-1092

19. Review Question p. 49

**Answer:**

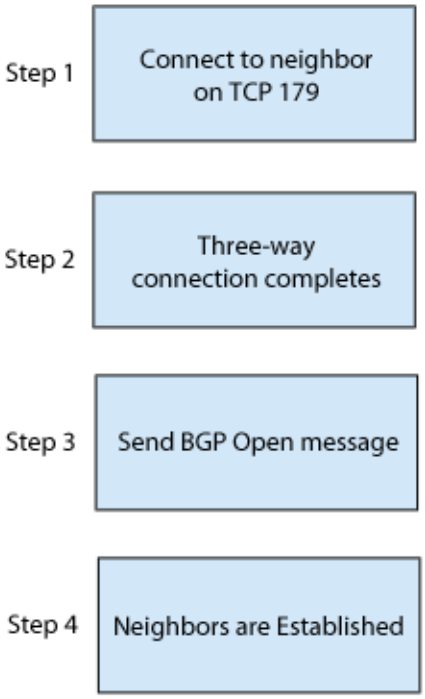


**Explanation:**

PrepLogic Question: 12374-20

20. Review Question p. 50

**Answer:**




**Explanation:**

PrepLogic Question: 12374-21

# Explanations: Chapter 5

1. Review Question p. 51

   **Answers: C**

   **Explanation A.** Incorrect. The correct address is 2001:0000:0001:0002:0000:0000:0000:ABCD.

   **Explanation B.** Incorrect. The correct address is 2001:0000:0001:0002:0000:0000:0000:ABCD.

   **Explanation C.** Correct. Consecutive 0's can be shown as :: but this can be used only one time per address.

   **Explanation D.** Incorrect. The correct address is 2001:0000:0001:0002:0000:0000:0000:ABCD.

   PrepLogic Question: 12374-1093

2. Review Question p. 51

   **Answers: B**

   **Explanation A.** Incorrect. This is a valid IPv6 address although it could be shortened using the "::".

   **Explanation B.** Correct. The :: can only be used one time in an address.

   **Explanation C.** Incorrect. This is a valid IPv6 address.

   **Explanation D.** Incorrect. This is a valid IPv6 address.

   PrepLogic Question: 12374-1094

3. Review Question p. 51

   **Answers: C**

   **Explanation A.** Incorrect. The correct prefix for a /56 is 2000:1234:5556:2300::/56.

   **Explanation B.** Incorrect. The correct prefix for a /56 is 2000:1234:5556:2300::/56.

   **Explanation C.** Correct. This is the correct prefix in which the address in question resides.

**Explanation D.** Incorrect. The correct prefix for a /56 is 2000:1234:5556:2300::/56.

PrepLogic Question: 12374-1095

4. Review Question p. 52

**Answers: D**

**Explanation A.** Incorrect. The correct method is stateless autoconfig.

**Explanation B.** Incorrect. The correct method is stateless autoconfig.

**Explanation C.** Incorrect. The correct method is stateless autoconfig.

**Explanation D.** Correct. This method uses NDP for dynamic assignment of IPv6 addresses.

PrepLogic Question: 12374-1096

5. Review Question p. 52

**Answers: C**

**Explanation A.** Incorrect. The correct term is anycast address.

**Explanation B.** Incorrect. The correct term is anycast address.

**Explanation C.** Correct. Anycast is a feature which routes traffic to the closest server that provides the same content with other servers sharing the same IPv6 address.

**Explanation D.** Incorrect. The correct term is anycast address.

PrepLogic Question: 12374-1097

6. Review Question p. 52

**Answers: A**

**Explanation A.** Correct. A router can have multiple addresses assigned to an interface. There is no concept of secondary address like those found in IPv4.

**Explanation B.** Incorrect. A router can have multiple addresses assigned to an interface. They don't have to be in the same prefix space.

**Explanation C.** Incorrect. A router can have multiple addresses assigned to an interface.

**Explanation D.** Incorrect. A router can have multiple addresses assigned to an interface. There is no concept of secondary address as found in IPv4.

PrepLogic Question: 12374-1098

7. Review Question p. 53

**Answers: C**

**Explanation A.** Incorrect. It uses the MAC of the lowest numbered LAN interface.

**Explanation B.** Incorrect. It uses the MAC of the lowest numbered LAN interface.

**Explanation C.** Correct. This is how the router handles situations where a MAC is needed for an IPv6 address but the interface does not have one.

