642-902^{Q&As}

Implementing cisco ip routing

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QUESTION 1

Which three statements about configuring OSPF in a IPv6 network are true? (Choose three.)

A. OSPF version 2 will support IPv6.

B. OSPF version 3 will support IPv6.

C. Multiple instances of OSPF for IPv6 can be run on a link.

D. Networks must be explicitly configured using the network command in router OSPF configuration mode.

E. IPv4 addresses cannot be used as the router ID in OSPF for IPv6.

F. The interface command ipv6 ospf area is all that is required to enable OSPF for IPv6 on an interface.

Correct Answer: BCF

Reference: http://www.cisco.com/en/US/docs/ios/ipv6/configuration/guide/ip6-ospf.html

QUESTION 2

Refer to the exhibit.
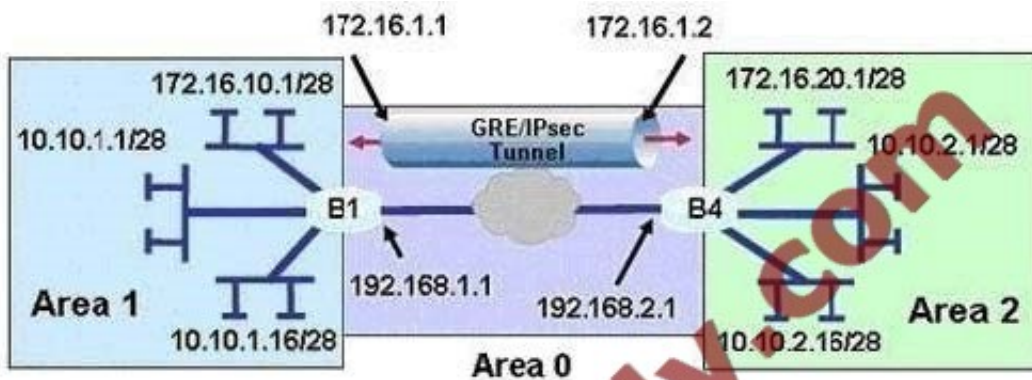
Router B1 Configuration
crypto ipsec transform-set 10 esp-sha-hmac esp-3des
crypto map tunnel 1 ipsec-isakmp
  set transform-set 10
  set peer 192.168.2.1
  match address 102
crypto isakmp policy 1
  authentication pre-share
  group 2
crypto isakmp key ******* address 192.168.2.1
access-list 102 permit gre host 192.168.1.1 host
  192.168.2.1
access-list 102 permit esp host 192.168.1.1 host
  192.168.2.1
access-list 102 permit udp host 192.168.1.1 eq isakmp
  host 192.168.2.1

Router B1 Configuration (con't)
Interface f0/0
  Ip address 192.168.1.1 255.255.255.0
interface Tunnel0
ip address 172.16.1.1 255.255.255.0
  crypto map tunnel
  tunnel source F0/0
  tunnel destination 172.16.1.2
  tunnel path-mtu-discovery
  ip ospf mtu-ignore
router ospf 200
  network 10.10.1.1 0.0.0.224 area 1
  network 172.16.10.1 0.0.0.240 area 1
 network 192.168.1.0 0.0.0.255 area 0

A new TAC engineer came to you for advice. A GRE over IPsec tunnel was configured, but the tunnel is not coming up. What did the TAC engineer configure incorrectly?

