

# Cisco

## Exam 642-902

### Implementing Cisco IP Routing (ROUTE)

Version: 15.0

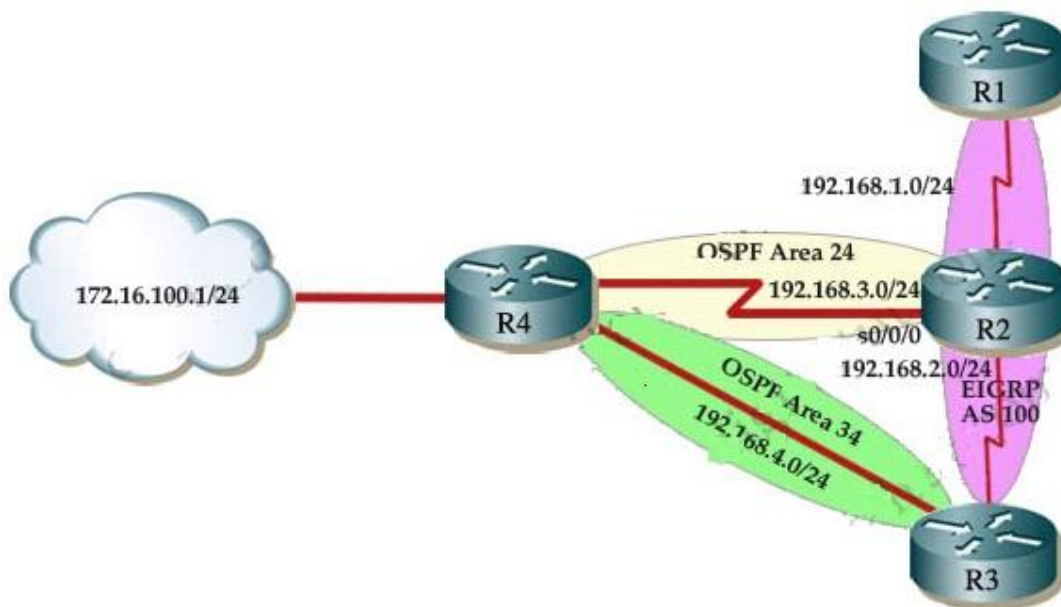
[ Total Questions: 375 ]

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

### Question No : 1 CORRECT TEXT - (Topic 1)

((EIGRP OSPF Redistribution Sim))

In this question you need to redistribute between OSPF and EIGRP such that 172.16.100.1 is reachable from router R1.



R2 is an ASBR for EIGRP 100 and OSPF AREA 24

R3 is an ASBR for EIGRP 100 and OSPF AREA 34

NotE. There are TWO separate areas on TWO separate ASBRS thus you need to do redistribution on R2 and R3

R1 is ONLY in EIGRP 100, and is THE ONLY router you can ping from. R4 has a loopback interface that must be pinged from R1.

R4 is running OSPF and has redundant links to EIGRP network over R3 router.

NotE. You should ping from R1 to 172.16.100.1 network to make sure everything is

working correctly.

**Answer:** First we need to find out 5 K-Values used for EIGRP (Bandwidth, Delay, Reliability, Load, MTU) of the s0/0/0 interface (the interface of R2 connected to R4) for redistribution :

```
R2#show interface s0/0/0
```

Write down these 5 parameters, notice that we have to divide the Delay by 10 because its metric unit is tens of microsecond. For example, we get Bandwidth=1544 Kbit, Delay=20000 us, Reliability=255, Load=1, MTU=1500 bytes then we would redistribute as follows:

```
R2#config terminal
```

```
R2(config)#router ospf 1
```

```
R2(config-router)# redistribute eigrp 100 metric-type 1 subnets
```

```
R2(config-router)#exit
```

```
R2(config-router)#router eigrp 100
```

```
R2(config-router)#redistribute ospf 1 metric 1544 2000 255 1 1500
```

(Notice: In fact, these parameters are just used for reference and we can use other parameters with no problem. Also, a candidate said that the simulator didn't accept the Bandwidth of 1544; in that case, we can use a lower value, like 128.)