**Explanation D.** Incorrect. It uses the MAC of the lowest numbered LAN interface.

PrepLogic Question: 12374-1099

8. Review Question p. 53

**Answers: C**

**Explanation A.** Incorrect. The correct debug command is debug ipv6 nd.

**Explanation B.** Incorrect. The correct debug command is debug ipv6 nd.

**Explanation C.** Correct. This command debugs IPv6 neighbor discover messages.

**Explanation D.** Incorrect. The correct debug command is debug ipv6 nd.

PrepLogic Question: 12374-1100

9. Review Question p. 54

**Answers: B**

**Explanation A.** Incorrect. The correct way to enable the interface to run RIPng would be ipv6 rip CCNP-lab enable.

**Explanation B.** Correct. This is the correct way to configure RIPng on an interface.

**Explanation C.** Incorrect. The correct way to enable the interface to run RIPng would be ipv6 rip CCNP-lab enable.

**Explanation D.** Incorrect. The correct way to enable the interface to run RIPng would

be ipv6 rip CCNP-lab enable.

PrepLogic Question: 12374-1101

10. Review Question p. 54

**Answers: A**

**Explanation A.** Correct. IPv6 EIGRP does not require that neighbors belong to the same subnet to form a neighbor relationship.

**Explanation B.** Incorrect. This is a valid statement about IPv6 EIGRP.

**Explanation C.** Incorrect. This is a valid statement about IPv6 EIGRP.

**Explanation D.** Incorrect. This is a valid statement about IPv6 EIGRP.

PrepLogic Question: 12374-1102

11. Review Question p. 55

**Answers: D, E**

**Explanation A.** Incorrect. An RID can be manually configured. Even for IPv6, the RID must be a 32 bit value.

**Explanation B.** Incorrect. If configured, the IPv4 address of a loopback interface may be used.

**Explanation C.** Incorrect. If configured, the IPv4 address of a non-loopback interface may be used.

**Explanation D.** Correct. EIGRP for IPv6 still uses a 32 bit value so it uses IPv4 addressing on loopback or non-loopback interfaces if they are configured.

**Explanation E.** Correct. EIGRP for IPv6 still uses a 32 bit value, so it uses IPv4 addressing on loopback or non-loopback interfaces if they are configured.

PrepLogic Question: 12374-1103

12. Review Question p. 55

**Answers: D**

**Explanation A.** Incorrect. This is not a reason to configure IPv6 tunneling instead of configuring IPv6 natively.

**Explanation B.** Incorrect. This is not a reason to configure IPv6 tunneling instead of configuring IPv6 natively.

**Explanation C.** Incorrect. This is not a reason to configure IPv6 tunneling instead of configuring IPv6 natively.

**Explanation D.** Correct. If you only need to support pockets of IPv6 hosts, you can tunnel the IPv6 traffic over IPv4 through the use of tunnels.

PrepLogic Question: 12374-1104

13. Review Question p. 55

**Answers: B**

**Explanation A.** Incorrect. The correct method is 6to4.

**Explanation B.** Correct. This method typically requires fewer commands than other methods and uses the second and third quartets to store the IPv4 address.

**Explanation C.** Incorrect. The correct method is 6to4.

**Explanation D.** Incorrect. The correct method is 6to4.

PrepLogic Question: 12374-1105

14. Review Question p. 56

**Answers: A**

**Explanation A.** Correct. This statement must be configured on every interface on which traffic needs to be translated.

**Explanation B.** Incorrect. The correct command is ipv6 nat.

**Explanation C.** Incorrect. The correct command is ipv6 nat.

**Explanation D.** Incorrect. The correct command is ipv6 nat.

PrepLogic Question: 12374-1106

15. Review Question p. 56

**Answers: C**

**Explanation A.** Incorrect. The best tunnel for this scenario is a Multipoint IPv6 tunnel.

**Explanation B.** Incorrect. The best tunnel for this scenario is a Multipoint IPv6 tunnel.

**Explanation C.** Correct. The best tunnel for this scenario is a Multipoint IPv6 tunnel.

**Explanation D.** Incorrect. The best tunnel for this scenario is a Multipoint IPv6 tunnel.

PrepLogic Question: 12374-1107

16. Review Question p. 56

**Answers: B**

**Explanation A.** Incorrect. If you see the command tunnel mode ipv6ip in the tunnel configuration, then manual tunnels are used.

