

QUESTION 401

The 192.168.0.0/16 network is not being propagated throughout the network via BGP as expected. Observe the BGP configuration commands from the advertising router shown below.

```
Router bgp 65111
neighbor 172.16.1.1 remote-as 65111
neighbor 172.16.2.1 remote-as 65112
network 192.168.0.0
network 10.0.0.0
!
```

```
ip route 192.168.0.0 255.255.0.0 null0
```

What is the reason the 192.168.0.0/16 route is not being advertised?

- A. The network 192.168.0.0 statement is missing mask 255.255.0.0
- B. The network 192.168.0.0 statement is missing mask 0.0.255.255
- C. The network 10.0.0.0 statement is missing mask 255.0.0.0
- D. The network 10.0.0.0 statement is missing mask 0.255.255.255
- E. The auto-summary configuration is missing

Answer: A

Explanation:

The network 192.168.0.0 statement is missing mask 255.255.0.0. Without the mask command used in a network statement, the route may not get properly injected into the BGP routing process.

QUESTION 402

The Certkiller network is redistributing routing information from OSPF and EIGRP. Which three steps are most helpful in verifying proper route redistribution? (Select three)

- A. On the routers not performing the route redistribution, use the show ip route command to see if the redistributed routes show up.
- B. On the ASBR router performing the route redistribution, use the show ip protocol command to verify the redistribution configurations
- C. On the ASBR router performing the route redistribution, use the show ip route command to verify that the proper routes from each routing protocol are there.
- D. On the routers not performing the route redistribution, use the show ip protocols command to verify the routing information sources.
- E. On the routers not performing the route redistribution, use the debug ip routing command to verify the routing updates from the ASBR.

Answer: A, B, C

Explanation:

In order to verify proper route redistribution, use the "show ip route" command on all routers

within the network, as well as the ASBR, to verify that the routes are properly being advertised to all routers. In addition, issuing the "show ip protocol" can be used on the router performing the redistribution to verify that routes are being redistributed into each other.

Incorrect Answers:

D: Issuing this command on a non-redistribution router will not tell us where and how the routes are originating from. This command will only be useful on the redistributing routers.

E: This command can not be used to verify the redistributed routes.

QUESTION 403

Exhibit

```
Certkiller1#sh ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address	Interface
10.200.200.13	1	FULL/DR	00:00:33	10.1.1.3	Ethernet0/0

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```
Certkiller3#sh ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address	Interface
172.31.1.1	2	FULL/DR	00:00:31	10.1.1.1	Ethernet0/0

Certkiller A# show ip route isis

```
10.0.0.0/8 is variably subnetted, 7 subnets, 3 masks
IL2 10.200.200.14/32 [115/30] via 10.1.0.2, Serial 1/0
IL1 10.200.200.13/32 [115/20] via 10.1.1.3, Ethernet 0/0
IL1 10.1.3.0/24 [115/20] via 10.1.1.3, Ethernet 0/0
IL2 10.1.2.0/23 [115/20] via 10.1.0.2, Serial 1/0
I su 10.1.0.0/23 [115/10] via 0.0.0.0, Null0
```

Based on the show ip route isis output on Router Certkiller A, which statement is true?

- A. The i su 10.1.0.0/23 route is an IS-IS external route.
- B. The R1 IS-IS router is an ASBR.
- C. The u su 10.1.0.0/23 route is a suppressed route.
- D. The i su 10.1.0.0/23 route is a summary route.
- E. The R1 IS-IS router is an ABR that belongs to multiple IS-IS areas.
- F. The R1 IS-IS route is performing route aggregation and is suppressing the more 10.1.0.0/23 prefix.

Answer: F

QUESTION 404

Exhibit



Certkiller A# show ip eigrp topology

IP-EIGRP Topology Table for process 200

Codes:P - Passive, A - Active, U- Update, Q - Query, R - Reply, r - Reply status

P 192.168.1.64/28, 1 successors, FD is 281600

Via Connected, Ethernet0

P 192.168.1.32/28, 1 successors, FD is 40512000
Via Connected, Serial1
P 192.168.1.48/28, 1 successors, FD is 40537600
Via 192.168.1.66 (40537600/40512000), Ethernet0
Via 192.168.1.77 (41024000/40512000), Serial0
Via 192.168.1.33 (41024000/40512000), Serial1
P 192.168.1.16/28, 1 successors, FD is 40512000
Via Connected, Serial0

Based on the above show ip eigrp topology output, which three statements are true? (Choose three.)

- A. Certkiller A is in AS 200
- B. Certkiller A will balance between three paths to reach the 192.168.1.48/28 prefix, because all three paths have the same AD of 40512000.
- C. The best path for Certkiller A to reach the 192.168.1.48/28 prefix is via 192.168.1.66.
- D. 40512000 is the AD via 192.168.1.166 to reach the 192.168.1.48/28 prefix.
- E. All the router are in the passive mode because these router are in the hold-down state.
- F. All the router are in the passive mode, because Certkiller A is in the query process for those router.

Answer: A, C, D

QUESTION 405

Exhibit

The Certkiller 1 and Certkiller 3 routers are OSPF neighbors over the Ethernet 0/0 connection. Based on the show ip ospf neighbor output from the Certkiller 1 and Certkiller 3 routers, which statement is true?

- A. Certkiller 1 is the DR because it has a higher OSPF router priority.
- B. Certkiller 1 is the DR because it has a lower OSPF router ID.
- C. Certkiller 3 is the DR because it has a higher OSPF router priority.
- D. Certkiller 3 is the DR because it has a lower OSPF router ID.
- E. Both Certkiller 1 and Certkiller 3 are using the default OSPF router priority.

Answer: A

QUESTION 406

Exhibit, Network topology

Certkiller 3 is redistributing the EIGRP routes into OSPF. What will the EIGRP routes appear in the routing table of Certkiller 1?

- A. O
- B. O IA
- C. O E2
- D. D
- E. D EX

Answer: C

Explanation:

O E1 or O E2. The routes in this LSA are external to the autonomous system. They can be configured to have one of two values. E1 will include the internal cost to the ASBR added to the external cost reported by the ASBR. E2 does not compute the internal cost - it just reports the external cost to the remote destination.

QUESTION 407

Which three types of OSPF route entries can be found in the routing table of an internal OSPF router within an OSPF study area? Select three.

- A. O
- B. O IA
- C. O* OA
- D. O E1
- E. O E2
- F. O N1

Answer: A, B, C

QUESTION 408

EIGRP uses five generic packet types (hello, updates, queries, replies, acknowledgements). If you wished to view the statistics for these packets, which IOS command should you use?

- A. debug eigrp packets
- B. show ip eigrp traffic
- C. show ip eigrp topology
- D. show ip eigrp neighbors

Answer: B

Explanation:

The show ip eigrp traffic command displays the number of Enhanced IGRP (EIGRP) packets sent and received.

Example:

The following is sample output from the show ip eigrp traffic command:

