Vendor: Cisco

Exam Code: 300-101

Exam Name: Implementing Cisco IP Routing (ROUTE)

Version: DEMO

SIM 1 - Lab Simulation - OSPF

SIM 2 - Lab Simulation - EIGRP Stub

SIM 3 - Lab Simulation - IPv6 OSPF Virtual Link

SIM 4 - Lab Simulation - Policy Based Routing

QUESTION 1
What command can you enter to configure an enable password that uses an encrypted password from another configuration?

A. enable secret $abc%!e.Cd34$!ao0
B. enable secret 7 Sabc%!e.Cd34$!ao0
C. enable secret 0 Sabc%U*.Cd34$!ao0
D. enable secret 5 $abc%!e.Cd34$!ao0
E. enable secret 15 $abc%ie.Cd34$!ao0
F. enable secret 6 $abc%!e.Cd34$!ao0

Answer: D

QUESTION 2
A network engineer receives reports about poor voice quality issues at a remote site.
The network engineer does a packet capture and sees out-of-order packets being delivered.
Which option can cause the VOIP quality to suffer?

A. traffic over backup redundant links
B. misconfigured voice vlan
C. speed duplex link issues
D. load balancing over redundant links

Answer: D
Explanation:
In traditional packet forwarding systems, using different paths have varying latencies that cause out of order packets,
eventually resulting in far lower performance for the network application. Also , if some packets are process switched quickly by the routing engine of the router while others are interrupt switched (which takes more time)
then it could result in out of order packets. The other options would cause packet drops or latency, but not out of order packets.

QUESTION 3
What is the administrative distance for EBGP?

A. 200
B. 30
C. 70
D. 20

Answer: D

QUESTION 4
Considering the IPv6 address independence requirements, which process do you avoid when you use NPTv6 for translation?

A. rewriting of higher layer information
B. checksum verification
C. ipv6 duplication and conservation
D. IPSEC AH header modification

Answer: A
Explanation:
The IPv6-to-IPv6 Network Prefix Translation (NPTv6) serves as a useful mechanism for implementing address independence in an IPv6 environment. A major benefit associated with NPTv6 is the fact that it avoids the requirement for an NPTv6 Translator to rewrite the transport layer headers which reduces the load on network devices
http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipaddr_nat/configuration/xe-16/nat-xe-16-book/iadnat-asr1k-nptv6.html

QUESTION 5
What is the optimal location from which to execute a debug command that produces an excessive amount of information?

A. Vty lines
B. SNMP commands
C. A console port
D. An AUX port

Answer: A
Explanation:
http://www.cisco.com/c/en/us/support/docs/dial-access/integrated-services-digital-networks-isdn-channel- associated-signaling-cas/10374-debug.html

QUESTION 6
A network engineer is configuring the router for NetFlow data exporting.
What is required in order
for NDE to begin exporting data?

A. Source
B. Flow mask
C. Destination
D. Interface type
E. Traffic type
F. NetFlow version

Answer: C
Explanation:
NetFlow Multiple Export Destinations--To configure redundant NDE data streams, which improves the probability of receiving complete NetFlow data, you can enter the ip flow-export destination command twice and configure a different destination IP address in each command. Configuring two destinations increases the RP CPU utilization, as you are exporting the data records twice.
http://www.cisco.com/en/US/docs/general/Test/dwerblo/broken_guide/nde.html#wp1139278

QUESTION 7
Which mode of uRPF causes a router interface to accept a packet, if the network to which the packet's source IP address belongs is found in the router's FIB?