**Explanation B.** Correct. If you see the command tunnel mode ipv6ip in the tunnel configuration, then manual tunnels are used.

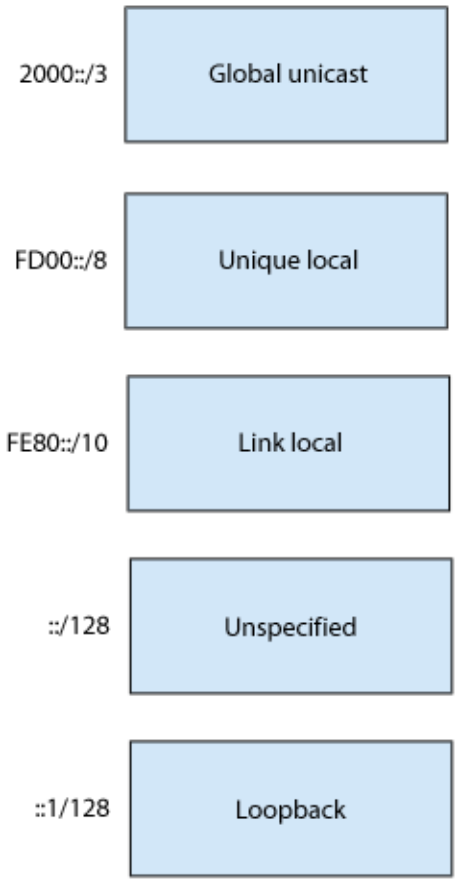
**Explanation C.** Incorrect. If you see the command tunnel mode ipv6ip in the tunnel configuration, then manual tunnels are used.

**Explanation D.** Incorrect. If you see the command tunnel mode ipv6ip in the tunnel configuration, then manual tunnels are used.

PrepLogic Question: 12374-1108

17. Review Question p. 57

**Answer:**




## Explanation:

PrepLogic Question: 12374-22

# Explanations: Chapter 6

1. Review Question p. 58

   **Answers: D**

   **Explanation A.** Incorrect. Multiple offset lists can be configured. If you specify an interface, the offset-list is considered an extended offset-list and has precedence over a normal offset-list.

   **Explanation B.** Incorrect. An offset list can specify an interface or it can be used globally for all interfaces. If you specify an interface, the offset-list is considered an extended offset-list and has precedence over a normal offset-list.

   **Explanation C.** Incorrect. The offset amount is added to the delay value.

   **Explanation D.** Correct. If you specify an interface, the offset-list is considered an extended offset-list and takes precedence over a normal offset-list.

   PrepLogic Question: 12374-1109

2. Review Question p. 58

   **Answers: C**

   **Explanation A.** Incorrect. As long as both routes are reachable, the route to 172.16.1.1 will be used because it has a lower AD (2 compared to 3).

   **Explanation B.** Incorrect. As long as both routes are reachable, the route to 172.16.1.1 will be used because it has a lower AD (2 compared to 3).

   **Explanation C.** Correct. As long as both routes are reachable, the route to 172.16.1.1 will be used because it has a lower AD (2 compared to 3).

   **Explanation D.** Incorrect. As long as both routes are reachable, the route to 172.16.1.1 will be used because it has a lower AD (2 compared to 3).

   PrepLogic Question: 12374-1110

3. Review Question p. 59

   **Answers: C**

   **Explanation A.** Incorrect. This can be a reason to implement policy routing.

   **Explanation B.** Incorrect. This can be a reason to implement policy routing.

**Explanation C.** Correct. This is not a possible benefit of policy routing.

**Explanation D.** Incorrect. This can be a reason to implement policy routing.

**Explanation E.** Incorrect. This can be a reason to implement policy routing.

PrepLogic Question: 12374-1111

4. Review Question p. 59

**Answers: A**

**Explanation A.** Correct. This is the order the router will use if there are multiple set statements.

**Explanation B.** Incorrect. This is not the correct order of precedence.

**Explanation C.** Incorrect. This is not the correct order of precedence.

**Explanation D.** Incorrect. This is not the correct order of precedence.

PrepLogic Question: 12374-1112

5. Review Question p. 60

**Answers: A**

**Explanation A.** Correct. Both RIPv2 and OSPF routing protocols can implement and utilize route tagging.

**Explanation B.** Incorrect. RIPv2 does not understand internal and external route concepts.

**Explanation C.** Incorrect. RIPv2 cannot understanding of internal and external route concepts, which would be needed to set a different AD for external and internal routes.