```
Router# show ip eigrp traffic
IP-EIGRP Traffic Statistics for process 77
Hellos sent/received: 218/205
Updates sent/received: 7/23
Queries sent/received: 2/0
Replies sent/received: 0/2
Acks sent/received: 21/14
```

Reference:http://www.cisco.com/en/US/products/sw/iosswrel/ps1828/products_command_reference_chapter09186a00800ca5a9.html#wp1018815

QUESTION 409

While troubleshooting a routing problem on the Certkiller EIGRP network you discover that one of the routers is failing to establish adjacencies with its neighbor. What is a likely cause of this problem between neighbors? (Select two)

- A. The K-values do not match.
- B. The hold times do not match.
- C. The hello times do not match.
- D. The AS numbers do not match.

Answer: A, D

Explanation:

Peer relationships and adjacencies between routers will not be formed between EIGRP routers if the neighbor resides in a different autonomous system or if the metric-calculation mechanism (K values) is misaligned for that link.

Incorrect Answers:

B, C: It is possible for two routers to become EIGRP neighbors even though the hello and hold timers do not match.

QUESTION 410

While troubleshooting an EIGRP routing issue, you are seeing a high number of SIA (stuck in active) routes. Which of the following are causes of a route becoming SIA? (Select two)

- A. Some query or reply packets are lost between the routers.
- B. The neighboring router stops receiving ACK packets from this router.
- C. The neighboring router starts receiving route updates from this router.
- D. A failure causes traffic on a link between two neighboring routers to flow in only one direction (unidirectional link).

Answer: A, D

Explanation:

The acknowledgement does not reach the destination or they are too delayed. This is normally due to too many routing topology changes, or a router with insufficient memory.

Note: In some circumstances, it takes a very long time for a query to be answered. So long, in fact, that the router that issued the query gives up and clears its connection to the router that isn't answering, effectively restarting the neighbor session. This is known as a stuck in active (SIA) route. The most basic SIA routes occur when it simply takes too long for a query to reach the other end of the network and for a reply to travel back.

Incorrect Answers:

B: Ack packets don't reply to Query, only Reply do.

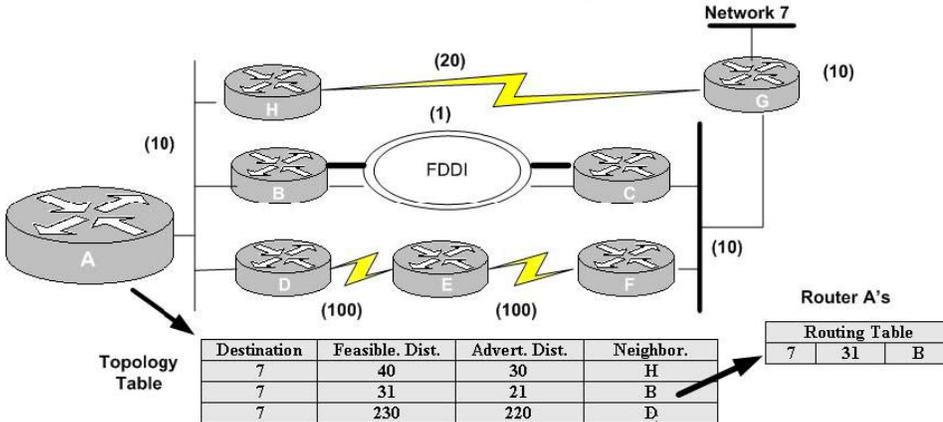
C: Does not apply to SI

A. This is the normal operation of EIGRP.

Reference: <http://www.cisco.com/warp/public/103/eigrp3.html>

QUESTION 411

The Certkiller network is displayed in the diagram below:



If the FDDI interface in the EIGRP network above were to fail or shut down, which router(s) will become Router A's next-hop to Network 7?

- A. B
- B. D only
- C. H only
- D. D and H

Answer: C

Explanation:

Router H will be the successor, and that route will be placed in the Routing table.

Router A detects the link failure between Router B and network 7. It checks the topology table for a successor. It finds that H is the successor since the advertised distance for H (30) is less than the feasible distance for B (31).

However, there is no next best route - no feasible successor. The candidate route through D has an advertised distance (220) that is higher than the feasible distance of the successor route (40).

QUESTION 412

The Certkiller network consists of a hub and spoke topology with a main router supporting about 20 regional offices. A point-to-point Frame Relay WAN connects the regional offices to the main office, and EIGRP is deployed as the routing protocol. The committed information rate (CIR) for each of the Frame Relay PVC's is different, and the bandwidth command IS NOT configured on any of the interfaces or subinterfaces. You want to ensure that EIGRP routes everything properly. How should you configure the network?

- A. Convert each Frame Relay PVC to point-to-multipoint connection
- B. Manually configure the bandwidth of the major interface to the lowest CIR x 24
- C. Manually configure the bandwidth of the major interface to the highest CIR x 24
- D. Manually configure the bandwidth of each of these PVCs to equal to their respective

CIR.

Answer: D

Explanation:

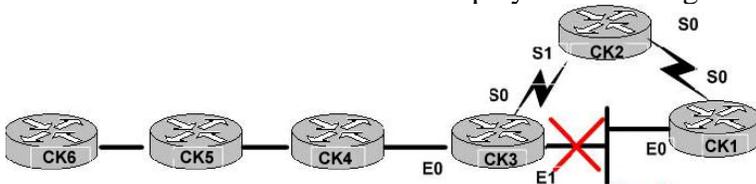
Although this will require some administrative effort, the only way to ensure that EIGRP properly considers the actual bandwidth to use in the routing decision, each link should be set to the CIR.

Incorrect Answers:

- A: This is not a Cisco recommended solution.
- B: This will force all PVC to run at a low speed.
- C: This would give too high a bandwidth.

QUESTION 413

The Certkiller EIGRP network is displayed in the diagram below:



All routers are running EIGRP. Based on this, what will router CK3 do if the link between CK3 and CK1 were to go down? (Select two)

- A. It elects a new designated router.
- B. It sends a flash update with poison reverse.
- C. It checks its topology table for an alternate route.
- D. It re-broadcasts its routing table to all other neighboring routers.
- E. It sends a query to neighboring routers for other routes to the failed link.

Answer: C, E

Explanation:

The steps of convergence in an EIGRP network are as follows:

1. Router CK3 detects the link failure between CK1 and CK3 . It checks the topology table for a feasible successor, but it doesn't find a qualifying alternate route and enters in an active convergence state. (C)
2. CK3 sends a Query out all interfaces for other routes to the failed link (E). The neighboring routers acknowledge the query.
3. The reply from CK4 indicates no other route to the failed link.
4. CK2 's reply contains a route to the failed link, although it has a higher feasible distance.
5. Router CK3 accepts the new path and metric information, places it in the topology table, and creates an entry for the routing table.
6. CK3 sends an update about the new route out all interfaces.

QUESTION 414

The EIGRP topology table for router Certkiller 1 is displayed below:

```
Certkiller1#show ip eigrp topology
IP-EIGRP Topology Table for process 200
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - Reply status

P 192.168.1.64/28, 1 successors, FD is 281600
   via Connected, Ethernet0
P 192.168.1.32/28, 1 successors, FD is 40512000
   via Connected, Serial1
P 192.168.1.48/28, 1 successors, FD is 40537600
   via 192.168.1.66 (40537600/40512000), Ethernet0
   via 192.168.1.17 (41024000/40512000), Serial0
   via 192.168.1.33 (41024000/40512000), Serial1
P 192.168.1.16/28, 1 successors, FD is 40512000
   via Connected, Serial0
```

Regarding the command output on Certkiller 1 in the exhibit, which statements are true? (Select three)

- A. Certkiller 1 is in AS 200
- B. Certkiller 1 will load balance between three paths to reach the 192.168.1.48/28 prefix, because all three paths have the same AD of 40512000.
- C. The best path for Certkiller 1 to reach the 192.168.1.48/28 prefix is via 192.168.1.66.
- D. 40512000 is the advertised metric via 192.168.1.66 to reach the 192.168.1.48/28 prefix.
- E. All the routes are in the passive mode because these routes are in the hold-down state.
- F. All the routes are in the passive mode, because Certkiller 1 is in the query process for those routes.

Answer: A, C, D

Explanation:

The Certkiller 1 router resides in AS 200, as displayed by the "IP EIGRP topology for process 200" output.

Regarding the numbers specified in the parenthesis, the first number is the EIGRP metric that represents the cost to the destination. The second number is the EIGRP metric that this peer advertised.

Based on this, the best path to the 192.168.1.48/28 destination is via 192.168.1.66, because the metric is less than the alternatives.

QUESTION 415

You are the network administrator at Certkiller . You have configured multiple IP routing protocols on a single router on the Certkiller network.

Which command lists the filters applied to routing updates on a routing protocol basis?

- A. show ip
- B. show ip route
- C. show ip protocols
- D. show ip interface

Answer: C

Explanation:

The show ip protocols command will display the IP routing protocols configured on the router and will also show what each routing process is redistributing. In addition, it will list the redistribution filters applied to interfaces. Specifically, the output will show:

Routing protocol and process ID

Update frequency

Hold down timers

Incoming and outgoing filters

Default distribution metric

Redistribution parameters

Chapter: 1

QUESTION 416

Using route summarization, which two of these networks fall into the 174.69.16.0/20 range?

- A. 174.69.33.0/24
- B. 174.69.31.0/24
- C. 174.69.17.0/24
- D. 174.69.32.0/24

Answer: B, C

Explanation:

The valid 24-bit subnets from the address 174.69.16.0/20 are:

174.69.16.0/24 174.69.24.0/24

174.69.17.0/24 174.69.25.0/24

174.69.18.0/24 174.69.26.0/24

174.69.19.0/24 174.69.27.0/24

174.69.20.0/24 174.69.28.0/24

174.69.21.0/24 174.69.29.0/24

174.69.22.0/24 174.69.30.0/24

174.69.23.0/24 174.69.31.0/24

Chapter: 1

QUESTION 417

Which of the following statement is true when a static route is configured on a router and that static route is advertised throughout the network?

- A. The router automatically advertises static routes to all routers
- B. You should configure redistribution using the redistribute static command
- C. You should enable static advertisements using the advertise static route command
- D. You should include the static route in a distribution list and specify which interface to use when redistributing the route.

Answer: B

Explanation:

To redistribute static routes that have been created on the local router to other routers in the network, use the redistribute static command.

Chapter: 1

QUESTION 418

You are the network administrator at Certkiller . You are configuring redistribution to advertise OSPF routes into EIGRP on a boundary router on the Certkiller network. You specify a seed metric with the default-metric command.

What is the format of the metric being specified?

- A. hop-count
- B. hop-count ticks
- C. bandwidth delay hop-count load
- D. load delay hop-count reliability mtu
- E. bandwidth delay reliability load mtu

Answer: E

Explanation:

When redistributing static routes or other protocols within EIGRP, metrics can be set for these routes using the default-metric command. The range of values for each parameter is listed below:

bandwidth - 0 to 4,294,967,295 in Kbps

delay - 0 to 4,294,967,295 in 10-microsecond units

reliability - 0 to 255 with 255 being the most reliable

load - 0 to 255 with 255 being a saturated link

MTU - 0 to 4,294,967,295

Chapter: 1

QUESTION 419

Which switching mode is enabled by default on a router running Cisco IOS 11.2 or later, to forward packets that match the established policy routing?

- A. fast
- B. wire-speed
- C. NetFast
- D. packet

Answer: A

Explanation:

Fast switching is the default switching mechanism on all Cisco router platforms. It is accomplished by maintaining a cache of recently switched destinations therefore reducing the

number of full route table lookups. It also allows the information required for MAC header rewrites to be stored in cache rather than being recalculated.

Chapter: 1

QUESTION 420

You are the network administrator at Certkiller . Router CK1 is configured as follows:

```
router igrp 300
network 192.168.20.0
network 192.168.24.0
network 192.168.27.0
redistribute rip
default-metric 10 100 255 1 1500
distance 140 0.0.0.0 255.255.255.255 9
access-list 9 permit 192.168.20.0
access-list 9 permit 192.168.24.0
access-list 9 permit 192.168.27.0
```

Which of the following statements are true? (Choose all that apply.)

- A. Networks 192.168.20.0, 192.168.24.0, and 192.168.27.0 are allowed into the routing table
- B. The RIP learned routes to networks 192.168.20.0, 192.168.24.0, and 192.168.27.0, will be assigned an administrative distance of 140
- C. The IGRP learned routes to networks 192.168.20.0, 192.168.24.0, and 192.168.27.0, will be assigned an administrative distance of 140
- D. Changing the administrative distance to a number larger than the default value makes networks 192.168.20.0, 192.168.24.0, and 192.168.27.0 unreachable

Answer: A, B

Explanation:

The networks listed in under the IGRP section are advertised to other routers on the network and installed into the routing table. The routes that are redistributed from RIP from those same networks are assigned an administrative distance of 140 because of the distance command listed above. The distance command is used to define an administrative distance for routes learned from other routing protocols. The last argument (9) specifies that access-list 9 be used to permit/deny networks.

Chapter: 1

QUESTION 421

Which command could you use to verify proper operation of multiple routing protocols that are sharing routes?

- A. ping
- B. show ip route
- C. show cdp neighbor
- D. show ip ospf neighbor

Answer: B

Explanation:

This is the only command listed that can show any information regarding the state of routes or routing protocols. Answer-A will not show any information regarding route selection or the route to a target address. Ping can be used to verify connectivity to another IP address.

Chapter: 1

QUESTION 422

Which Cisco IOS command can be used to display the route maps configured on an interface?

- A. show interface
- B. show route-map
- C. show ip policy
- D. show ip route map

Answer: B

Explanation:

This command will display all route-maps that are configured. If you specify a route-map as an argument, then only that route-map is displayed. See the sample output below:

```
Router# show route-map
route-map new, permit, sequence 10
Match clauses:
tag 1 2
Set clauses:
metric 5
route-map new2, permit, sequence 20
Match clauses:
tag 3 4
Set clauses:
metric 6
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```

QUESTION 423

What happens due to the implicit deny at the end of a route-map?

- A. Packets that reach the end of the route map are discarded
- B. Packets are forwarded to the null interface for special handling
- C. Packets that reach the end of the route map are routed in normal fashion
- D. Packets that reach the end of the route map are returned to the originating interface

Answer: C

Explanation:

The use of route maps for policy-based routing is a little different than other application of route maps. When used for policy-based routing, if a packet does not match the criteria specified in the route map or a matched route map statement specifies deny, then the packet is not dropped. It is sent to the routing process and routed normally, by destination, as if it had never encountered a route map. If your intention is to drop packets that do not match the criteria, it is necessary to use the set command to route packets to the null interface as the last entry in the route map.

Source: Self-Study CCNP BSCI Exam Certification Guide Third Edition P.674

Topic: Understanding Policy-Based Routing

QUESTION 424

You are the network administrator at Certkiller . You want to redistribute and advertise EIGRP routes into OSPF on a boundary router. The router has the following configuration:

```
router ospf 1
```

```
redistribute eigrp 1 metric 25 subnets
```

What does the 25 parameter in the redistribute command specify?

- A. It specifies the seed cost to be applied to the redistributed routes
- B. It specifies the administrative distance on the redistributed routes
- C. It specifies the metric limit of 25 subnets in each OSPF route advertisement
- D. It specifies the process-id for the pseudo process that injects the EIGRP routes into OSPF

Answer: A

Explanation:

The metric {value} command specifies the seed metric for use in redistributed routes.

Reference: Building Scalable Cisco Networks (Cisco Press) page 456

QUESTION 425

You are the network administrator at Certkiller . A router on the Certkiller network has one serial interface and one Ethernet interface. Given the serial interface to a WAN configuration:

```
interface serial 0.122 point-to-point
```

```
ip address 192.168.1.2 255.255.255.0
```

```
encapsulation frame-relay
```

```
frame-relay interface-dlci 122
```

Which command prevents routing protocol information from being sent on the Ethernet interface?

- A. interface serial 0.122 point-to-point
passive-interface ethernet 0
- B. interface Ethernet 0
ip address 192.168.12.1 255.255.255.0
passive interface
- C. router ospf 102
area 1 ospf

```
network 192.168.1.0 0.0.0.255 area 0
network 192.168.12.0 0.0.0.255 area 1
D. router ospf 102
passive-interface Ethernet 0
network 192.168.1.0 0.0.0.255 area 0
network 192.168.12.0 0.0.0.255 area 1
```

Answer: D

Explanation:

When a passive interface is defined for any routing process, then updates are not sent on the specified interface by that routing process. Passive interfaces must be defined for each routing protocol (process). The passive interface command is not a valid interface configuration command.

Chapter: 1

QUESTION 426

Which of the following commands would produce output that can be used to verify route redistribution? (Choose all that apply.)

- A. debug
- B. traceroute
- C. show tech-support
- D. show ip route

Answer: A, B, D

Explanation:

Debug can be used to view routing protocol information exchanged between routers. Traceroute can be used to determine the path an IP packet will take when traversing the network. The show ip route command will display all known routes and indicate the source of the route (Static, OSPF, RIP, etc)

Chapter: 1

QUESTION 427

Which command forces manually entered route entries are injected into the routing process?

- A. inject static
- B. inject permanent
- C. redistribute all
- D. redistribute static

Answer: D

Explanation:

The redistribute static command is used to inject static routes into the routing protocol's route table and subsequent updates.

Chapter: 1

QUESTION 428

You are the network administrator at Certkiller . The Certkiller network includes Router CK1 . Router CK1 is configured as follows:

```
interface serial 0
ip address 10.1.1.1 255.255.255.0
encapsulation frame-relay
ip ospf network point-to-multipoint
router ospf 7
network 10.1.1.0 0.0.0.255 area 0
```

Which of the following statements are true? (Choose all that apply.)

- A. DR/BDR elections do not take place
- B. Neighbor statements are required
- C. Communication between neighbors is broadcast to 255.255.255.255
- D. The area 0 NBMA cloud is configured as more than one subnet

Answer: A, B

Explanation:

When configuring OSPF in a point-to-multipoint environment, DR/BDR elections do not take place. Neighbor statements must be statically defined due to the NBMA architecture. The point-to-multipoint environment removes the assumption that there is a full mesh and communication between neighbors is done via unicast.

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QUESTION 429

When configuring a router to participate in an OSPF area, what is the default priority used in DR/BDR elections?

- A. 0
- B. 1
- C. 16
- D. 255

Answer: B

Explanation:

The ip ospf priority command can be used to administer which router becomes the DR. This number ranges from 0-255 and defaults to 1. A router configured with a priority of 0 can never be elected DR.

Chapter: 1

QUESTION 430

Which two are benefits of using OSPF over RIP as a routing protocol in a large network?
(Choose all that apply.)

- A. OSPF has fewer tables to manage
- B. OSPF is a simpler protocol than RIP
- C. OSPF has virtually no reachability limits
- D. OSPF uses a metric that is based on bandwidth to select a path through a network

Answer: C, D

Explanation:

OSPF has virtually no limits with regard to scalability in large networks because of its hierarchical design. RIP uses a hop count limit (15 hops) to prevent routing loops. It is possible in a very large network to outgrow this limitation with RIP. RIP also uses hop count as its metric for selecting the best route. Cisco's implementation of OSPF calculates link cost based on bandwidth ($10^8 / \text{Interface Bandwidth}$) to determine path selection across the network.

Chapter: 1

QUESTION 431

You are a technician at Certkiller . You want to assign an OSPF router ID of 172.16.20.127.
Which series of commands should you use?

- A. `ospf loopback 0`
`ip address 172.16.20.127 255.255.255.0`
- B. `router loopback 0`
`ip address 172.16.20.127 255.255.255.0`
- C. `interface loopback 0`
`ip address 172.16.20.127 255.255.255.0`
- D. `ospf interface loopback 0`
`ip address 172.16.20.127 255.255.255.0`

Answer: C

Explanation:

In Cisco's OSPF implementation, the Loopback interface address is used as the Router ID. If the Loopback interface is not configured with an IP address, the highest IP address configured on any router interface is used.