A. Strict mode
B. Loose mode
C. Auto mode
D. Desirable mode

Answer: B
Explanation:
A number of common types of DoS attacks take advantage of forged or rapidly changing source IP addresses, allowing attackers to thwart efforts by ISPs to locate or filter these attacks. Unicast RPF was originally created to help mitigate such attacks by providing an automated, scalable mechanism to implement the Internet Engineering Task Force (IETF) Best Common Practices 38/Request for Comments 2827 (BCP 38/RFC 2827) anti-spoofing filtering on the customer-to-ISP network edge. By taking advantage of the information stored in the Forwarding Information Base (FIB) that is created by the , Unicast RPF can determine whether IP packets are spoofed or malformed by CEF switching process
matching the IP source address and ingress interface against the FIB entry that reaches back to this source (a so-called reverse lookup). Packets that are received from one of the best reverse path routes back out of the same interface are forwarded as normal. If there is no reverse path route on the same interface from which the packet was received, it might mean that the source address was modified, and the packet is dropped (by default).

QUESTION 8
Which of the following are characteristics of TACACS+? (Choose two.)

A. Uses UDP
B. Encrypts an entire packet
C. Offers robust accounting
D. Cisco-proprietary

Answer: BD
Explanation:
CHARACTERISTICS O TACACS+
1-TACACS+ encrypts the entire body of the packet
2- TACACS+ uses TCP
3-TACACS+ uses the AAA architecture, which separates AAA
4-TACACS+ offers multiprotocol support.
5-TACACS+ is Cisco proprietary protocol
6-TACACS+ is a heavy-weight protocol consuming more resources 7-TACACS+ uses TCP port 49
8-Mainly used for Device Administration
9-TACACS+ supports 15 privilege levels
http://www.cisco.com/c/en/us/support/docs/security-vpn/remote-authentication-dial-user-service-radius/13838-10.html7

QUESTION 9
Which two options are causes of out-of-order packets? (Choose two.)

A. a routing loop
B. a router in the packet flow path that is intermittently dropping packets
C. high latency
D. packets in a flow traversing multiple paths through the network.
E. some packets in a flow being process-switched and others being interrupt-switched on a transit Router

Answer: DE
Explanation:
In traditional packet forwarding systems, using different paths have varying latencies that cause out of order packets, eventually resulting in far lower performance for the network application. Also, if some packets are process switched quickly by the routing engine of the router while others are interrupt switched (which takes more time) then it could result in out of order packets. The other options would cause packet drops or latency, but not out of order packets.

QUESTION 10
Scenario:
You have been asked to evaluate an OSPF network setup in a test lab and to answer questions a customer has about its operation. The customer has disabled your access to the show running-config command.
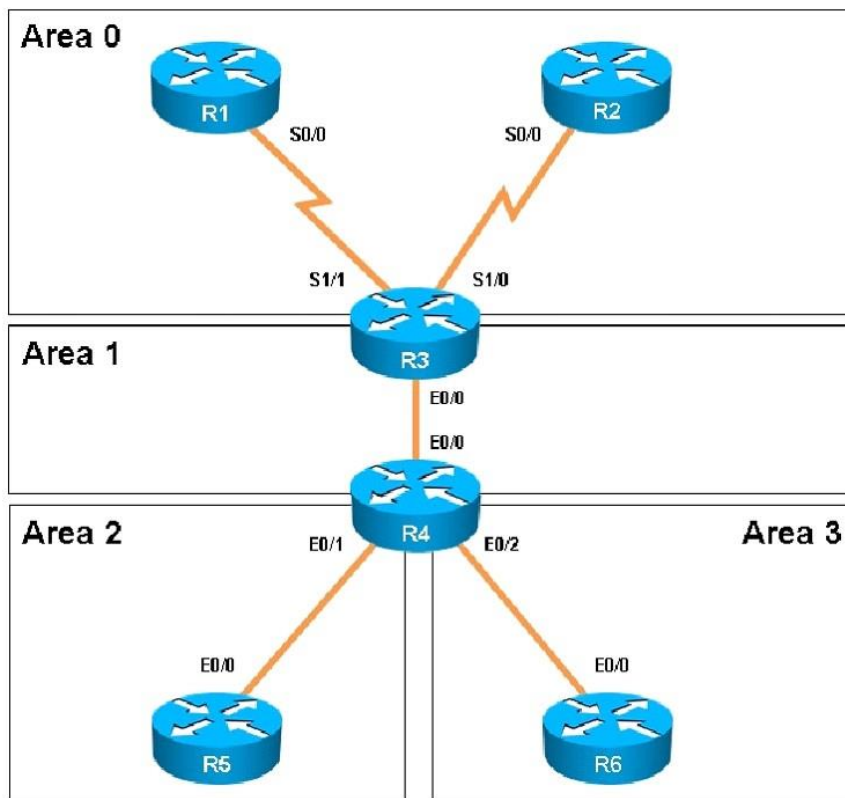
Which of the following statements is true about the serial links that terminate in R3

