



642-902^{Q&As}

Implementing cisco ip routing

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QUESTION 1

OSPF is enabled on router A. You execute the following command on router A and receive the accompanying output:

```
RouterA#ping 224.0.0.5 repeat 1
```

Type escape sequence to abort.

```
Sending 1, 100-byte ICMP Echos to 224.0.0.5, timeout is 2 seconds:
```

```
Reply to request 0 from 10.100.100.1, 4 ms
```

10.100.100.1 is the IP address of a loopback interface on router A. What can you conclude about router A?

- A. Only the router A loopback interface is participating in the OSPF routing process.
- B. None of the router A interfaces are participating in the OSPF routing process.
- C. Router A is using the loopback interface IP address as its OSPF router ID.
- D. Router A does not have any reachable OSPF neighbors.

Correct Answer: D

The 224.0.0.5 address is the multicast for OSPF routers. Therefore when you ping to this address all OSPF routers will reply but from the output we learn that only the local router responded -> Router A does not have any reachable OSPF neighbors.

QUESTION 2

Refer to the exhibit. EIGRP has been configured on routers R1 and R2. However, R1 does not show R2 as a neighbor and does not accept routing updates from R2. What could be the cause of the problem?



```

hostname R1
!
interface Ethernet0
!
 ip address 10.1.1.1 255.255.255.0
!
router eigrp 4
 network 10.0.0.0
!
end

hostname R2
!
interface Ethernet0
!
 ip address 10.1.2.2 255.255.255.0
 ip address 10.1.1.2 255.255.255.0 secondary
!
router eigrp 4
 network 10.0.0.0
!
end

```

```

R1#show ip eigrp neighbor
IP-EIGRP neighbors for process
01:20:54: IP-EIGRP: Neighbor 10.1.2.2 not on common subnet for Ethernet0 (10.1.)
01:21:08: IP-EIGRP: Neighbor 10.1.2.2 not on common subnet for Ethernet0 (10.1.)

```

```

R2# show ip eigrp neighbor
IP-EIGRP neighbors for process 4

```

H	Address	Interface	Hold	Uptime (sec)	SRTT (ms)	RTO	Q Cnt	Seq Num	Type
0	10.1.1.1	E0	12	00:00:35	1	5000	1	0	

- A. The no auto-summary command has not been issued under the EIGRP process on both routers.
- B. Interface E0 on router R1 has not been configured with a secondary IP address of 10.1.2.1/24.
- C. EIGRP cannot exchange routing updates with a neighbor's router interface that is configured with two IP addresses.
- D. EIGRP cannot form neighbor relationship and exchange routing updates with a secondary address.

Correct Answer: D

EIGRP updates always use the primary IP address of the outgoing interface as the source address. In this case R2 will use the 10.1.2.2/24 address, which is not in the same subnet of R1, to send EIGRP update to R1. Therefore R1 does not accept this update and generates the "not on common subnet" error message.

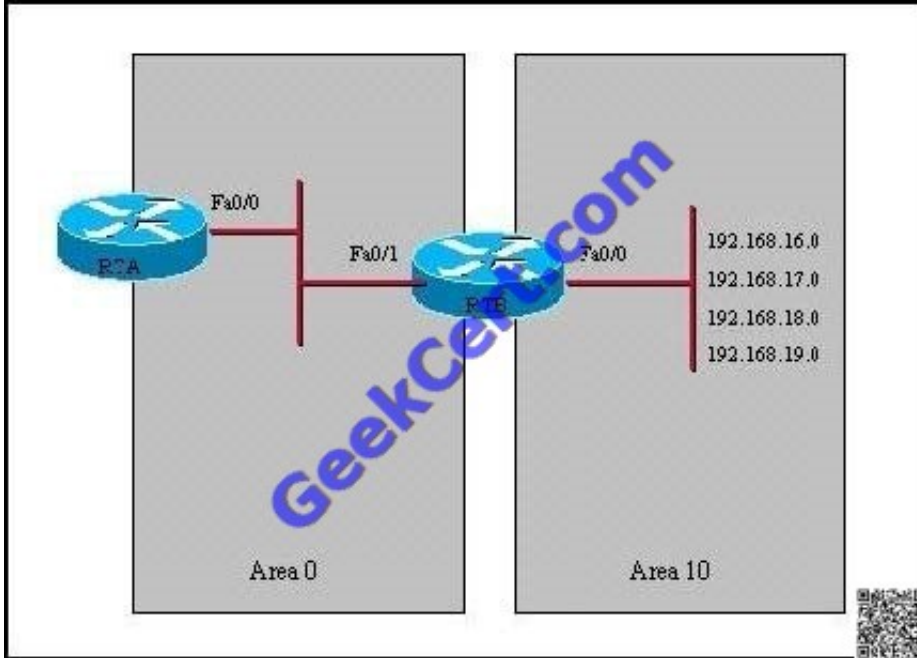
Answer D is a bit unclear. It should state that "EIGRP cannot form neighbor relationship and exchange routing updates if the two primary addresses on two routers are not in the same subnet".