A. The crypto isakmp configuration is not correct.

B. The crypto map configuration is not correct.

C. The network 172.16.1.0 is not included in the OSPF process.

D. The interface tunnel configuration is not correct.

Correct Answer: A

The problably cause of lack connectivity is the wrong key value used

QUESTION 3
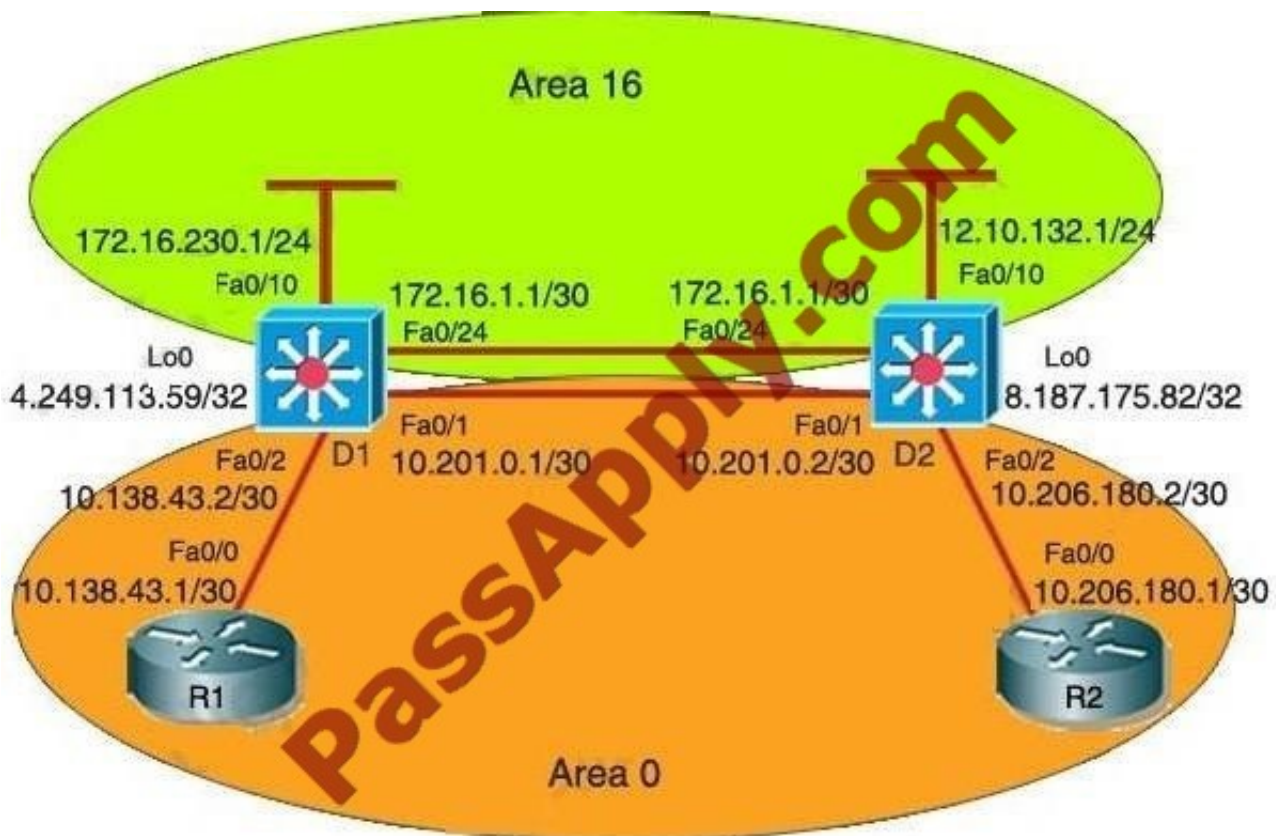
The R2 router has lost connectivity to R1. The following is R1s current route table:

The company and the company network have both been growing rapidly. Multiple adds, moves and changes have been applied to the network. Your boss has asked you to troubleshoot a recent OSPF synchronization problem that has arisen. There have been synchronization problems at separate locations in the OSPF area 0. There have been reported link failures during the rapid growth of the company network. You are required to resolve the OSPF problem. OSPF must be able to converge when the network changes. Refer to the information above to answer the following question.

```
172.16.0.0/16 is variably subnetted, 3 subnets, 2 masks
O IA 172.16.230.0/24 [110/21] via 10.138.43.1, 00:00:03, FastEthernet0/0
O IA 172.16.209.0/24 [110/22] via 10.138.43.1, 00:00:03, FastEthernet0/0
O IA 172.16.1.0/30 [110/21] via 10.138.43.1, 00:00:03, FastEthernet0/0
10.0.0.0/30 is subnetted, 1 subnets
C 10.138.43.0 is directly connected, FastEthernet0/0
```

Which expected route is missing from R1s route table based on the topology during the maintenance period?\\'

A. o 172.16.0.0 [110/2] via 10.138.43.1, 00:00:09, FastEthernet0/0

B. o IA 9.152.105.122 [110/3] via 10.138.43.1, 00:00:09, FastEthernet0/0

C. o IA 10.138.0.0 [110/3] via 10.138.43.1, 00:00:09, FastEthernet0/0

D. o IA 10.249.0.0 [110/2] via 10.138.43.1, 00:00:09, FastEthernet0/0

E. o IA 4.249.113.59 [110/2] via 10.138.43.1, 00:00:09, FastEthernet0/0

F. o 8.187.175.82 [110/3] via 10.138.43.1, 00:00:09, FastEthernet0/0

Correct Answer: F

0 8.287.175.82 [110/3] is not to be seen in the R1 current route table which means it has lost connectivity via 10.138.43.1. Also 10.0.0.0/30 has only 1 subnet.