**Explanation D.** Incorrect. RIPv2 does not understand internal and external route concepts.

PrepLogic Question: 12374-1113

6. Review Question p. 60

**Answers: D**

**Explanation A.** Incorrect. A number between 0 to 4294967295 is chosen to act as the tag identifier for that route.

**Explanation B.** Incorrect. A number between 0 to 4294967295 is chosen to act as the tag identifier for that route.

**Explanation C.** Incorrect. A number between 0 to 4294967295 is chosen to act as the tag identifier for that route.

**Explanation D.** Correct. A number between 0 to 4294967295 is chosen to act as the tag identifier for that route.

PrepLogic Question: 12374-1114

7. Review Question p. 61

**Answers: A, C**

**Explanation A.** Correct. PBR takes control of how packets are routed instead of the typical destination-based forwarding logic.

**Explanation B.** Incorrect. PBR intercepts the packet after de-encapsulation on the inbound interface.

**Explanation C.** Correct. PBR intercepts the packet after de-encapsulation on the inbound interface.

**Explanation D.** Incorrect. PBR takes control of how packets are routed instead of the typical destination-based forwarding logic.

PrepLogic Question: 12374-1115

8. Review Question p. 61

**Answers: B**

**Explanation A.** Incorrect. The correct command is show ip route-map.

**Explanation B.** Correct. This command is useful to verify that a PBR rule is working properly.

**Explanation C.** Incorrect. The correct command is show ip route-map.

**Explanation D.** Incorrect. The correct command is show ip route-map.

PrepLogic Question: 12374-1116

9. Review Question p. 61

**Answers: A**

**Explanation A.** Correct. This is the network engineers' only way to actually see what packets are PBR routed.

**Explanation B.** Incorrect. The correct command is debug ip policy.

**Explanation C.** Incorrect. The correct command is debug ip policy.

**Explanation D.** Incorrect. The correct command is debug ip policy.

PrepLogic Question: 12374-1117

10. Review Question p. 62

**Answers: C**

**Explanation A.** Incorrect. The time regulates flapping of the tracking state. It has noting to do with dynamic routing protocols.

**Explanation B.** Incorrect. It is used to regulate flapping of the tracking state.

**Explanation C.** Correct. It is used to regulate flapping of the tracking state.

**Explanation D.** Incorrect. It is used to regulate flapping of the tracking state.

PrepLogic Question: 12374-1118

11. Review Question p. 62

**Answers: B**

**Explanation A.** Incorrect. The correct answer is show track.

**Explanation B.** Correct. This command shows IP SLA tracking information including interfaces, number of changes and the last time a track state transitioned from up to down.

**Explanation C.** Incorrect. The correct answer is show track.

**Explanation D.** Incorrect. The correct answer is show track.

PrepLogic Question: 12374-1119

12. Review Question p. 62

**Answers: C**

**Explanation A.** Incorrect. The proper command is show crypto map.

**Explanation B.** Incorrect. The proper command is show crypto map.

**Explanation C.** Correct. This command is useful when viewing the ACLs associated to the VPN tunnel and where it is applied.

**Explanation D.** Incorrect. The proper command is show crypto map.

PrepLogic Question: 12374-1120

13. Review Question p. 63

**Answers: D**

**Explanation A.** Incorrect. A static route with an AD higher than the primary route is required.

**Explanation B.** Incorrect. A static route with an AD higher than the primary route is required.

**Explanation C.** Incorrect. A static route with an AD higher than the primary route is required.

**Explanation D.** Correct. This is also referred to as a floating static route.

PrepLogic Question: 12374-1121

14. Review Question p. 63

**Answers: B**

**Explanation A.** Incorrect. This statement is true but the better statement is to say that VPNs do not carry broadcast or multicast traffic.