Notice that although R1 does not accept R2 as its EIGRP neighbors but R2 accepts R1 as its EIGRP neighbor accepts R1 hello packets.. For more information about this problem, please read http://www.cisco.com/en/US/tech/tk365/technologies_configuration_example09186a0080093f09.shtml.



QUESTION 3

Given the above OSPF network, which command will RTB use to summarize routes for the 192.168.16.0/22 supernet before injecting them into Area 0?



- A. area 10 range 192.168.16.0 255.255.252.0
- B. summary-address 192.168.16.0 255.255.252.0
- C. ip summary-address ospf 101 192.168.16.0 255.255.252.0
- D. area 0 range 192.168.16.0 255.255.252.0
- E. ip summary-address area 0 192.168.16.0 255.255.252.0

Correct Answer: A

The area range command is used only with Area Border Routers (ABRs) which is router RT2 in this example. It is used to consolidate or summarize routes for an area. The result is that a single summary route is advertised to other areas by the ABR. Routing information is condensed at area boundaries. External to the area, a single route is advertised for each address range. Only Choice A specifies the correct syntax and route summarization network mask.

QUESTION 4

```
R3#show run | include defaultip default-network 140.140.0.0 ip default-network 130.130.0.0 R3#show ip route | begin Gateway
```

Gateway of last resort is 0.0.0.0 to network 130.130.0.0 116.0.0.0/8 is variably subnetted, 5 subnets, 3 masks C 116.16.37.0/30 is directly connected, Serial1/0.2 C 116.16.32.0/30 is directly connected, Serial2/0.2 C 116.16.34.0/28 is directly connected, Serial1/0.1 C 116.16.35.0/28 is directly connected, Serial2/0.1 S 116.0.0.0/8 [1/0] via 116.16.34.0

*



140.140.0.0/32 is subnetted, 3 subnets O 140.140.1.1 [110/65] via 116.16.34.4, 00:14:54, Serial1/0.1 O 140.140.3.1 [110/65] via 116.16.34.4, 00:14:54, Serial1/0.1 O 140.140.2.1 [110/65] via 116.16.34.4, 00:14:54, Serial1/0.1

*

130.130.0.0/16 is variably subnetted, 4 subnets, 2 masks D* 130.130.0.0/16 is a summary, 00:30:04, Null0 C 130.130.1.0/24 is directly connected, Ethernet0/0 C 130.130.2.0/24 is directly connected, Ethernet0/1 C 130.130.3.0/24 is directly connected, Ethernet1/0 D 150.150.0.0/16 [90/679936] via 116.16.35.5, 00:02:58, Serial2/0.1

Refer to the exhibit. Why is the 140.140.0.0 network not used as the gateway of last resort even though it is configured first?

- A. The last default-network statement will always be preferred.
- B. A route to the 140.140.0.0 network does not exist in the routing table.
- C. Default-network selection will always prefer the statement with the lowest IP address.
- D. A router will load balance across multiple default-networks; repeatedly issuing the show ip route command would show the gateway of last resort changing between the two networks.

Correct Answer: B

As you can see in the exhibit, 140.140.0.0 doesn't appear in the routing table.

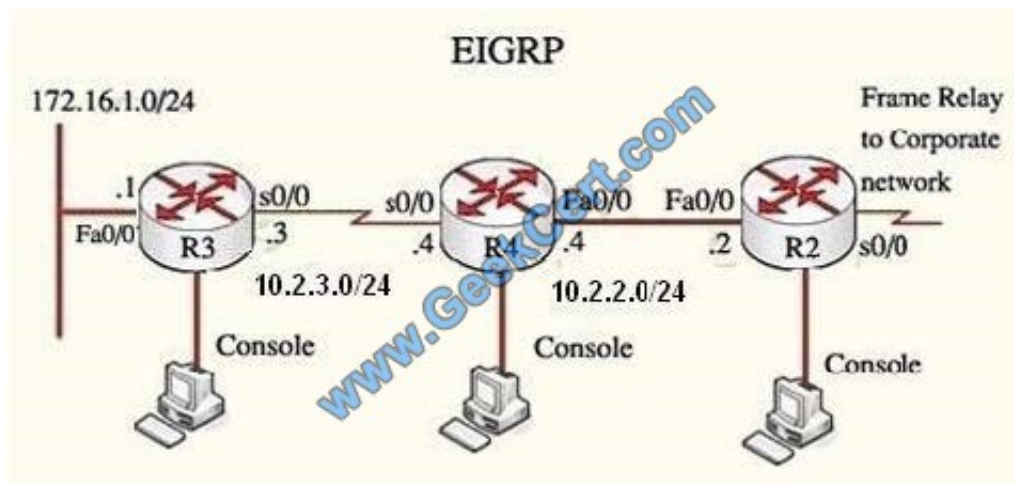
QUESTION 5

(EIGRP Stub Sim)

By increasing the first distant office, JS manufactures has extended their business. They configured the remote office router (R3) from which they can reach all Corporate subnets. In order to raise network stability and lower the memory

usage and CPU utilization to R3, JS manufactures makes use of route summarization together with the EIGRP Stub Routing feature. Another network engineer is responsible for the implementing of this solution.