If the delay is 20000us then we need to divide it by 10, that is  $20000 / 10 = 2000$ )

For R3 we use the show interface fa0/0 to get 5 parameters too

```
R3#show interface fa0/0
```

For example we get Bandwidth=10000 Kbit, Delay=1000 us, Reliability=255, Load=1, MTU=1500 bytes

```
R3#config terminal
```

```
R3(config)#router ospf 1
```

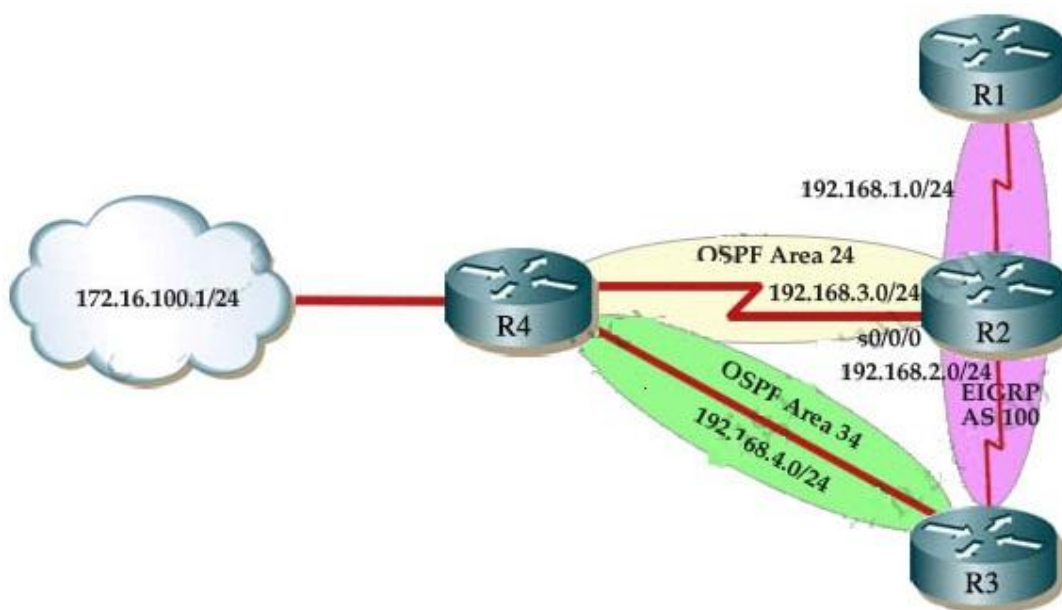
```
R3(config-router)#redistribute eigrp 100 metric-type 1 subnets
```

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

```
R3(config-router)#router eigrp 100
```

```
R3(config-router)#redistribute ospf 1 metric 10000 100 255 1 1500
```