**Explanation B.** Correct. Because of these limitations, routing protocols which rely heavily on broadcast and multicast cannot function unless you tunnel the traffic through the VPN.

**Explanation C.** Incorrect. This statement is true but the better statement is to say that VPNs do not carry broadcast or multicast traffic.

**Explanation D.** Incorrect. VPNs do not carry broadcast or multicast traffic. They carry unicast traffic.

PrepLogic Question: 12374-1122

15. Review Question p. 63

**Answers: C**

**Explanation A.** Incorrect. This is to allow ISAKMP.

**Explanation B.** Incorrect. This is to allow NAT-T.

**Explanation C.** Correct. IP protocol 50 is used for Encapsulating Security Protocol (ESP).

**Explanation D.** Incorrect. This is to allow Authentication Header (AH).

PrepLogic Question: 12374-1123

16. Review Question p. 64

**Answers: B**

**Explanation A.** Incorrect. This tunnel is good for spoke-to-spoke connections but the configuration is larger and more complex compared to the newer GET VPN method.

**Explanation B.** Correct. This tunnel is good for spoke-to-spoke connections and only requires a few commands to implement.

**Explanation C.** Incorrect. This tunnel creates an always-on tunnel similar to GRE.

**Explanation D.** Incorrect. This tunnel creates an always-on tunnel.

PrepLogic Question: 12374-1124

17. Review Question p. 64

**Answers: C**

**Explanation A.** Incorrect. All IPs that fall within the 192.168.X.X range are private addresses that are not routed on the Internet.

**Explanation B.** Incorrect. All IPs that fall within the 172.(16-31).X.X range are private addresses that are not routed on the Internet.

**Explanation C.** Correct. This IP is used for local loopback testing on devices that understand IPv4 but it is not an RFC 1918 defined private address.

**Explanation D.** Incorrect. All IPs that fall within the 10.X.X.X range are private addresses that are not routed on the Internet.

PrepLogic Question: 12374-1125

18. Review Question p. 64

**Answers: C**

**Explanation A.** Incorrect. This does not reduce routing table sizes on the Internet.

**Explanation B.** Incorrect. This does not reduce routing table sizes on the Internet.

**Explanation C.** Correct. By allocating large global chunks of IP routing space to ISPs, the ICANN reduces the size of the Internet routing table.

**Explanation D.** Incorrect. The ICANN still allocates these address blocks as needed (and if available).

PrepLogic Question: 12374-1126

19. Review Question p. 65

**Answers: D**

**Explanation A.** Incorrect. PAT is connection based. Since a client can (and often does) have more than one connection, the maximum number of clients is based on usage as opposed to exact client numbers. An IP address has 65535 TCP/UDP ports associated to it. These ports are used do differentiate multiple connections from a single IP. When using PAT behind a single public address, The network can support up to approximately 64511 simultaneous Internet TCP connections (65535-1024).

**Explanation B.** Incorrect. PAT is connection based. Since a client can (and often does) have more than one connection, the maximum number of clients is based on usage as opposed to exact client numbers. An IP address has 65535 TCP/UDP ports associated to it. These ports are used do differentiate multiple connections from a single IP. When using PAT behind a single public address, The network can support up to approximately 64511 simultaneous Internet TCP connections (65535-1024).

**Explanation C.** Incorrect. PAT is connection based. Since a client can (and often does) have more than one connection, the maximum number of clients is based on usage as opposed to exact client numbers. An IP address has 65535 TCP/UDP ports associated to it. These ports are used do differentiate multiple connections from a single IP. When using PAT behind a single public address, The network can support up to approximately 64511 simultaneous Internet TCP connections (65535-1024).

**Explanation D.** Correct. PAT is connection based. Since a client can (and often does) have more than one connection, the maximum number of clients is based on usage as opposed to exact client numbers. An IP address has 65535 TCP/UDP ports associated to

it. These ports are used do differentiate multiple connections from a single IP. When using PAT behind a single public address, The network can support up to approximately 64511 simultaneous Internet TCP connections (65535-1024).