QUESTION 4

Refer to the exhibit.
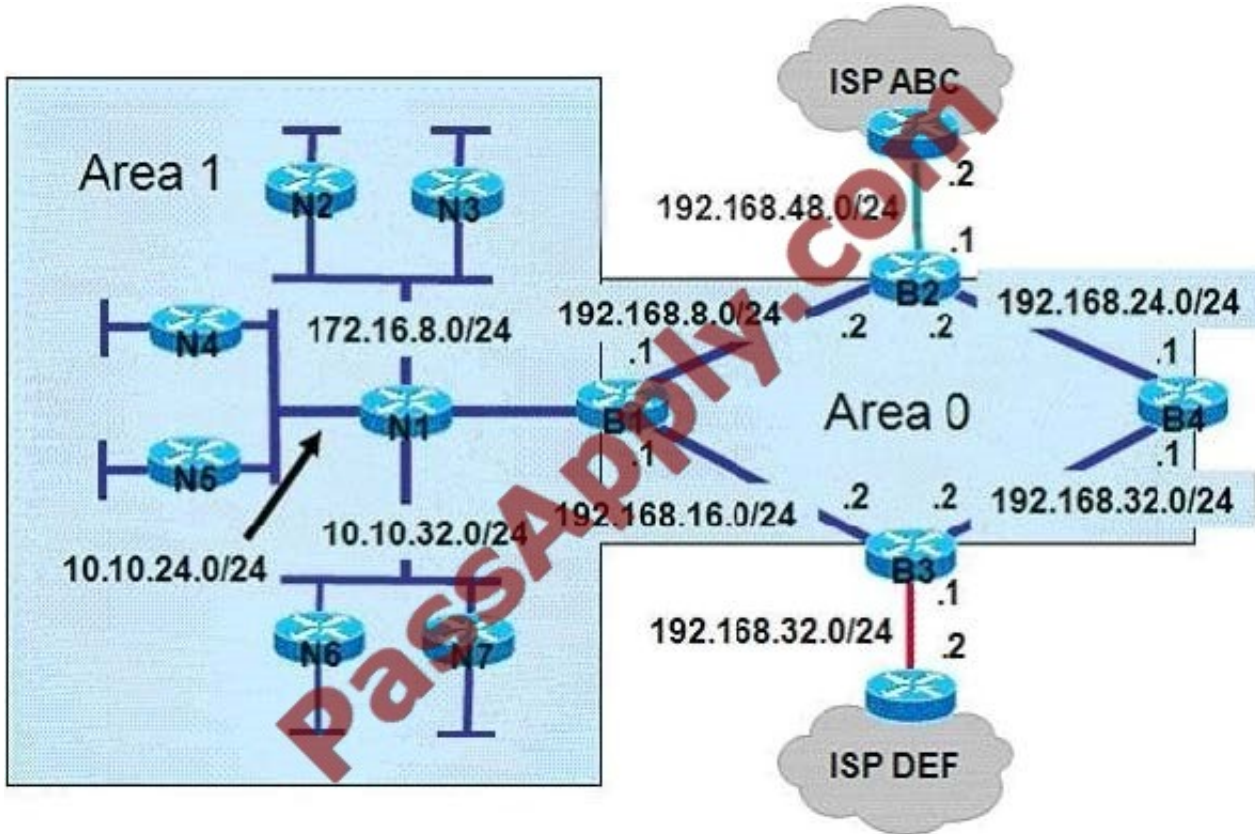
A company would prefer all Internet-bound OSPF routed traffic to use ISP ABC with ISP DEF as a backup. As the network consultant, what three configuration changes should you make? (Choose three.)

A. The default-information originate command should be configured on router B1 and B4.

B. The default-information originate command should be configured on router B2 and B3.

C. If the metric value for ISP ABC is set at the default, the ISP DEF metric value should be set to 1.

D. If the metric value for ISP ABC is set at the default, the ISP DEF metric value should be set to 25.

E. The metric type value should be set to type 1.

F. The metric type value should be set to type 2.

Correct Answer: BDF

Routers B2 and B3 need to advertise a default route to the Internet for "inside" OSPF routers so we should use the "default-information originate" command with a default route (something like "ip route 0.0.0.0 0.0.0.0 ") pointing to the ISP router. If no metric is specified, OSPF puts a default value of 20 when redistributing routes from all protocols except BGP routes (BGP routes get a metric of 1). We use ISP DEF as a backup so its metric value should be set to a higher value than 20. There are two types of external routes: external type 1 and external type 2. The difference between the two is in the way the cost (metric) of the route is being calculated:

+ The cost of a type 2 route is always the external cost, irrespective of the interior cost to reach that route. + Type 1 cost is the addition of the external cost and the internal cost used to reach that route.