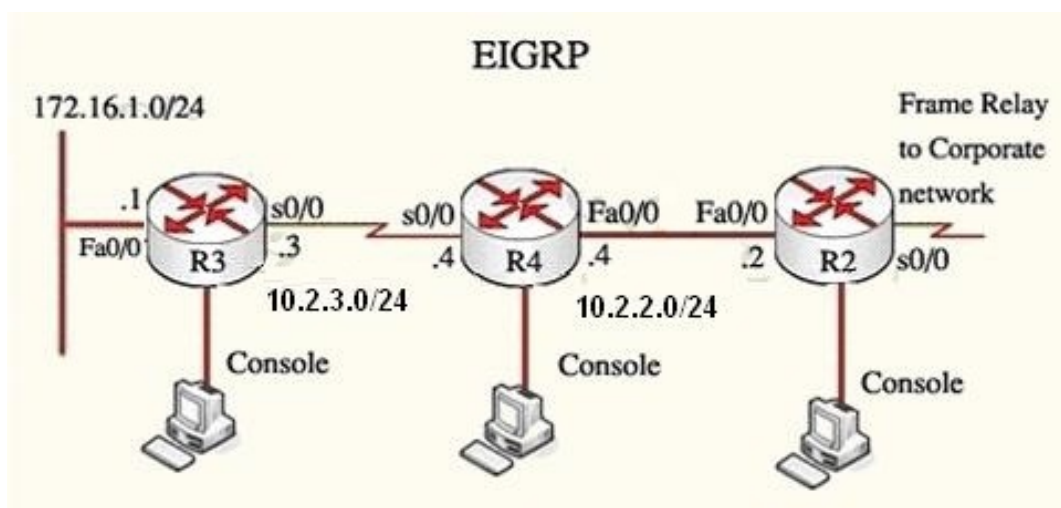
**Answer:**



**Question No : 2 CORRECT TEXT - (Topic 1)**

(EIGRP Stub Sim )

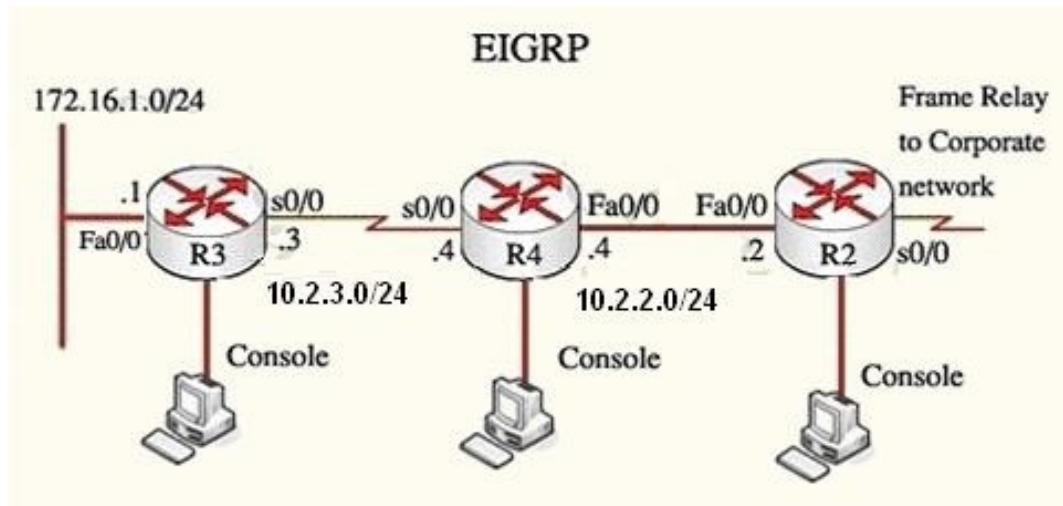
By increasing the first distant office, JS manufactures has extended their business. They configured the remote office router (R3) from which they can reach all Corporate subnets. In order to raise network stableness and lower the memory usage and CPU utilization to R3, JS manufactures makes use of route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

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

**Answer:**



**Question No : 3 - (Topic 1)**

Which three statements about the EIGRP routing protocol are true? (Choose three)

- A. EIGRP supports five generic packet types, including Hello, Database Description (DBD), Linkstate Request (LSR), Link-State Update (LSU), and LSAck.
- B. EIGRP sends periodic hello packets to the multicast IP address 224.0.0.10.
- C. EIGRP will not form a neighbor relationship with another peer when their AS number and K values, either or both are mismatched.
- D. EIGRP sends periodic hello packets to the multicast IP address 224.0.0.9.
- E. EIGRP will form a neighbor relationship with another peer even when their K values are mismatched.
- F. EIGRP supports five generic packet types, including Hello, Update, Query, Reply, and ACK packets.

**Answer: B,C,F**

**Question No : 4 - (Topic 1)**

After DUAL calculations, a router has identified a successor route, but no routes have qualified as a feasible successor. In the event that the current successor goes down, what process will EIGRP use in the selection of a new successor?