PrepLogic Question: 12374-1127

20. Review Question p. 65

**Answers: B**

**Explanation A.** Incorrect. The diagram shows a dynamic NAT table with overloading.

**Explanation B.** Correct. The diagram shows a dynamic NAT table with overloading.

**Explanation C.** Incorrect. The diagram shows a dynamic NAT table with overloading.

**Explanation D.** Incorrect. The diagram shows a dynamic NAT table with overloading.

PrepLogic Question: 12374-1128

21. Review Question p. 66

**Answers: C**

**Explanation A.** Incorrect. The best answer is IPsec tunnel without split tunneling.

**Explanation B.** Incorrect. The best answer is IPsec tunnel without split tunneling.

**Explanation C.** Correct. By routing all traffic to the home office, all Internet traffic from the remote site can be secured behind a firewall, IPsec and any other security appliance implemented.

**Explanation D.** Incorrect. The best answer is IPsec tunnel without split tunneling.

PrepLogic Question: 12374-1129

22. Review Question p. 66

**Answers: A**

**Explanation A.** Correct. Analog voice calls are designed to collect sounds that range from 300 to 3300 Hz. DSL operates above 4000 Hz and therefore does not interfere with voice communications.

**Explanation B.** Incorrect. Analog voice calls are designed to collect sounds that range from 300 to 3300 Hz. DSL operates above 4000 Hz and therefore does not interfere with voice communications.

**Explanation C.** Incorrect. Analog voice calls are designed to collect sounds that range from 300 to 3300 Hz. DSL operates above 4000 Hz and therefore does not interfere with voice communications.

**Explanation D.** Incorrect. Analog voice calls are designed to collect sounds that range from 300 to 3300 Hz. DSL operates above 4000 Hz and therefore does not interfere with voice communications.

PrepLogic Question: 12374-1130

23. Review Question p. 67

**Answers: B**

**Explanation A.** Incorrect. A DSLAM is responsible for segmenting analog and digital streams coming from the remote site.

**Explanation B.** Correct. A DSLAM is responsible for segmenting analog and digital streams coming from the remote site.

**Explanation C.** Incorrect. A DSLAM is responsible for segmenting analog and digital streams coming from the remote site.

**Explanation D.** Incorrect. A DSLAM is responsible for segmenting analog and digital streams coming from the remote site.

PrepLogic Question: 12374-1131

24. Review Question p. 67

**Answers: C**

**Explanation A.** Incorrect. Payloads are fixed at 48 bytes.

**Explanation B.** Incorrect. Payloads are fixed at 48 bytes.

**Explanation C.** Correct. Payloads are 48 bytes.

**Explanation D.** Incorrect. ATM packets are 53 bytes but the payload is 48 while the header information adds the additional 5 bytes.

PrepLogic Question: 12374-1132

25. Review Question p. 67

**Answers: B**

**Explanation A.** Incorrect. The correct global configuration command is ip dhcp excluded-address <low-IP> <high-IP>.

**Explanation B.** Correct. This command is a global configuration setting.

**Explanation C.** Incorrect. The correct global configuration command is ip dhcp excluded-address <low-IP> <high-IP>.

**Explanation D.** Incorrect. The correct global configuration command is ip dhcp excluded-address <low-IP> <high-IP>.

PrepLogic Question: 12374-1133

26. Review Question p. 68

**Answers: B, C**

**Explanation A.** Incorrect. Ethernet works at layer 2 of the OSI model.

**Explanation B.** Correct. This is a correct statement about PPPoE.

**Explanation C.** Correct. This is a correct statement about PPPoE.

**Explanation D.** Incorrect. PPPoE uses CHAP for authentication.

PrepLogic Question: 12374-1134

27. Review Question p. 68

**Answers: C**

**Explanation A.** Incorrect. This feature is commonly used in large central sites and sometimes found at remote sites that require it.

**Explanation B.** Incorrect. This feature is commonly used both by large central sites and remote sites.

**Explanation C.** Correct. Typically, large central sites have dedicated servers to handle DHCP services. But in smaller locations, the Cisco router can be used to handle these duties.