Chapter: 1

QUESTION 432

What is used to determine which router that will become the DR in an OSPF network?

- A. the lowest router ID
- B. the highest priority value
- C. the first router to attach to the network

D. a router that is connected to more than one OSPF area and designated ASBR

Answer: B

Explanation:

The router with the highest priority value is elected as the DR. The second highest priority value becomes the BDR. The ip ospf priority command can be used to administer which router becomes the DR. This number ranges from 0-255 and defaults to 1. A router configured with a priority of 0 can never be elected DR.

Chapter: 1

QUESTION 433

Before an running OSPF can route traffic to another OSPF neighbor, what state must the router be in to route traffic?

- A. full state
- B. INIT state
- C. 2wy
- D. forwarding state

Answer: A

Explanation:

In order to route traffic to an OSPF neighbor router, the adjacency must be established before any traffic can be passed. The adjacency is not established until DR/BDR elections are completed and link-state information is exchanged (full routing information).

Chapter: 1

QUESTION 434

In OSPF, what is defined using the network command? (Choose all that apply.)

- A. the OSPF area ID
- B. the OSPF router ID
- C. the OSPF process ID
- D. which interface is in which OSPF area

Answer: A, D

Explanation:

In OSPF, the network area command defines the interfaces on which OSPF runs and the area ID for those interfaces. The syntax for the command is below: network [address] [wildcard-mask] area [area-id]

Chapter: 1

QUESTION 435

How does OSPF simulate a broadcast environment in an NBMA point-to-multipoint

configuration for routed traffic?

- A. by creating adjacencies with each endpoint
- B. by sending replicated traffic to each neighbor
- C. by using the 224.0.0.5 multicast address on serial links
- D. by separating out each endpoint using the hello protocol

Answer: A

Explanation:

In a point-to-multipoint configuration, neighbors must be statically defined and communication are done via unicast instead of multicast.

Chapter: 1

QUESTION 436

Which command can be used to verify when out-of-date routes will be removed from the topological database?

- A. show ip ospf
- B. show ip route
- C. show ip ospf interface
- D. show ip ospf topo-database

Answer: A

Explanation:

Displays the Link State Update Interval and the Link State Age Interval and when an update is due. Each route is flooded throughout the area via an LS

A. Each LSA has an age field that is incremented while it is contained in the database or as it gets flooded throughout the area. When an LSA reaches a Maxage it gets flushed from the database if that LSA is not on any neighbors retransmission list.

Router# show ip ospf

Routing Process "ospf 201" with ID 192.42.110.200

Supports only single TOS(TOS0) route

It is an area border and autonomous system boundary router

Summary Link update interval is 0:30:00 and the update due in 0:16:26

External Link update interval is 0:30:00 and the update due in 0:16:27

Redistributing External Routes from,

igrp 200 with metric mapped to 2, includes subnets in redistribution

rip with metric mapped to 2

igrp 2 with metric mapped to 100

igrp 32 with metric mapped to 1

Number of areas in this router is 3

Area 192.42.110.0

Number of interfaces in this area is 1

Area has simple password authentication
SPF algorithm executed 6 times
Area ranges are
Link State Update Interval is 0:30:00 and due in 0:16:55
Link State Age Interval is 0:20:00 and due in 0:06:55
Chapter: 1

QUESTION 437

At a minimum, which two configuration commands are required to configure OSPF on a single internal router? (Choose all that apply.)

- A. network
- B. neighbor
- C. router ospf dr 1
- D. router ospf

Answer: A, D

Explanation:

OSPF is enabled on a router by specifying an OSPF process ID and defining the network, interfaces used, and area-id that will be included in the OSPF process. The network command defines the interfaces on which OSPF runs and the area ID for those interfaces.

Chapter: 1

QUESTION 438

You are a trainee technician at Certkiller . Your instructor shows you the following router configuration:

```
interface serial 0
ip address 172.14.12.1 255.255.255.224
encapsulation frame-relay
ip ospf network non-broadcast
!
router ospf
network 172.14.12.0 31.255.255.255
neighbor 172.14.12.2
neighbor 172.14.12.3
```

Your instructor wants to know which of the following statements are true. What would your reply be? (Choose all that apply.)

- A. DR/BDR elections are not held
- B. This is a point-to-multipoint configuration
- C. The network type is non-broadcast multi-access (NBMA)
- D. The DR and BDR require a static list of neighbors

Answer: C, D

Explanation:

Because the network type is defined as non-broadcast, DR/BDR election take place based on statically defined neighbors. In addition, communication between neighbors is done via unicast instead of multicast. If this were a point-to-multipoint configuration, the ip ospf network pointto-multipoint command would have been used on the serial interface.

Chapter: 1

QUESTION 439

You are a technician at Certkiller . Certkiller has an OSPF network. Your newly appointed Certkiller trainee wants to know what is used to send link-state information to all other routers within an OSPF area.

What would your reply be?

- A. LSA - router link, type 1
- B. LSA - network link, type2
- C. LSA - external link, type 5
- D. NSA - network summary link, type 3

Answer: B

Explanation:

Network Link Advertisements are sent during the adjacency process to inform the neighbor of its network links. When a link changes state or a new link added on an existing router, the router that owns the link generates a new LSA.

Chapter: 1

QUESTION 440

Which of the following features require the subnet mask to be carried within OSPF routing protocol updates? (Choose all that apply.)

- A. VLSM
- B. NBMA
- C. summarization
- D. SPF route calculation

Answer: A, C

Explanation:

OSPF like all classless routing protocols, carry the network number and mask in its updates. This is required to provide support for VLSM, route summarization, and super netting.

Chapter: 1

QUESTION 441

If an OSPF router has interfaces connected in two or more areas, what kind of router is it considered?

- A. ABR
- B. ASBR
- C. MAR
- D. backbone router

Answer: A

Explanation:

An ABR is a router that has multiple interfaces with at least two interfaces in two different OSPF areas. An ASBR is a router with at least one interface connected to an external network or AS.

Chapter: 1

QUESTION 442

Which is true of an OSPF area with too many routers?

- A. The second BDR cannot keep all the LSA information up to date
- B. Convergence time can be slower
- C. A second backbone area must be created to split the traffic into two areas.
- D. Route processing time is decreased because the information is dispersed among all routers in the area

Answer: B

Explanation:

With too many routers will take longer to converge. Answer should be B. Also not possible to have two backbone areas in ospf. Only one is allowed.

QUESTION 443

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know what is used to connect a new OSPF area to area 0
What would your reply be?

- A. external router
- B. DR
- C. BDR
- D. backbone router

Answer: D

Explanation:

Any router that will have any interface connected to an OSPF backbone area is considered a backbone router.

Chapter: 1

QUESTION 444

You are the network administrator at Certkiller . You are using OSPF as your IGP

throughout the Certkiller network. You want to connect the network to the outside world or to a different routing protocol.

Which kind of OSPF router must you configure?

- A. ABR
- B. BDR
- C. ASBR
- D. neighbor border router
- E. backbone router

Answer: C

Explanation:

ASBR's are used to connect two separate autonomous systems together. The role of the ASBR is to exchange routing information between the two routing processes.

Chapter: 1

QUESTION 445

In order to summarize routes, which configuration requirement does an ASBR have that an ABR does not?

- A. area range command
- B. ospf summarize command
- C. aggregate-route command
- D. summary-address command

Answer: D

Explanation:

The router subordinate command summary-address is used on ASBR's to consolidate external routes. It can be used in combination with the stub areas or used stand-alone

Chapter: 1

QUESTION 446

Which command should you use to verify which process is responsible for routing which network?

- A. show ospf
- B. show ip route
- C. show ip protocols
- D. show ip ospf database

Answer: D

Explanation:

Sample output is shown below. Note the router ID and process ID in the first line. Each link ID

is

representative of a network route.

```
router#show ip ospf database
```

```
OSPF Router with id(190.20.239.66) (Process ID 300)
```

```
Displaying Router Link States(Area 0.0.0.0)
```

```
Link ID ADV Router Age Seq# Checksum Link count
```

```
155.187.21.6 155.187.21.6 1731 0x80002CFB 0x69BC 8
```

```
155.187.21.5 155.187.21.5 1112 0x800009D2 0xA2B8 5
```

```
155.187.1.2 155.187.1.2 1662 0x80000A98 0x4CB6 9
```

```
155.187.1.1 155.187.1.1 1115 0x800009B6 0x5F2C 1
```

```
155.187.1.5 155.187.1.5 1691 0x80002BC 0x2A1A 5
```

```
155.187.65.6 155.187.65.6 1395 0x80001947 0xEEE1 4
```

```
155.187.241.5 155.187.241.5 1161 0x8000007C 0x7C70 1
```

```
155.187.27.6 155.187.27.6 1723 0x80000548 0x8641 4
```

```
155.187.70.6 155.187.70.6 1485 0x80000B97 0xEB84 6
```

Chapter: 1

QUESTION 447

You are the network administrator at Certkiller . Certkiller has an address range of 172.16.20.192 to 172.16.20.223. You want to configure the area 3 border router for network summarization

Which configuration command must you use? Select two.