- A. EIGRP will find the interface with the lowest MAC address
- B. The route will transition to the active state
- C. The route will transition to the passive state
- D. EIGRP will automatically use the route with the lowest feasible distance(FD)
- E. EIGRP will automatically use the route with the lowest advertised distance(AD)

**Answer: B**

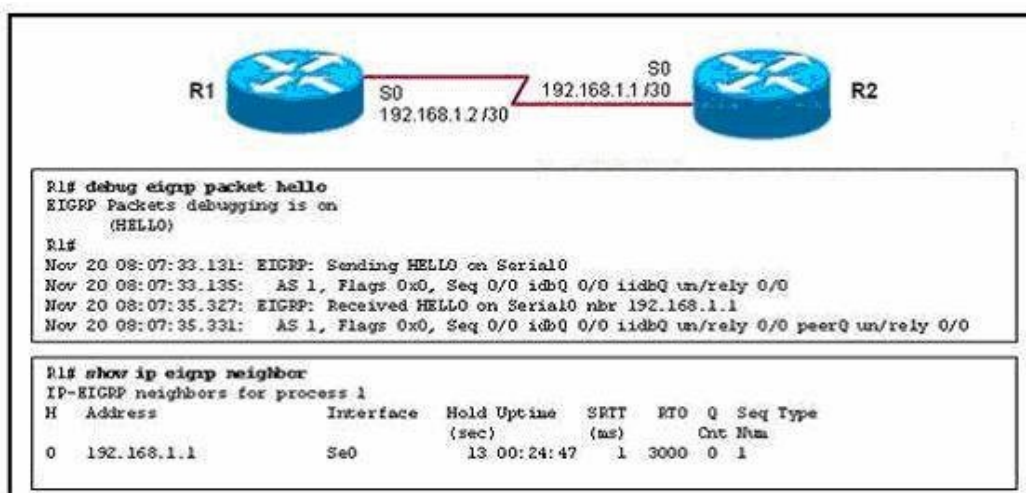
**Explanation:**

Explanation

When a route (current successor) goes down, the router first checks its topology table for a feasible successor but it can't find one. So it goes active on the that route to find a new successor by sending queries out to its neighbors requesting a path to the lost route.

**Question No : 5 - (Topic 1)**

Refer to the exhibit.



Routers R1 and R2 have established a neighbor relationship and are exchanging routing

information. The network design requires that R1 receive routing updates from R2, but not advertise any routes to R2. Which configuration command sequence will successfully accomplish this task?

- A. R1(config)# router eigrp 1R1(config-router)# passive-interface serial 0
- B. R2(config)# router eigrp 1R2(config-router)# passive-interface serial 0
- C. R1(config)# access-list 20 deny anyR1(config)# router eigrp 1R1(config-router)# distribute-list 20 out serial 0
- D. R2(config)# access-list 20 deny anyR2(config)# router eigrp 1R2(config-router)# distribute-list 20 out serial 0
- E. R1(config)# access-list 20 permit anyR1(config)# router eigrp 1R1(config-router)# distribute-list 20 in serial 0
- F. R2(config)# access-list 20 permit anyR2(config)# router eigrp 1R2(config-router)# distribute-list 20 in serial 0

**Answer: C**

**Explanation:**

We can not use passive-interfaces to accomplish this task because the “passive-interface...” command (in EIGRP or OSPF) will shut down the neighbor relationship of these two routers (no hello packets are exchanged). And to filter routing updates we should configure a distribute list on R1 with an access list that deny all and apply it to the outbound direction so that R1 can receive but cannot send routing updates.

### Question No : 6 - (Topic 1)

EIGRP has been configured to operate over Frame Relay multipoint connections. What should the bandwidth command be set to?