**Explanation D.** Incorrect. System logging is commonly found to be used in both small and large organizations.

PrepLogic Question: 12374-1135

28. Review Question p. 68

**Answers: B**

**Explanation A.** Incorrect. This is a valid authentication option.

**Explanation B.** Correct. The simple password must be accompanied by a username.

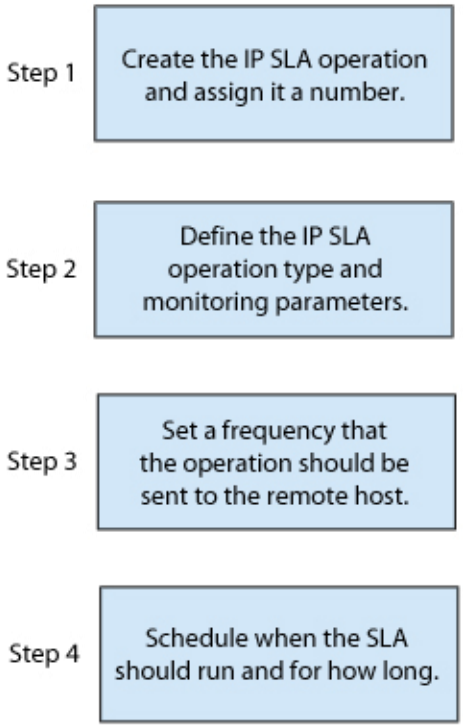
**Explanation C.** Incorrect. Cisco VPN supports authentication using biometrics.

**Explanation D.** Incorrect. This is a valid authentication option.

PrepLogic Question: 12374-1136

29. Review Question p. 69

**Answer:**

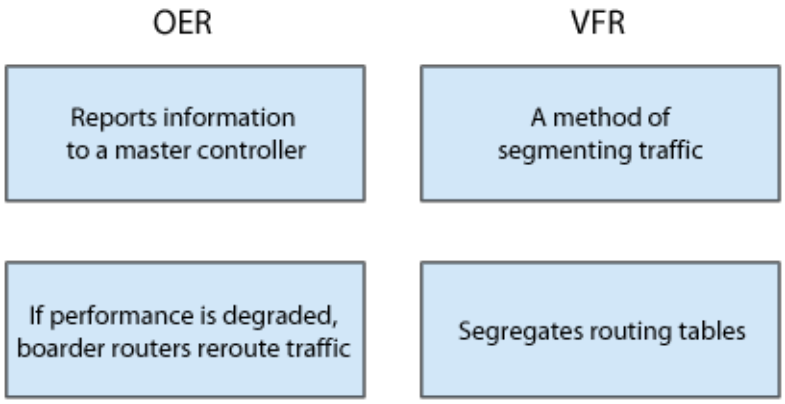



**Explanation:**

PrepLogic Question: 12374-16

30. Review Question p. 70

**Answer:**

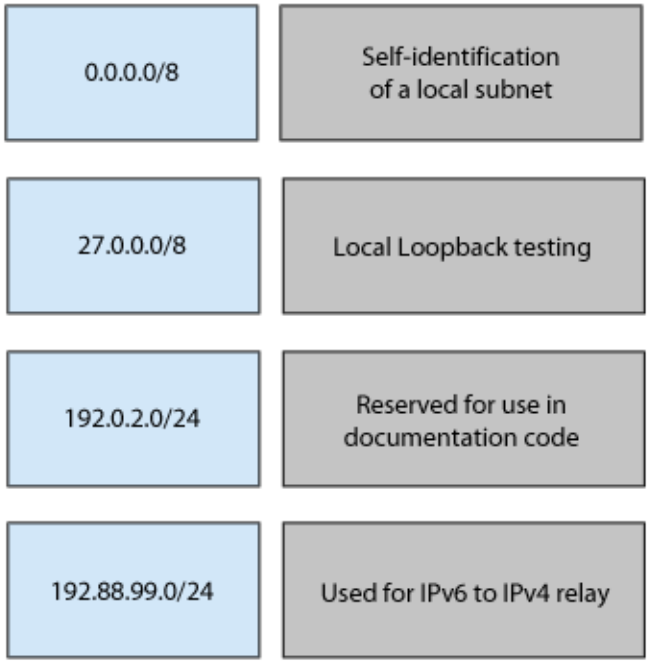



**Explanation:**

PrepLogic Question: 12374-17

31. Review Question p. 71

**Answer:**




**Explanation:**

PrepLogic Question: 12374-18