- A. summarize 172.16.20.192 0.0.0.31 area 3
- B. area 3 range 172.16.20.192 172.16.20.223
- B. area 3 range 172.16.20.192 255.255.255.224
- C. D. network 172.16.20.192 255.255.255.224 area 3

Answer: A, C

Explanation:

The area range command is used on ABR's to summarize and advertise routes. A network statement must also be defined, but answer D does not use a wildcard mask and therefore is an invalid command.

Chapter: 1

QUESTION 448

You are a technician at Certkiller . Certkiller has an OSPF network. Your newly appointed Certkiller trainee wants to know why VLSM is used in an OSPF network.

What would your reply be? (Choose all that apply.)

- A. to allow for address summarization
- B. to allow use of the all zero's subnet
- C. to make efficient use of available addresses
- D. it is required for a point-to-multipoint nonbroadcast network

Answer: A, C

Explanation:

VLSM is utilized in OSPF for address summarization and it also allows for more efficient use of networks due to support for classless boundaries.

Chapter: 1

QUESTION 449

What does an ABR connect in an OSPF network?

- A. multiple OSPF areas
- B. OSPF and RIP networks
- C. multiple designated routers
- D. multiple autonomous systems

Answer: A

Explanation:

An ABR is a router that has multiple interfaces with at least two interfaces in two different OSPF areas. It is used to connect different OSPF areas.

Chapter: 1

QUESTION 450

Which OSPF router is responsible for flooding an of OSPF area with type 2 link LSAs?

- A. DR
- B. ABR
- C. BDR
- D. ASBR

Answer: A

Explanation:

The DR is responsible for flooding the network with network LSA's when a change occurs within the OSPF area.

Chapter: 1

QUESTION 451

Which statement regarding route summarization within OSPF is true?

- A. Summarization must be performed by every router within an OSPF area.
- B. Summarization prevents type 1 link LSAs from being propagated into the backbone area 0.
- C. Route summarization can be performed at any point in the network where enough contiguous addresses are present
- D. Route summarization reduces the amount of bandwidth, CPU, and memory resources consumed by the OSPF process.

Answer: D

Explanation:

Route summarization reduces the amount of bandwidth, CPU, and memory resources consumed by the OSPF process. Each additional network requires an individual entry in the routing table and must be propagated throughout the network and added to each router's table.

Chapter: 1

QUESTION 452

Which of the following Cisco IOS commands that can be used to view neighbor adjacencies?

(Choose all that apply.)

- A. show ip ospf database
- B. show ip ospf neighbor
- C. show ip ospf protocols
- D. show ip ospf interface ethernet 0

Answer: B, D

Explanation:

Both of these commands display neighbor adjacency information.

```
Router# show ip ospf interface ethernet 0
```

```
Ethernet 0 is up, line protocol is up
```

```
Internet Address 131.119.254.202, Mask 255.255.255.0, Area 0.0.0.0
```

```
AS 201, Router ID 192.77.99.1, Network Type BROADCAST, Cost: 10
```

```
Transmit Delay is 1 sec, State OTHER, Priority 1
```

```
Designated Router id 131.119.254.10, Interface address 131.119.254.10
```

```
Backup Designated router id 131.119.254.28, Interface addr 131.119.254.28
```

```
Timer intervals configured, Hello 10, Dead 60, Wait 40, Retransmit 5
```

```
Hello due in 0:00:05
```

```
Neighbor Count is 8, Adjacent neighbor count is 2
```

```
Adjacent with neighbor 131.119.254.28 (Backup Designated Router)
```

```
Adjacent with neighbor 131.119.254.10 (Designated Router)
```

```
Router# show ip ospf neighbor
```

```
ID Pri State Dead Time Address Interface
```

```
199.199.199.137 1 FULL/DR 0:00:31 160.89.80.37 Ethernet0
```

```
192.31.48.1 1 FULL/DROTHER 0:00:33 192.31.48.1 Fddi0
```

```
192.31.48.200 1 FULL/DROTHER 0:00:33 192.31.48.200 Fddi0
```

```
199.199.199.137 5 FULL/DR 0:00:33 192.31.48.189 Fddi0
```

Chapter: 1

QUESTION 453

What term is used to describe a BGP autonomous system connected to two different BGP autonomous systems for increased reliability?

- A. multi-exit
- B. multisource
- C. multihomed
- D. multi-neighbor

Answer: C

Explanation:

Multihoming refers to a single network or AS as having more than one connection to another network or AS to improve reliability and/or performance.

Chapter: 1

QUESTION 454

You are the network administrator at Certkiller . Certkiller has subscribed to multiple ISPs. You use BGP to connect to multiple ISPs. You want to force outbound Internet traffic to one ISP unless there is a link failure.

Which tool would you use?

- A. configure weight
- B. enable route reflector
- C. create a distribute list
- D. enable the Longer Autonomous System path option

Answer: A

Explanation:

The weight attribute is a Cisco proprietary attribute used by BGP in path selection. This allows as

administrator to "prefer" one path over one or more paths to the same destination. In the event the preferred route or link fails, the secondary route will automatically be used by outbound traffic.

Chapter: 1

QUESTION 455

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know which command displays both the configured iBGP and eBGP neighbors.

What would your reply be?

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

Answer: D

Explanation:

This is the only valid command that is listed that will show any information about BGP neighbors. The show ip bgp neighbors will show detailed information about each neighbor but the syntax listed is incorrect. The show ip bgp summary will show the status of all configured BGP connections.

Chapter: 1

QUESTION 456

Which method makes it possible to receive BGP routes from multiple ISPs?

- A. accept only IGP routes from the ISPs
- B. accept an external route from the ISPs
- C. accept only default routes from the ISPs
- D. accept only redistributed routes from the ISPs

Answer: B

Explanation:

This is a major difference between iBGP and eBGP. A BGP router will never forward a path learned from an iBGP peer to another iBGP peer. However, eBGP peers always forward routes learned from one eBGP peer to both eBGP and iBGP peers. Thus receiving routes from 2 upstream ISP's (eBGP peers) is allowed.

Chapter: 1

QUESTION 457

With regard to BGP updates, which of the following statements is true?

- A. A BGP router will forward a learned path from an iBGP peer to another iBGP peer.
- B. A eBGP peer will never forward a learned path to an iBGP peer
- C. BGP Route reflectors will propagate a route learned from an iBGP peer to eBGP peers
- D. If a BGP route was learned via an update from an iBGP peer, it will propagate this information to iBGP and eBGP peers.
- E. If a BGP route was learned via an update from an eBGP peer, it will propagate this information to iBGP and eBGP peers.

Answer: E

Explanation:

This is a major difference between iBGP and eBGP. A BGP router will never forward a path learned from an iBGP peer to another iBGP peer. However, eBGP peers always forward routes learned from one eBGP peer to both eBGP and iBGP peers. Thus receiving routes from 2 upstream ISP's (eBGP peers) is allowed.

Chapter: 1

QUESTION 458

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know

why it is necessary to redistribute or advertise IGP routes into BGP.
What would your reply be?

- A. so BGP can propagate this information to other IGP neighbors
- B. so BGP can propagate this information to other iBGP neighbors
- C. so BGP can propagate this information to other OSPF neighbors
- D. so BGP can propagate this information to other eBGP neighbors

Answer: B

Explanation:

iBGP will advertise these redistributed routes to all configured iBGP neighbors on the network. This will provide the entire AS with the routing information required to reach networks that are routed with different routing protocols.

Chapter: 1

QUESTION 459

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know why an iBGP router must be peered with all iBGP routers within an AS.
What would your reply be? (Choose two.)

- A. iBGP routes are not propagated to other eBGP peers
- B. iBGP routes that a router originates are propagated to other iBGP peers
- C. iBGP routes are propagated to other iBGP speakers in the AS that are not peers
- D. iBGP routes that are learned from an eBGP neighbor are propagated to only eBGP peers

Answer: B, D

Explanation:

A BGP router will never forward a path learned from an iBGP peer to another iBGP peer. So, in order for all routers to know about the routes originated on any router in the network, they must maintain the full mesh because another iBGP peer will never send the update to its iBGP neighbors.

Chapter: 1

QUESTION 460

You are the network administrator at Certkiller . You have limited router memory. Under these conditions, what does Cisco suggest as the best way to connect to multiple ISPs using BGP?

- A. receive only default routes
- B. receive only external BGP routes
- C. receive only internal BGP routes
- D. receive only redistributed routes

Answer: A

Explanation:

When working with limited router resources, use default routes instead of BGP routes from the ISP. Your internal AS decides which ISP to use and sends the traffic to the appropriate ISP.