- A. the CIR rate of the lowest speed connection multiplied by the number of circuits
- B. the CIR rate of the lowest speed connection
- C. the CIR rate of the highest speed connection
- D. the sum of all the CIRs divided by the number of connections

**Answer: A**

**Explanation:**

If the multipoint network has different speeds allocated to the VCs, take the lowest CIR and



simply multiply it by the number of circuits. This is because in Frame-relay all neighbors share the bandwidth equally, regardless of the actual CIR of each individual PVC, so we have to get the lowest speed CIR rate and multiply it by the number of circuits. This result will be applied on the main interface (or multipoint connection interface).

**Question No : 7 - (Topic 1)**

Refer to the exhibit.

```
R1# show ip eigrp topology
<output omitted>
P 10.1.2.0/24, 1 successors, FD is 281600
   via Connected, FastEthernet0/0
A 10.6.1.0/24, 0 successors, FD is 3385160704, Q
   1 replies, active 00:00:41, query-origin: Local origin
   Remaining replies:
     via 10.1.2.1, r. FastEtherent0/0
```

EIGRP is configured on all routes in the network. On a basis of the show ip eigrp topology output provided, what conclusion can be derived?

- A. Router R1 can send traffic destined for network 10.6.1.0/24 out of interface FastEthernet0/0
- B. Router R1 is waiting for a reply from the neighbor 10.1.2.1 to the hello message sent out before it declares the neighbor unreachable
- C. Router R1 is waiting for a reply from the neighbor 10.1.2.1 to the hello message sent out inquiring for a second successor to network 10.6.1.0/24
- D. Router R1 is waiting for a reply from the neighbor 10.1.2.1 in response to the query sent about network 10.6.1.0/24

**Answer: D**

**Explanation:**

The “show ip eigrp topology” command lists all routes that EIGRP is aware of and shows whether EIGRP is actively processing information on that route. Under most normal conditions, the routes should all be in a passive state and no EIGRP process are running

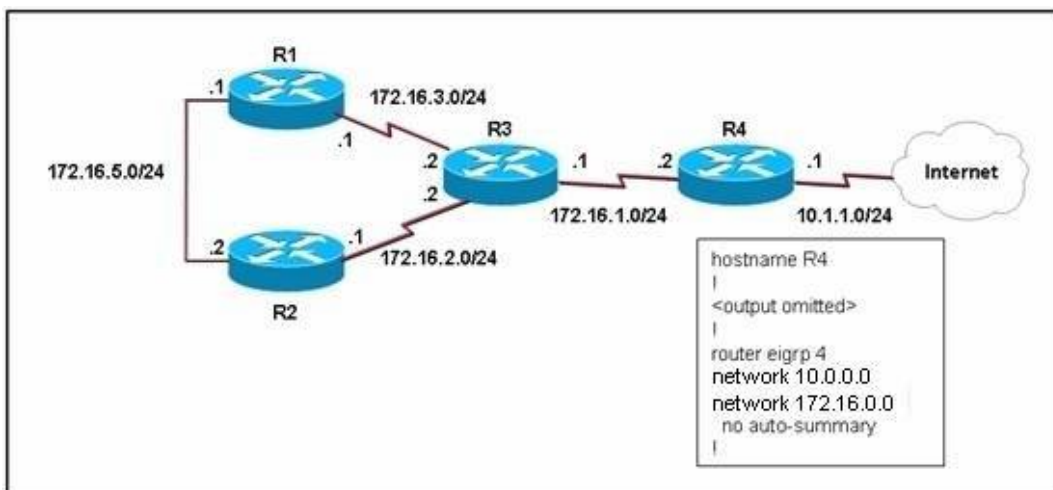


for that route. If the routes are active, this could indicate the dreaded stuck in active, or SIA, state.

The fields to note in this output are as follows:

### Question No : 8 - (Topic 1)

Refer to the exhibit.



EIGRP has been configured on all routers in the network. What additional configuration statement should be included on router R4 to advertise a default route to its neighbors?