-> We should configure the type 2 external route to make sure the ISP ABC is always referred over ISP DEF because internal routing does not determine the path. Note: E2 is the default external metric, but E1 is preferred over E2 if two equal-cost paths exist.

QUESTION 5

Refer to the exhibit.
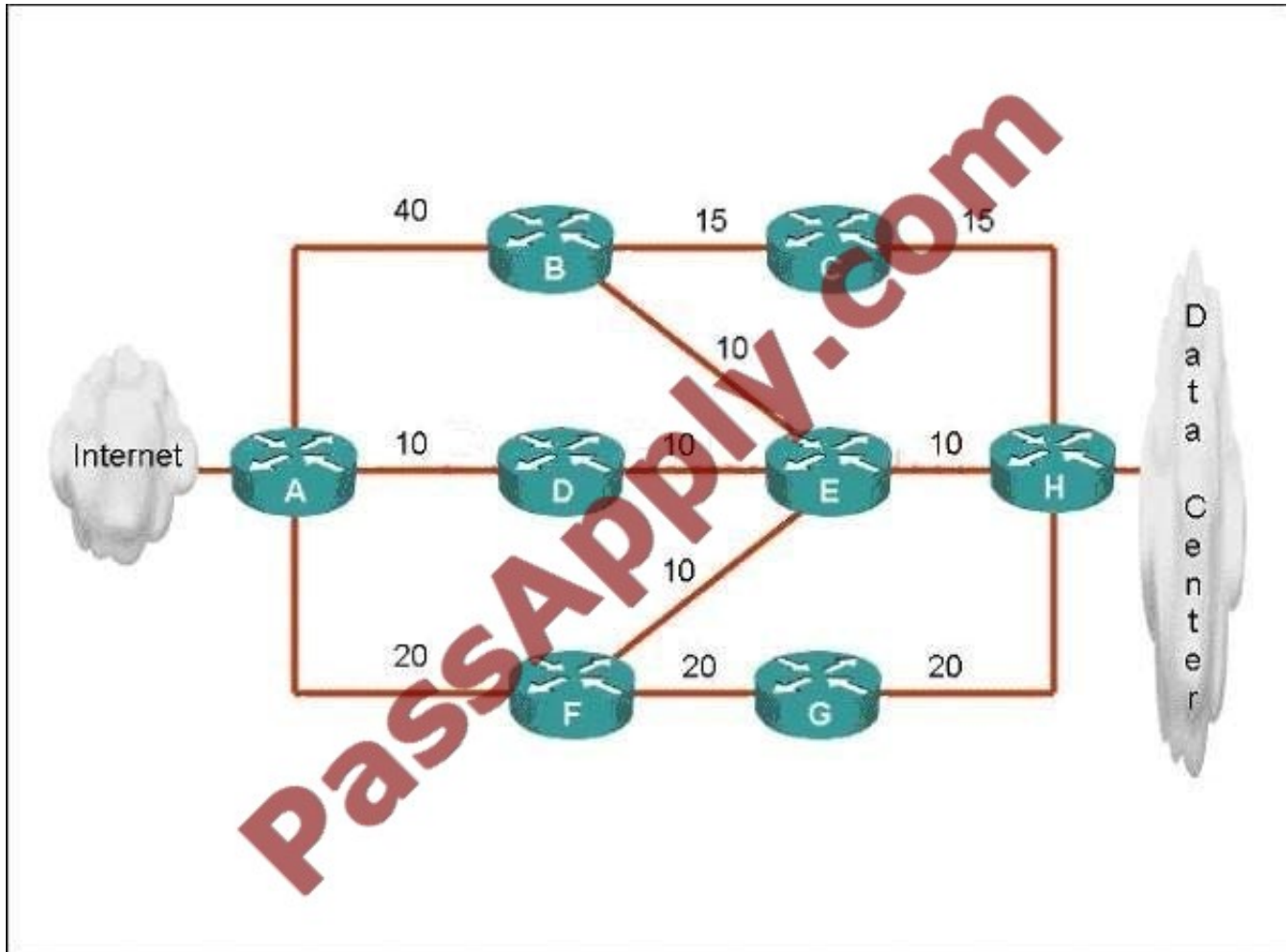
ROUTE.com has just implemented this EIGRP network. A network administrator came to you for advice while trying to implement load balancing across part of their EIGRP network. If the variance value is configured as 2 on all routers and all other metric and K values are configured to their default values, traffic from the Internet to the data center will be load balanced across how many paths?