However, in the process of configuring EIGRP stub routing connectivity with the remote network devices off of R3 has been missing.





Presently JS has configured EIGRP on all routers in the network R2, R3, and R4. Your duty is to find and solve the connectivity failure problem with the remote office router R3.

You should then configure route summarization only to the distant office router R3 to complete the task after the problem has been solved. The success of pings from R4 to the R3 LAN interface proves that the fault has been corrected and the

R3 IP routing table only contains two 10.0.0.0 subnets.

Correct Answer: For Answer please see explanation.

First we have to figure out why R3 and R4 can not communicate with each other.

Use the show runningconfig command on router R3

```
R3# show running-config
```

```
<output omitted>
```

```
!
```

```
router eigrp 123
```

```
network 10.0.0.0
```

```
network 172.16.0.0
```

```
no auto-summary
```

```
eigrp stub receive-only
```

```
!
```

```
<output omitted>
```

Notice that R3 is configured as a stub receive-only router. The receive-only keyword will restrict the router from sharing any of its routes with any other router in that EIGRP autonomous system. This keyword will also prevent any type of route

from being sent. Therefore we will remove this command and replace it with the eigrp stub command:

```
R3#configure terminal
```

```
R3(config)#router eigrp 123
```

```
R3(config-router)#no eigrp stub receive-only
```

```
R3(config-router)#eigrp stub
```

```
R3(config-router)#end
```

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

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



```
Router3# show ip route
```

```
10.0.0.0/8 is variably subnetted, 9 subnets, 2 masks
```

```
D 10.0.0.0/8 is a summary, 02:04:27, Null0
```

```
D 10.2.2.0/24 [90/30720] via 10.2.3.4, 00:00:06, Serial0/0
```

```
C 10.2.3.0/24 is directly connected, Serial0/0
```

```
D 10.2.4.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
```

```
D 10.2.5.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
```

```
D 10.2.6.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
```

```
D 10.2.7.0/24 [90/161280] via 10.2.3.4, 00:00:02, Serial0/0
```

```
D 10.2.8.0/24 [90/161280] via 10.2.3.4, 00:00:02, Serial0/0
```

```
D 10.2.9.0/24 [90/161280] via 10.2.3.4, 00:00:02, Serial0/0
```

```
172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
```

```
D 172.16.0.0/16 is a summary, 02:04:27, Null0
```

```
C 172.16.1.0/24 is directly connected, FastEthernet0/0
```

Because we want the routing table of R3 only have 2 subnets so we have to summary sub- networks at the interface which is connected with R3, the s0/0 interface of R4. There is one interesting thing about the output of the show ip route

shown above. the 10.2.3.0 /24, which is a directly connected network of R3. We can't get rid of it in the routing table no matter what technique we use to summary the networks. Therefore, to make the routing table of R3 has only 2 subnets we

have to summarize the other subnets into one subnet. In conclusion, we will use the ip summary-address eigrp 123 10.0.0.0 255.0.0.0 at the interface s0/0 of R4 to summary.

```
R4>enable
```

```
R4#configure terminal
```

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

```
R4(config-if)#ip summary-address eigrp 123 10.0.0.0 255.0.0.0
```



```
Router3#show ip route
```

```
10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
D    10.0.0.0/8 is a summary, 00:06:22, Null0
C    10.2.3.0/24 is directly connected, Serial0/0
    172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
D    172.16.0.0/16 is a summary, 00:06:22, Null0
C    172.16.1.0/24 is directly connected, FastEthernet0/0
```

Now we jump back to R3 and use the show ip route command to verify the effect, the output is shown below: (But please notice that the ip addresses and the subnet masks in your real exam might be different so you might use different ones to solve this question) Just for your information, notice that if you use another network than 10.0.0.0/8 to summary, for example, if you use the command ip summary-address eigrp 123 10.2.0.0 255.255.0.0 you will leave a /16 network in the output of the show ip route command.

```
Router3# show ip route
```

```
10.0.0.0/8 is variably subnetted, 3 subnets, 3 masks
D    10.0.0.0/8 is a summary, 00:18:43, Null0
D    10.2.0.0/16 [90/30720] via 10.2.3.4, 00:00:06, Serial0/0
C    10.2.3.0/24 is directly connected, Serial0/0
    172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
D    172.16.0.0/16 is a summary, 00:18:43, Null0
C    172.16.1.0/24 is directly connected, FastEthernet0/0
```

But in your real exam, if you don't see the line "10.0.0.0/8 is a summary,....Null0" then you can summary using the network 10.2.0.0/16. This summarization is better because all the pings can work well. Finally don't forget to use the copy running-config startup-config command on routers R3 and R4 to save the configurations. R4(config-if)#end R4#copy running-config startup-config



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