A. The R1-R3 link needs the neighbor command for the adjacency to stay up
B. The R2-R3 link OSPF timer values are 30, 120, 120
C. The R1-R3 link OSPF timer values should be 10,40,40
D. R3 is responsible for flooding LSUs to all the routers on the network.

Answer: B
Explanation:
We can see the configured timers using the following command:

```
R3#show ip ospf interface serial 1/0
Serial1/0 is up, line protocol is up
  Internet Address 192.168.13.3/24, Area 0, Attached via Network Statement
  Process ID 100, Router ID 3.3.3.3, Network Type NON_BROADCAST, Cost: 1943
  Topology-MTID    Cost     Disabled     Shutdown      Topology Name
        0          1943       no            no             Base
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 3.3.3.3, Interface address 192.168.13.3
  Backup Designated router (ID) 1.1.1.1, Interface address 192.168.13.1
  Timer intervals configured, Hello 30, Dead 120, Wait 120, Retransmit 5
    oob-resync timeout 120
    Hello due in 00:00:06
  Supports Link-local Signaling (LLS)
  Cisco NSF helper support enabled
  IETF NSF helper support enabled
  Index 2/3, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 2, maximum is 11
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 1, Adjacent neighbor count is 1
    Adjacent with neighbor 1.1.1.1  (Backup Designated Router)
  Suppress hello for 0 neighbor(s)

R3#
```

QUESTION 11
Refer to the exhibit. The command is executed while configuring a point-to-multipoint Frame Relay interface. Which type of IPv6 address is portrayed in the exhibit?

```
frame-relay map ipv6 FE80::1C2 102
```

A. link-local
B. site-local
C. global
D. multicast

Answer: A

SIM 5 - Lab Simulation - EIGRP OSPF Redistribution

You are a network engineer with ROUTE.com, a small IT company. They have recently merged two organizations and now need to merge their networks as shown in the topology exhibit. One network is using OSPF as its IGP and the other is using EIGRP as its IGP. R4 has been added to the existing OSPF network to provide the interconnect between the OSPF and EIGRP networks. Two links have been added that will provide redundancy.

The network requirements state that you must be able to ping and telnet from loopback 101 on R1 to the OPSF domain test address of 172.16.1.100. All traffic must use the shortest path that provides the greatest bandwidth. The redundant paths from the OSPF network to the EIGRP

network must be available in case of a link failure. No static or default routing is allowed in either network.