A. 1

B. 2

C. 3

D. 4

E. 5

Correct Answer: C

First we should list all the paths from the Internet to the data center:

+

 A-B-C-H with a metric of 70 (40 + 15 + 15)

+

 A-B-E-H with a metric of 60 (40+10+10)

+

 A-D-E-H with a metric of 30 (10+10+10)

+

 A-D-E-B-C-H with a metric of 60 (10+10+10+15+15)

+

 A-D-E-F-G-H with a metric of 70 (10+10+10+20+20)

+

 A-F-G-H with a metric of 60 (20+20+20)

+

 A-F-E-H with a metric of 40 (20+10+10)

So the path A-D-E-H will be chosen because it has the best metric. But EIGRP can support unequal cost path load balancing. By configuring the variance value of 2, the minimum metric is increased to 60 (30 * 2) and all the routes that have a metric of less than or equal to 60 and satisfy the feasibility condition will be used to send traffic.

Besides the main path A-D-E-H we have 4 more paths that have the metric of less than or equal to 60 (we also include the Advertised Distances of these routes for later comparison):

+

 A-B-E-H with an AD of 20

+

 A-D-E-B-C-H with an AD of 50

+

 A-F-G-H with an AD of 40

+

 A-F-E-H with an AD of 20

Now the last thing we need to consider is the feasible condition. The feasible condition states:

"To qualify as a feasible successor, a router must have an AD less than the FD of the current successor route"

The FD of the current successor route here is 30 (notice that the variance number is not calculated here). Therefore there are only 2 paths that can satisfy this conditions: the path A- B-E-H and A-F-E-H.

In conclusion, traffic from the Internet to the data center will be load balanced across 3 paths, including the main path (successor path)

QUESTION 6

Refer to the exhibit.


```
R1(config)# router rip
R1(config-router)# redistribute ospf 1
```
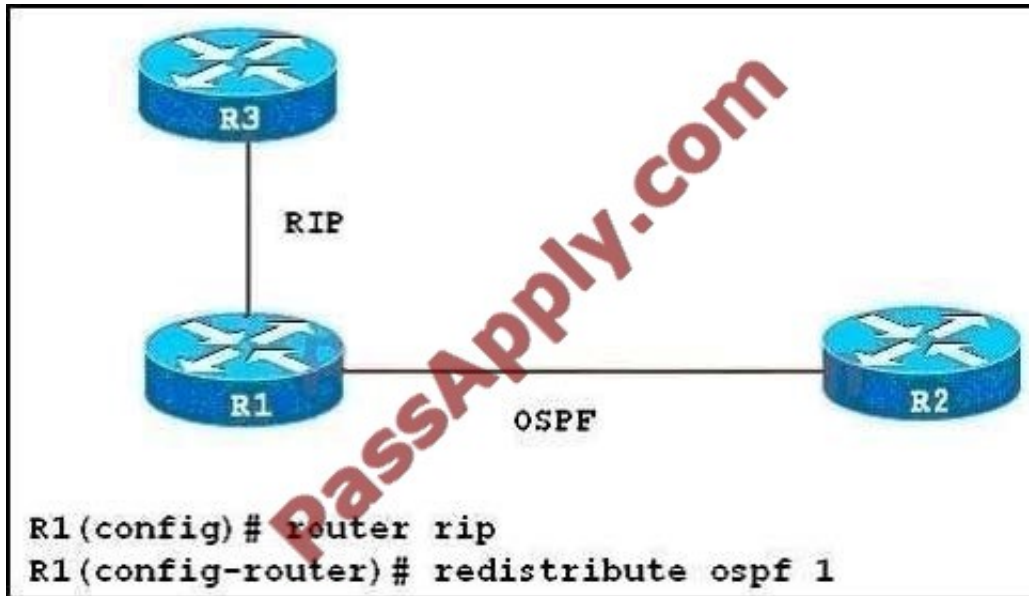
Routers R1 and R2 have been configured to operate with OSPF. Routers R1 and R3 have been configured to operate with RIP. After configuring the redistribution between OSPF and RIP on R1, no OSPF routes are distributed into RIP. What should be done to correct this problem?