Chapter: 1

QUESTION 461

You are a trainee technician at Certkiller . Your instructor shows you the following router configuration:

```
router bgp 6500
 redistribute static
 ip route 164.20.0.0 255.255.0.0 null 0
```

Your instructor wants to know which of the following statements are true.

What would your reply be?

- A. It allows BGP to advertise the 164.20.0.0/16 network
- B. It results in all traffic for all subnets of 172.16.0.0 being dropped at this router
- C. Cisco prefers that you use the aggregate-address command to distribute IGP routes into BGP
- D. Cisco prefers this method of distributing IGP routes into BGP over using the network command

Answer: A

Explanation:

By using the redistribute static command, the static route will be propagated throughout the network. Because the route directs traffic that is destined for this network to null0, all traffic will be dropped at all local routers within the AS.

Chapter: 1

QUESTION 462

You are a trainee technician at Certkiller . Your instructor shows you the following partial information from the output of a BGP command on Router CK1 :

```
Network Next Hop Metric LocPrf Weight Path
192.168.2.0 10.15.10.2 0 100 65250 65000 i
10.15.20.2 0 120 65200 65000 i
10.15.30.2 0 130 65000 i
10.15.40.2 0 140 65000 i
```

Your instructor wants to know which next-hop address Router CK1 uses to send data destined for the network 192.168.2.0.

What would your reply be? (Choose all that apply.)

- A. 10.15.30.2
- B. 10.15.40.2
- C. 10.15.10.2
- D. 10.15.20.2

Answer: B

Explanation:

The next hop router 10.15.40.2 has the highest weight value. The weight attribute is Cisco proprietary and when multiple paths to the same destination exist, the connection with the highest weight value is used. This allows an administrator to prefer one path over one or more others to the same destination.

Chapter: 1

QUESTION 463

What is the correct command to create a BGP prefix list that will permit all prefixes between /8 and /24 for the 10.0.0.0 network?

- A. ip prefix-list 10.0.0.0/8 ge 8 le 24
- B. ip prefix-list 10.0.0.0/8 ge 24 le 8
- C. ip prefix-list 10.0.0.0/24 ge 24 le 8
- D. ip prefix-list 10.0.0.0/24 ge 8 le 24

Answer: A

Explanation:

The prefix list optional syntaxes ge-value and le-value are used when you need to specify a range of the prefix that is more specific than identified in the network/len syntax. Use the following rule when specifying these values:

len < ge-value < le-value <=32.

Chapter: 1

QUESTION 464

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know what can be used to advertise iBGP learned routes to other iBGP neighbors within the AS. What would your reply be?

- A. client router
- B. EBGP peer
- C. route reflector
- D. community router

Answer: C

Explanation:

Route reflectors are the only BGP routers that can propagate iBGP routes to other iBGP peers. By configuring route reflectors, you reduce the number of neighbor peering relationships in an AS. This creates a central source for updates to the route reflector clients and eliminates the need for a fully meshed iBGP network.

Chapter: 1

QUESTION 465

You are the network administrator at Certkiller . The Certkiller network has three configured BGP route reflectors. Each route reflector has a minimum of 2 clients. Your newly appointed Certkiller trainee wants to know what action a BGP route reflector takes if it receives updates from a peer in another autonomous system. What would your reply be?

- A. It discards the route
- B. It sends the update to all iBGP peers
- C. It sends the update only to nonclients
- D. It sends the update only to its configured route reflector clients
- E. It send the update to all routers in the autonomous system

Answer: B

Explanation:

When a route reflector receives an update from a peer in an external AS, the routes are only advertised to the reflector's peers (established BGP sessions). This would mean that the new route would be sent to the reflector's clients and/or other configured route reflectors within the AS. The reflector that receives the update would NOT send to all routers within the AS.

Chapter: 2

QUESTION 466

Which methods advertises your internal networks to external ISPs via BGP? Select two.

- A. using aggregate routes
- B. disabling synchronization
- C. forcing the next-hop address
- D. defining routes via the network statement

Answer: A, D

Explanation:

BGP will advertise the network number and mask specified in the network statement unless the community attribute is changed to NO ADVERTISE or a route filter is used to block the advertisement.

Chapter: 2

QUESTION 467

You are the network administrator at Certkiller . Router CK1 is the headquarters router in a hub and spoke topology supporting 24 remote offices. Point-to-point Frame Relay EIGRP network is deployed between the headquarters and the remote offices. The CIR for each Frame Relay PVC is different and that there is no bandwidth command configured under either the major serial interface nor the subinterfaces on Router CK1 .

What is a possible fix for the potential EIGRP packet pacing problem because of the different CIR each PVC has?

- A. convert each Frame Relay PVC to a point-to-multipoint connection
- B. manually configure the bandwidth of the major interface to the lowest CIRx24
- C. manually configure the bandwidth of the major interface to the highest CIRx24
- D. manually configure the bandwidth of each of these PVCs to equal to their respective CIR

Answer: D

Explanation:

EIGRP assumes that all serial interfaces operate at T-1 speed. By configuring a bandwidth for each subinterface, EIGRP can identify slow links (< T-1)and will not generate packets faster than the configured line speed.

Chapter: 2

QUESTION 468

Which type of packet is used by EIGRP routers build a neighbor table?

- A. hello
- B. ACK
- C. LSA-Type 1
- D. query
- E. update

Answer: A

Explanation:

The hello protocol is used to establish neighbor relationships on a common network. Two routers become neighbors (establish adjacency) when they acknowledge each other's hello packets and their K values match

Chapter: 2

QUESTION 469

You are a trainee technician at Certkiller . Your instructor shows you the following configuration commands:

- 1) router eigrp 200
- 2) network 172.16.0.0
- 3) network 3.0.0.0

Your instructor wants to know which of the following statements are true.

What would your reply be? (Choose all that apply.)

- A. Line 1 defines EIGRP as an ip routing process in area 200
- B. The command network 172.16.0.0 causes this router to become the access point for the default network
- C. Line 2 causes all interfaces connected to network 172.16.0.0 to send and receive EIGRP updates to/from other EIGRP routers
- D. The number at the end of line 1 restricts this EIGRP routing process to only communication

with other EIGRP routing process that have the same number

Answer: C, D

Explanation:

EIGRP will send/receive updates on all interfaces that are included on the specified network. The number at the end of the line is the autonomous system number and routers will only exchange protocol information with routers within the same autonomous system.

Chapter: 2

QUESTION 470

What appears in a routing table after EIGRP route summarization is configured on a router's Serial0 interface summarizing routes learned from Ethernet0 interface?

- A. a summary route pointing to the Null0 interface
- B. a summary route pointing to the Serial0 interface
- C. a summary route pointing to the Ethernet0 interface
- D. a summary route pointing to the Loopback0 interface

Answer: A

Explanation:

EIGRP creates a null route that matches the summary-address network and mask entry to prevent routing loops.

Chapter: 2

QUESTION 471

You are the network administrator at Certkiller . An EIGRP router on the Certkiller network has not established adjacency with a neighbor.

What are the possible causes for this? (Choose all that apply.)

- A. K-values do not match
- B. Hold times do not match
- C. Hello times do not match
- D. AS numbers do not match

Answer: A, D

Explanation:

If the autonomous system (AS) numbers do not match, the routers will not form an adjacency. When EIGRP is enabled on an interface, the router begins sending hellos to a multicast address. The hello packet includes the configured EIGRP metric K values. The two routers become adjacent if their K values match.

Chapter: 2

QUESTION 472

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know what the correct command format to configure EIGRP summary route is.

What would your reply be?

- A. ip auto-summary as-number address mask
- B. ip summary-address eigrp as-number address mask
- C. ip auto-summary eigrp as-number address mask
- D. ip summary-route eigrp as-number address mask

Answer: B

Explanation:

This is the correct syntax to summarize external routes in EIGRP.

Chapter: 2

QUESTION 473

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know how bandwidth information per neighbor is determined on a multipoint Frame Relay interface.

What would your reply be?

- A. bandwidth command per neighbor
- B. the configured CIR per subinterface
- C. the configured CIR divided by the number of neighbors on that interface
- D. bandwidth of the main interface divided by the number of neighbors on that interface

Answer: B

Explanation:

The bandwidth is assumed to be 1.54Mbps on serial interfaces by EIGRP. The only way to overcome this assumption, is to configure the bandwidth on each subinterface.

Chapter: 2

QUESTION 474

Which command shows the active or passive state of EIGRP routes, the number of successors, and the feasible distance to the destination?

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

Answer: D

Explanation:

If the show ip route command were issued, only the current route would appear in the routing table. The EIGRP traffic and neighbor command do not show any information about the routes in the topology database.

IP-EIGRP Topology Table for process 77

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
r - Reply status

P 172.16.90.0 255.255.255.0, 2 successors, FD is 0
via 172.16.80.28 (46251776/46226176), Ethernet0
via 172.16.81.28 (46251776/46226176), Ethernet1
via 172.16.80.31 (46277376/46251776), Ethernet0
P 172.16.81.0 255.255.255.0, 1 successors, FD is 307200
via Connected, Ethernet1
via 172.16.81.28 (307200/281600), Ethernet1
via 172.16.80.28 (307200/281600), Ethernet0
via 172.16.80.31 (332800/307200), Ethernet0

Chapter: 2

QUESTION 475

What are two classless routing protocol features supported by EIGRP? (Choose all that apply.)