A previous network engineer has started the merger implementation and has successfully assigned and verified all IP addressing and basic IGP routing. You have been tasked with completing the implementation and ensuring that the network requirements are met. You may not remove or change any of the configuration commands currently on any of the routers. You may add new commands or change default values.
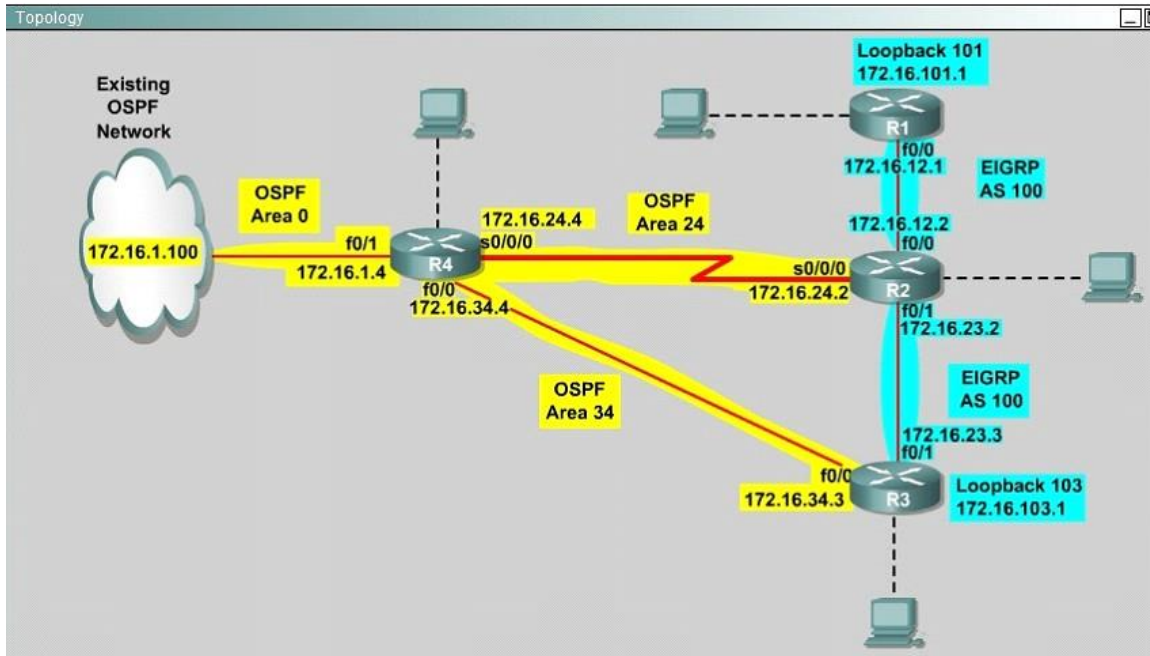
Answer:

R2# show interface s0/0/0

Write down these 5 parameters, notice that we have to divide the Delay by 10 because the metric unit is in 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

Note: In fact, these parameters are just used for reference and we can use other parameters with no problem.
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)# exit
R3(config-router)# router eigrp 100
R3(config-router)# redistribute ospf 1 metric 10000 100 255 1 1500
```

Finally you should try to "***show ip route***" to see the 172.16.100.1 network (the network behind R4) in the routing table of R1 and make a ping from R1 to this network.

Note: If the link between R2 and R3 is FastEthernet link, we must put the command below under EIGRP process to make traffic from R1 to go through R3 (R1 -> R2 -> R3 -> R4), which is better than R1 -> R2 -> R4.

```
R2(config-router)# distance eigrp 90 105
```

This command sets the Administrative Distance of all EIGRP internal routes to 90 and all EIGRP external routes to 105, which is smaller than the Administrative Distance of OSPF (110) -> the link between R2 & R3 will be preferred to the serial link between R2 & R4.

Note: The actual OPSF and EIGRP process numbers may change in the actual exam so be sure to use the actual correct values, but the overall solution is the same.

QUESTION 12
Which IP SLA operation requires Cisco endpoints?

A. UDP Jitter for VoIP
B. ICMP Path Echo
C. ICMP Echo
D. UDP Jitter

Answer: A
Explanation:
With the addition of real-time traffic (ie: VoIP), the focus shifts not just in the reliability of the network, but also on the delays involved in transmitting the data. Real-time traffic is delay sensitive. For Voice data, packet loss is manageable to some extent, but frequent losses impair communication between endpoints.
The UDP jitter operation is the most popular operation because the user can obtain packet loss, jitter and latency from one operation. This also includes unidirectional measurements as well.
The Jitter operation is designed to measure the delay, delay variance and packet loss in IP networks by generating active UDP traffic. It sends N packets, each of size S, from source router to a target router (which requires Cisco IOS IP SLAs responder enabled) each T milliseconds apart. All these parameters are user configurable.
http://www.cisco.com/en/US/technologies/tk648/tk362/tk920/technologies_white_paper09186a00802d5efe.html

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