A. The redistribution command should be reentered with the match route-type parameter included.

B. The redistribution command should be reentered with the route-map map-tag parameter included.

C. The redistribution command should be reentered with the metric metric-value parameter included.

D. Routes will first need to be distributed into another protocol, and then into RIP.

Correct Answer: C

Notice that RIP metric is based on hop count only, and the maximum valid metric is 15. Anything above 15 is considered infinite. By default, when no metric is assigned when redistributing from EIGRP, OSPF, IS-IS, BGP into RIP, the default metric will be infinite. Therefore we must define a metric that is understandable to the receiving protocol. Usually, we should use a small value (like 1, 2, 3) so that after redistributing, that route can be advertised through many routers (because the limit is 15).

QUESTION 7

Refer to the Exhibit.
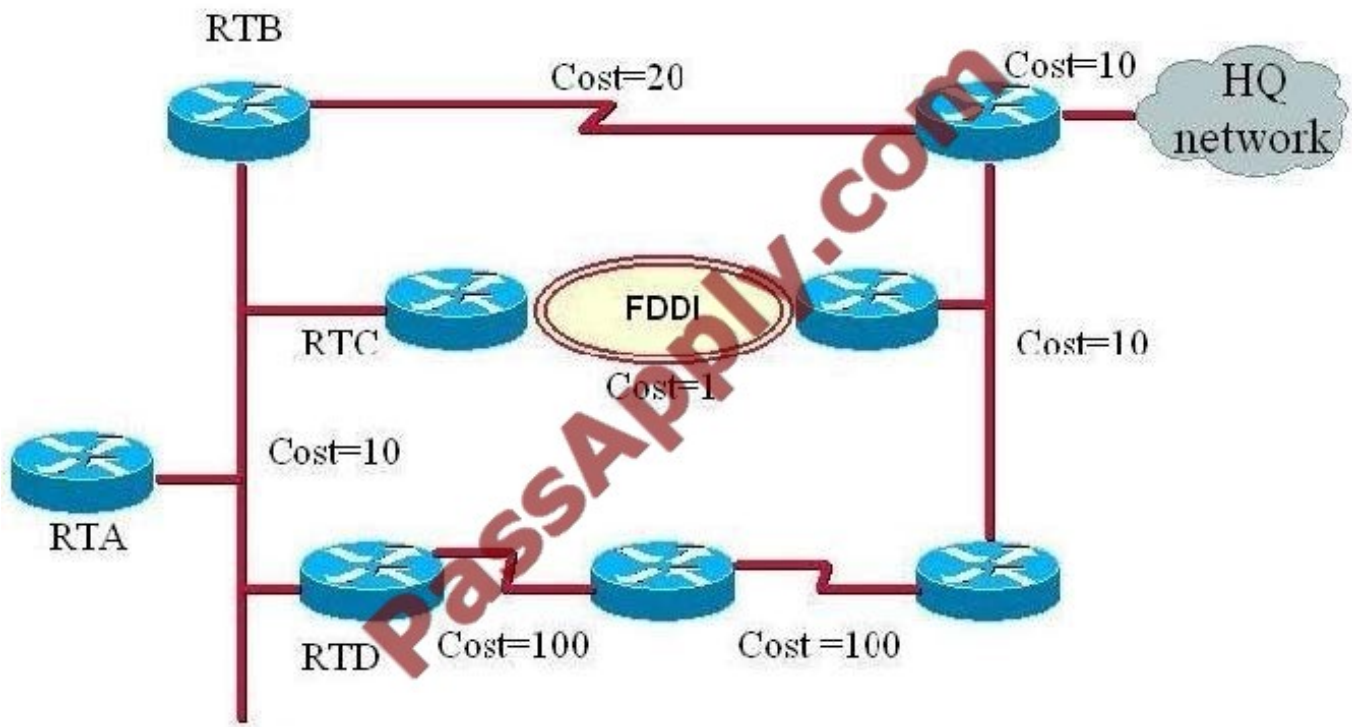
Routers in the Diagram are configured with EIGRP. If RTB and RTC fail, which action will RTA take with respect to the HQ network?

A. RTA will automatically route packets via RTD to the HQ network.

B. RTA will place the route via RTD into the hold down state.

C. RTA will go into the active state for all routers.

D. RTA will go into the active state for the route to HQ network.

Correct Answer: D

When RTB and RTC fails, RTA will go into active state for the HQ network route.

QUESTION 8

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

Select and Place:

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

internal routers	have all interfaces in one area and maintain identical LSDBs
external routers	have interfaces attached to multiple areas, maintain separate LSDBs for each area
backbone routers	have at least one interface connected to area 0
ABRs	have at least one interface attached to an external internetwork such as EIGRP
ASBRs	
peer routers	

Correct Answer:

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

	internal routers
external routers	ABRs
	backbone routers
	ASBRs
peer routers	

QUESTION 9

An engineer is trying to summarize the following networks using the "ip summary-address eigrp" command:

10.8.88.0/25 10.8.89.48/29 10.8.64.96/27

Which network and subnet mask below would be the smallest EIGRP summary address to include all three subnets?