- A. triggered updates
- B. variable length subnet masks
- C. periodic update announcements
- D. unequal path-cost load balancing

Answer: A, B

Explanation:

Eigrp does not send out periodic updates only triggered.

QUESTION 476

When point-to-point Frame Relay sub-interfaces are used on a router running EIGRP, what is the default line speed used in calculating routes associated with the WAN interfaces?

- A. 256 Kbps
- B. 1.544 Mbps
- C. set by the PVC
- D. set by the DLCI

Answer: B

Explanation:

EIGRP assumes that all serial interfaces are operating at T-1 speed. If the actual line speed is

different, the interface line speed should be specified using the bandwidth command.

Chapter: 2

QUESTION 477

You are the network administrator at Certkiller . Router CK1 is the central router in a hub and spoke topology supporting 24 remote locations. Point-to-point Frame Relay EIGRP networks are deployed between the central router and the remote locations. There is no bandwidth command configured under either the major serial interface or the subinterfaces on the central router.

What does EIGRP perceive as the bandwidth of each Frame Relay connection?

- A. 64 kbps
- B. 128 kbps
- C. 512 kbps
- D. 1.544 Mbps

Answer: D

Explanation:

EIGRP assumes that all serial interfaces are operating at T-1 speed. If the actual line speed is different, the interface line speed should be specified using the bandwidth command.

Chapter: 2

QUESTION 478

What is a use of VLSM in EIGRP?

- A. disjointed networks
- B. address cumulative
- C. address aggregation
- D. contiguous networks

Answer: A

Explanation:

Variable Length subnet masks allows the router to separate networks according to the amount of Hosts required per network. Disjointed networks would be the result of using EIGRP. EIGRP does not require Contiguous Network Assignment, as it does not require hierarchical Address.

Chapter: 2

QUESTION 479

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know what could possibly cause EIGRP Stuck-In-Active routes.

What would your reply be? (Choose all that apply.)

- A. The neighboring router has a better route than the active route on this router
- B. The neighboring router starts receiving route updates from this router

- C. The neighboring router is having memory problems and cannot allocate the memory to process the query or build the reply packet
- D. Packets are being dropped because EIGRP is sending packets faster than the actual line speed of the circuit.

Answer: C, D

Explanation:

An EIGRP SIA message means that an EIGRP router hasn't received a reply to a query from one or more neighbors within the allotted time. When this happens, EIGRP clears the neighbors that didn't send a reply and logs a DUAL-3-SIA error message for the route that went active.

Chapter: 2

QUESTION 480

Which EIGRP information is added to a routing table?

- A. successor only
- B. feasible successor only
- C. successor and back up successor
- D. successor and feasible successor

Answer: A

Explanation:

EIGRP maintains its own topology database where up to six routes for every destination can be stored. Only the best route (successor) is installed into the routing table. A backup is registered with the routing table maintenance process, but not installed into the routing table. In the event the route in the routing table fails, the routing table maintenance process calls each routing protocol process that has registered a backup route, and asks them to reinstall the route in the routing table. Then, the route with the preferred route is chosen based administrative distance.

Chapter: 2

QUESTION 481

Which is the most effective technique to contain EIGRP queries?

- A. route summarization
- B. configuring route filters
- C. using a hierarchical addressing scheme
- D. establishing separate autonomous systems

Answer: A

Explanation:

After you determine the minimum routing requirements, you can make EIGRP more scalable. Two of the best options are the following: 1. Configure route summarization using the ip summary-address eigrp command on the outbound interface of the appropriate routers 2.

Configure the remote routers as stub EIGRP routers. Summarizing routes limits the queries scope by limiting a routers knowledge of networks subnets. If a subnet goes down, queries go only as far as the routers that have knowledge of that subnet.

Source: CCNP Self-Study Second Edition P.185

Topic: Limiting the EIGRP Query Range

QUESTION 482

What is the default hold time for EIGRP hellos on NBMA media?

- A. 30 seconds
- B. 60 seconds
- C. 90 seconds
- D. 180 seconds

Answer: D

Explanation:

EIGRP sends hello packets every 5 seconds on high bandwidth links and every 60 seconds on low bandwidth NBMA media. The default hold time is three times the hello interval or 180 seconds for NBMA 5-second hello:

broadcast media, such as Ethernet, Token Ring, and FDDI point-to-point serial links, such as PPP or HDLC leased circuits, Frame Relay point-to-point subinterfaces, and ATM point-to-point subinterfaces high bandwidth (greater than T1) multipoint circuits, such as ISDN PRI and Frame Relay

Chapter: 2

60-second hello:

multipoint circuits T1 bandwidth or slower, such as Frame Relay multipoint interfaces, ATM multipoint interfaces, ATM switched virtual circuits, and ISDN BRI

Chapter: 2

QUESTION 483

With regard to iBGP routers, which of the following statements is true?

- A. They are level-1 routers
- B. They are level-2 routers
- C. They are in the same AS
- D. They are in a different AS

Answer: C

Explanation:

BGP routers that are all within the same AS are considered to be internal BGP routers (iBGP).

Chapter: 2

QUESTION 484

You are a technician at Certkiller . Your newly appointed Certkiller trainee wants to know

what the characteristics of an autonomous system in a BGP network is.
What would your reply be? (Choose all that apply.)

- A. It used only Interior Gateway Protocols (IGPs)
- B. EGPs are used to connect different autonomous systems
- C. It is a set of routers under a single technical administration
- D. It uses EGPs to route packets to other autonomous systems and IGPs to route packets within the autonomous system
- E. It uses IGPs to route packets to other autonomous systems and EGPs to route packets within the autonomous system

Answer: B, C, D

Explanation:

EGP (Exterior Gateway Protocol) is used to exchange routing information between two different autonomous systems. IGP (Interior Gateway Protocol) is used to exchange routing information within an autonomous system. Routers within the same AS are normally under a single technical administration.

Chapter: 2

QUESTION 485

You are a trainee technician at Certkiller . Your instructor shows you the following router configuration:

```
router bgp 65000
neighbor 172.16.1.1 remote-as 65000
neighbor 10.1.1.2 remote-as 64550
network 192.168.1.192 mask 255.255.255.224
```

Your instructor wants to know which of the following statements is true if interfaces 192.168.1.193 172.16.1.1 and 10.1.1.2 are active.

What would your reply be? (Choose all that apply.)

- A. Router A is in autonomous system 64550
- B. Router A advertises network 192.168.1.192/27
- C. Router A forms an iBGP relationship with neighbor 10.1.1.2
- D. Router A forms an eBGP relationship with neighbor 172.16.1.1

Answer: B

Explanation:

Router A is in AS 65000 as indicated on line 1.

Line 2 specifies 172.16.1.1 as a neighbor and belonging to the same AS (iBGP peer).

Line 3 specifies 10.1.1.2 as a neighbor and belonging to a different AS (eBGP peer).

Line 4 specifies that 192.168.1.192/27 be advertised

Chapter: 2

QUESTION 486

In which instance is it appropriate to use BGP?

- A. If there is single connection to the Internet
- B. If you have limited understanding of route filtering
- C. If there is a low-bandwidth connection between autonomous systems
- D. If route selection to routes outside of your autonomous system is not a concern
- E. If an autonomous system allows packets to transit through it to reach other autonomous systems

Answer: E

Explanation:

This is the only reason listed that would require you to run BGP. If you are serving as a transit AS for other downstream AS's, then you must run BGP so that all paths are known into the downstream AS's.

Chapter: 2

QUESTION 487

You are a trainee technician at Certkiller . Your instructor shows you the following router configuration on Router CK1 :

```
router bgp 65000
network 10.0.0.0
neighbor 172.17.1.1 remote-as 65000
```

Your instructor wants to know what type of relationship is neighbor 172.17.1.1 to Router CK1 .

What would your reply be? (Choose all that apply.)

- A. a peer router running iBGP
- B. a peer router running eBGP
- C. a community member running iBGP
- D. a peer group member running iBGP
- E. a peer group member running eBGP

Answer: A

Explanation:

Line 1 specifies that Router A belongs to AS 65000 and the neighbor statement on line 3 indicates that the neighbor is also a member of AS 65000. Therefore, these routers are considered to be iBGP peers.

Chapter: 2

QUESTION 488

Which two statements are true about BGP peering? (Choose two.)

- A. Periodic keepalives are used to verify connectivity

- B. Incremental keepalives are used to verify connectivity
- C. It provides a "best effort" connection between two BGP providers
- D. It provides a reliable connection between two BGP providers

Answer: A, D

Explanation:

BGP uses periodic keepalives to maintain connectivity. The interval can be changed to suit your needs (fast fail-over). Each neighbor sessions runs over TCP (port 179) and ensures reliable delivery of routing information.