- A. R4(config)# ip default-network 10.0.0.0
- B. R4(config)# ip route 0.0.0.0 0.0.0.0 10.1.1.1
- C. R4(config)# ip route 10.0.0.0 255.0.0.0 10.1.1.1
- D. R4(config-router)# default-information originate

**Answer: A**

**Explanation:**

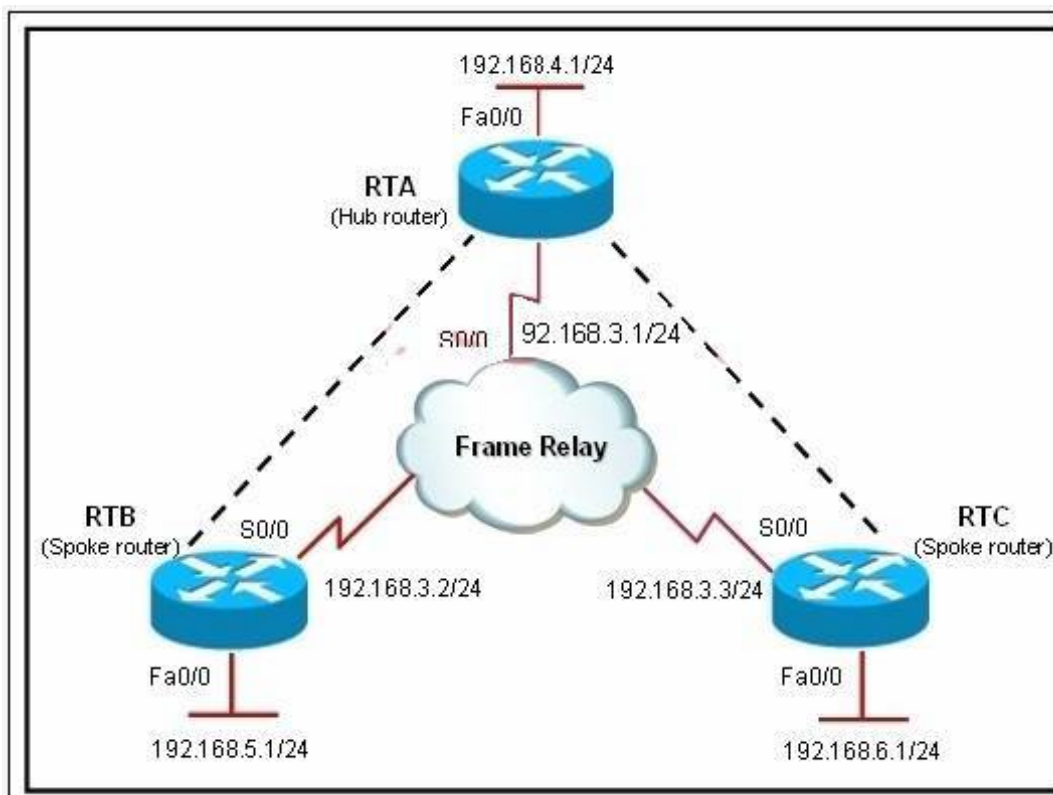
Unlike the ip default-gateway command, you can use ip default-network when ip routing is enabled on the Cisco router. When you configure ip default-network the router considers routes to that network for installation as the gateway of last resort on the router.

For every network configured with ip default-network, if a router has a route to that network, that route is flagged as a candidate default route.

Gateways of last resort selected using the ip default-network command are propagated differently depending on which routing protocol is propagating the default route. For IGRP and EIGRP to propagate the route, the network specified by the ip default-network command must be known to IGRP or EIGRP. This means the network must be an IGRP- or EIGRP-derived network in the routing table, or the static route used to generate the route to the network must be redistributed into IGRP or EIGRP, or advertised into these protocols using the network command. In this case, the 10.0.0.0 network is indeed being advertised via EIGRP.

**Question No : 9 - (Topic 1)**

Refer to the exhibit.



Router RTA is the hub router for routers RTB and RTC. The Frame Relay network is