A. 10.8.64.0 255.255.224.0

B. 10.8.64.0 255.255.128.0

C. 10.8.64.0 255.255.192.0
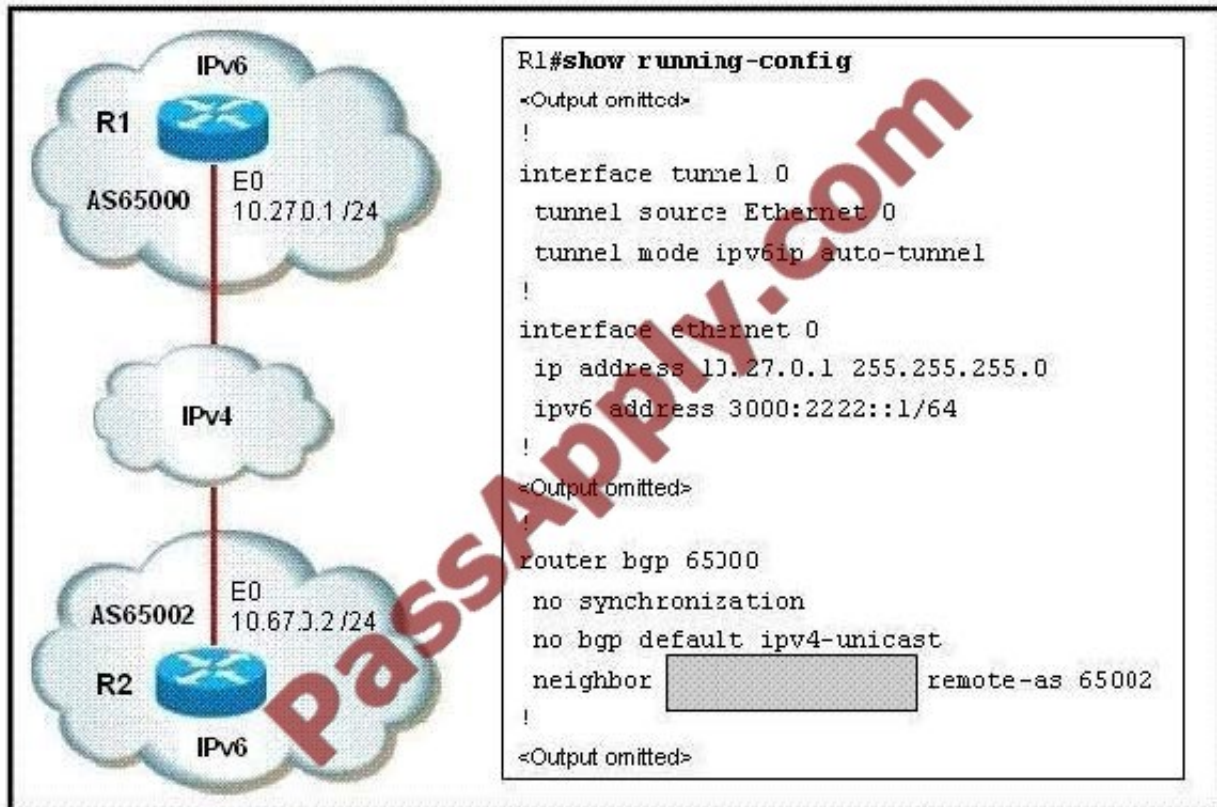
D. 10.8.0.0 255.255.192.0

Correct Answer: A

10.8.64.0 255.255.224.0 will include networks 10.8.64.0 - 10.8.96.255, so this would be the smallest summary route that would include the 3 routes listed in the question.

QUESTION 10

Refer to the exhibit.

Routers R1 and R2 are IPv6 BGP peers that have been configured to support a neighbor relationship over an IPv4 internet work. Which three neighbor IP addresses are valid choices to use in the highlighted section of the exhibit? (Choose three.)