Chapter: 2

QUESTION 489

You are a trainee technician at Certkiller . Your instructor shows you the following router configuration:

```
interface serial 0
ip address 172.16.1.1 255.255.255.0
!
interface ethernet 0
ip address 10.1.1.1 255.255.255.0
!
router rip
network 10.0.0.0
!
ip route 0.0.0.0 0.0.0.0 serial0
!
```

Your instructor wants to know which of the following statements is true.
What would your reply be?

- A. RIP updates are sent and received on interface serial 0 of the router
- B. A default route is sent to neighbors on interface serial 0 of the router
- C. A default route is sent to neighbors on interface ethernet 0 of the router
- D. RIP updates are sent and received on interfaces serial 0 and ethernet 0 of the router

Answer: D

Explanation:

RIP is a true classful routing protocol. One of the problems with classful routing protocols is that periodic routing updates are sent out all active interfaces on every router. Even if the router is not running RIP, it will still receive broadcast RIP packets.

RIPv2 is a classless routing protocol and instead of using broadcast updates it sends multicast packets to a multicast address of 224.0.0.9.

Chapter: 2

QUESTION 490

When using BGP policy-based routing, which two statements are true? (Choose two.)

- A. Policy routing cannot be used to modify the AS-path
- B. Policy routing can be used to alter the final destination of the IP packet
- C. Policy routing allows traffic to be directed based on the source address
- D. Policy routing can influence which router will be used as the next-hop router for a given packet

Answer: C, D

Explanation:

Answers A and B are false. With the use of route maps, BGP AS paths may be lengthened by adding fictitious AS numbers. This technique is called AS path pre-pending. The final destination of a packet cannot be altered by a routing protocol or a routing protocol policy.

Chapter: 2

QUESTION 491

When should BGP synchronization be unnecessary?

- A. when only the edge routers in the AS will be running BGP
- B. when traffic from a different AS passes through an AS to a third AS
- C. when traffic from a different AS will not pass through an AS to a third AS
- D. when sending and receiving of external BGP updates is controlled by using a number of different filtering methods

Answer: C

Explanation:

All of the other items require BGP synchronization. When traffic from a different AS passes through an AS to a third AS, BGP will not advertise the route until all routers within the AS have learned of the route through IGP.

Chapter: 2

QUESTION 492

Identify two statements regarding BGP peer groups from the choices below?

(Choose all that apply.)

- A. The peer group name is passed to other routers in the peer group during routing updates.
- B. A peer group is a group of BGP neighbors with different update policies.
- C. The peer group name is only local to the router on which it is configured.
- D. A peer group allows options that affect outbound updates to be overridden.
- E. BGP configurations can be placed on one peer group router and the configuration is applied to all members of the peer group.

Answer: C, E

Explanation:

A BGP peer group is a group of routers that share similar configurations. Every configuration line supplied to a peer group definition is applied to each peer group member. A peer group name may be specified, but it is not passed to any other router; the name is local only to the router it is configured on.

Chapter: 2

QUESTION 493

With regard to BGP attributes, which of the following statements are true? (Choose all that apply.)

- A. Med is an optional attribute
- B. Origin is an optional attribute
- C. Next-hop is an optional attribute
- D. Local Preference is an optional attribute
- E. AS-Path is a well-known mandatory attribute
- F. Community is a well-known mandatory attribute

Answer: A, E

Explanation:

MED is an optional attribute

ORIGIN is a well-known mandatory attribute

NEXT_HOP is a well-known mandatory attribute

LOCAL_PREF is a well-known discretionary attribute

AS_PATH is a well-known mandatory attribute

COMMUNITY is an optional attribute

Chapter: 2

Cisco Press BSCI Third edition, Pages 526-527

QUESTION 494

With regard to the network command on a BGP router, which of the following statements is true?

- A. The local route matching the network command can be learned dynamically
- B. The local route matching the network command are blocked from the BGP routing table
- C. The route to a neighbor autonomous system must have the correct MED applied to be installed into BGP's routing table
- D. The specified network is identified as a transit AS and traffic must pass through this AS to reach its final destination.

Answer: A

Explanation:

The network command only specifies which networks are to be advertised by BGP. This can be learned from static routes, other routing protocols, or directly connected interfaces.

Chapter: 2

QUESTION 495

With regard to BGP community attributes, which of the following statement are true?

- A. Communities are tagged by default in outgoing updates
- B. Communities are local to the autonomous system where specified and can only be used within that autonomous system
- C. Communities are a means of tagging routes to ensure consistent filtering
- D. Communities perform summarization of blocks of contiguous network prefixes

Answer: C

Explanation:

The BGP COMMUNITY attribute is used to tag/mark routes. Once these routes are marked, route maps can be used to limit the distribution and acceptance of routes with a particular mark.

Some commonly used communities:

No-Export: The route will not be passed outside the AS

No-Advertise: The route will not be advertised to other routers

No-Export-Subconfed: Routes will not be advertised to eBGP peers (including eBGP peers in the same confederation)

Chapter: 2

QUESTION 496

With regard to BGP policy-based routing, which of the following statements is true?

- A. If the next-hop router goes down and no alternative path is in place, policy routing will route to null 0
- B. If the next-hop router goes down and no alternative path is in place, policy routing will default to another BGP path
- C. If the next-hop router goes down and no alternative path is in place, policy routing will deny all traffic to that destination
- D. If the next-hop router goes down and no alternative path is in place, policy routing will default to dynamic routing decisions.

Answer: D

Explanation:

Some things should be considered before arbitrarily deciding to implement policy-based routing. Understand that any additional configurations require additional CPU, particularly when every packet characteristic must be examined. It is also wise to have a backup path in place in case the defined next-hop router goes down. If there is no alternative defined, policy-routing will default to dynamic routing decisions.

Source: Self-Study CCNP BSCI Exam Certification Guide Third Edition P.523

Topic: BGP and Policy-Based Routing

A backup path should be defined in case the defined next-hop router goes down. If there is no alternative defined, policy-based routing uses the IP routing table

Source: Self-Study CCNP BSCI Exam Certification Guide Third Edition P.675

Topic: Disadvantages of Policy-Based Routing

QUESTION 497

You are a trainee technician at Certkiller . Your instructor shows you the following router configuration for Router CK1 :]

ROUTER CK1

```
router bgp 500
```

```
neighbor 190.225.11.1 remote-as 500
```

```
neighbor 190.225.11.1 update-source loopback 1
```

ROUTER B

```
router bgp 500
```

```
neighbor 150.212.1.1 remote-as 500
```

Your instructor wants to know which of the following statements are true.

What would your reply be? (Choose all that apply.)

- A. ROUTER A and ROUTER B are running iBGP inside as 500
- B. The IP address of ROUTER A's loopback 1 interface is 150.212.1.1
- C. The IP address of ROUTER A's loopback 1 interface is 190.225.11.1
- D. ROUTER A and ROUTER B are running eBGP between autonomous systems
- E. ROUTER A is configured to use the loopback IP address as the source in the BGP neighbor connection with neighbor 190.225.11.1

Answer: A, C, E

Explanation:

Based upon the router bgp 300 commands listed on both routers, we know that these routers belong to the same AS, and therefore are running iBGP sessions. If they were in different AS's, then the session would be considered eBGP.

Line 3 in Router A forces the local BGP session to use the Loopback 1 interface for peering. The neighbor command on Router B specifies the IP address of the remote BGP peer, which must be the Loopback 1 address if these two routers are to establish a BGP session. So, we must assume that the IP address listed is the IP address for the Loopback 1 interface on Router A.

Chapter: 2

QUESTION 498

When the default-information originate always command used?

- A. It is required whenever you want to propagate a default route into a RIP autonomous system
- B. It is required whenever you want to propagate a default route into an IGRP autonomous system
- C. It is required whenever you want to propagate a default route into an OSPF autonomous system
- D. It is required whenever you want to propagate a default route into an EIGRP autonomous system

Answer: C

Explanation:

This command is used to direct all other OSPF routers to place a default route into its routing table. This command is not used with IGRP/EIGRP. A similar command is used in RIP to specify some interfaces as the default route even when the local router does not have a default route in its routing table.

Chapter: 2

QUESTION 499

Which routing protocol uses the Diffusing Update Algorithm (DUAL) for route calculation?

- A. BGP
- B. OSPF
- C. EIGRP
- D. RIPv2

Answer: C

Explanation:

DUAL is used by EIGRP. This allows EIGRP to achieve fast, loop-free convergence with little impact on CPU cost and overhead. DUAL takes corrective action when topology changes occur and in doing so, only involves the routers that are affected.

Chapter: 2

QUESTION 500

Which field is included in a RIP version 2 routing update packet that is not included in RIP version 1?

- A. metric
- B. next hop
- C. subnet mask
- D. autonomous system number

Answer: C

Explanation:

RIPv1 only carries the next hop address and its associated metric in its routing updates. One of the major improvements in RIPv2 is that it is a classless routing protocol. This means it carries the subnet mask along with the network number in its routing updates.

Chapter: 2