A. ::0A43:0002

B. 0A43:0002::

C. ::10.67.0.2

D. 10.67.0.2::

E. 0:0:0:0:0:0:10.67.0.2

F. 10.67.0.2:0:0:0:0:0:0

Correct Answer: ACE

The automatic tunneling mechanism uses a special type of IPv6 address, termed an "IPv4- compatible" address. An

IPv4-compatible address is identified by an all-zeros 96-bit prefix, and holds an IPv4 address in the low-order 32-bits. IPv4compatible addresses are structured as follows:

0:0:0:0:0:0	IPv4 address
96 bits	32 bits

Therefore, an IPv4 address of 10.67.0.2 will be written as ::10.67.0.2 or 0:0:0:0:0:0:10.67.0.2 or ::0A43:0002 (with 10[decimal] = 0A[hexa] ; 67[decimal] = 43[hexa] ; 0[hexa] = 0[decimal] ; 2[hexa] = 2[decimal])

QUESTION 11

Refer to the exhibit.

BGP AS 65444
Loopback 0: 10.10.10.2 /32

S0/0
172.16.10.2 /30

RTA

S0/1
172.16.10.5 /30

BGP AS 65111
Loopback 0: 10.10.10.1 /32

S0/0
172.16.10.1 /30

RTB

S0/1
172.16.10.6 /30

```
hostname RTA
!
interface loopback 0
ip address 10.10.10.2 255.255.255.255
!
interface serial 0/0
ip address 172.16.10.2 255.255.255.252
!
interface serial 0/1
ip address 172.16.10.5 255.255.255.252
!
router bgp 65444
neighbor 10.10.10.1 remote-as 65111
neighbor 10.10.10.1 update-source loopback 0
neighbor 10.10.10.1 ebgp-multihop
```

Routers RTA and RTB are running BGP but the session is active. What command needs to be added to establish the BGP session?

A. ip route 10.10.10.1 255.255.255.255 s0/0 ip route 10.10.10.1 255.255.255.255 s0/1

B. no synchronization

C. network 10.10.10.0

D. neighbor 10.10.10.1 next-hop-self

Correct Answer: A

When BGP is running between routers in different autonomous systems, it is called External BGP (EBGP). When BGP is running between routers in the same AS, it is called Internal BGP (IBGP). BGP allows the path that packets take to be manipulated by the AS, as described in this module. It is important to understand how BGP works to avoid creating problems for your AS as a result of running BGP. A static route can be used to form an adjacency between EBGP neighbors.

QUESTION 12

Refer to the exhibit. All routers have simultaneously been reloaded, and the DR election has concluded as expected. Which state is RTC in?
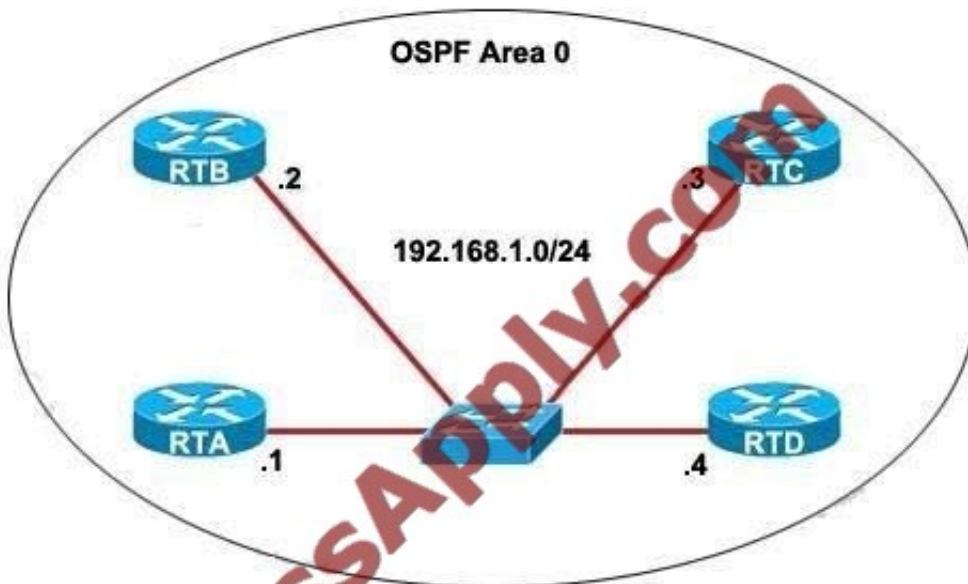
A. 2WAY/DROTHER

B. 2WAY/BDR

C. 2WAY/DR

D. FULL/DROTHER

E. FULL/BDR

F. FULL/DR

Correct Answer: E

http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080094059.shtml All the routers are allowed to take part in the DR/BDR election because all the "Pri"s (Priority) are 1 and they are equal so with default parameters, the router with highest IP address will become DR (RTD in this case) and the router with second highest IP address (RTC) will become BDR.

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