



Cisco

Exam Questions 200-105

ICND2 Interconnecting Cisco Networking Devices Part 2 (ICND2 v3.0)

Version: Demo

1. At which layer of the OSI model is RSTP used to prevent loops?

- A. physical
- B. data link
- C. network
- D. transport

Answer: B

Explanation: RSTP and STP operate on switches and are based on the exchange of Bridge Protocol Data Units (BPDUs) between switches. One of the most important fields in BPDUs is the Bridge Priority in which the MAC address is used to elect the Root Bridge, RSTP operates at Layer 2.

http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cf a.shtml

2. Refer to the exhibit.

Given the output shown from this Cisco Catalyst 2950, what is the reason that interface FastEthernet 0/10 is not the root port for VLAN 2?

- A. This switch has more than one interface connected to the root network segment in VLAN 2.
- B. This switch is running RSTP while the elected designated switch is running 802.1d Spanning Tree.
- C. This switch interface has a higher path cost to the root bridge than another in the topology.
- D. This switch has a lower bridge ID for VLAN 2 than the elected designated switch.

Answer: C

Explanation: These four parameters are examined in order to make root bridge, root port, designated port. Other switch has lowest Sending Bridge ID or Sending Port ID so vlan 2 is not the root port.

1. A lower Root Bridge ID
2. A lower path cost to the Root
3. A lower Sending Bridge ID
4. A lower Sending Port ID

3. Which three statements about RSTP are true? (Choose three.)

- A. RSTP significantly reduces topology reconverging time after a link failure.
- B. RSTP expands the STP port roles by adding the alternate and backup roles.
- C. RSTP port states are blocking, discarding, learning, or forwarding.
- D. RSTP provides a faster transition to the forwarding state on point-to-point links than STP does.
- E. RSTP also uses the STP proposal-agreement sequence.

F. RSTP uses the same timer-based process as STP on point-to-point links.

Answer: A,B,D

Explanation:

http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cf a.shtml

Convergence

Cisco enhanced the original 802.1D specification with features such as Uplink Fast, Backbone Fast, and Port Fast to speed up the convergence time of a bridged network. The drawback is that these mechanisms are proprietary and need additional configuration.

Alternate and Backup Port Roles

These two port roles correspond to the blocking state of 802.1D. A blocked port is defined as not being the designated or root port. A blocked port receives a more useful BPDU than the one it sends out on its segment.

Remember that a port absolutely needs to receive BPDUs in order to stay blocked. RSTP introduces these two roles for this purpose.

Rapid Transition to Forwarding State

Rapid transition is the most important feature introduced by 802.1w. The legacy STA passively waited for the network to converge before it turned a port into the forwarding state. The achievement of faster convergence was a matter of tuning the conservative default parameters (forward delay and max_age timers) and often put the stability of the network at stake. The new rapid STP is able to actively confirm that a port can safely transition to the forwarding state without having to rely on any timer configuration. There is now a real feedback mechanism that takes place between RSTP-compliant bridges. In order to achieve fast convergence on a port, the protocol relies upon two new variables: edge ports and link type.

4. Which three of these statements regarding 802.1Q trunking are correct? (Choose three.)

- A. 802.1Q native VLAN frames are untagged by default.
- B. 802.1Q trunking ports can also be secure ports.
- C. 802.1Q trunks can use 10 Mb/s Ethernet interfaces.
- D. 802.1Q trunks require full-duplex, point-to-point connectivity.
- E. 802.1Q trunks should have native VLANs that are the same at both ends.

Answer: A,C,E

Explanation:

CCNA Self-Study (ICND Exam): Extending Switched Networks with Virtual LANs

<http://www.ciscopress.com/articles/article.asp?p=102157&seqNum=2>

5. What are two characteristics of a switch that is configured as a VTP client? (Choose two.)

- A. If a switch that is configured to operate in client mode cannot access a VTP server, then the switch reverts to transparent mode.
- B. On switches that are configured to operate in client mode, VLANs can be created, deleted, or renamed locally.
- C. The local VLAN configuration is updated only when an update that has a higher configuration revision number is received.
- D. VTP advertisements are not forwarded to neighboring switches that are configured in VTP transparent mode.
- E. VTP client is the default VTP mode.
- F. When switches in VTP client mode are rebooted, they send a VTP advertisement request to the VTP servers.

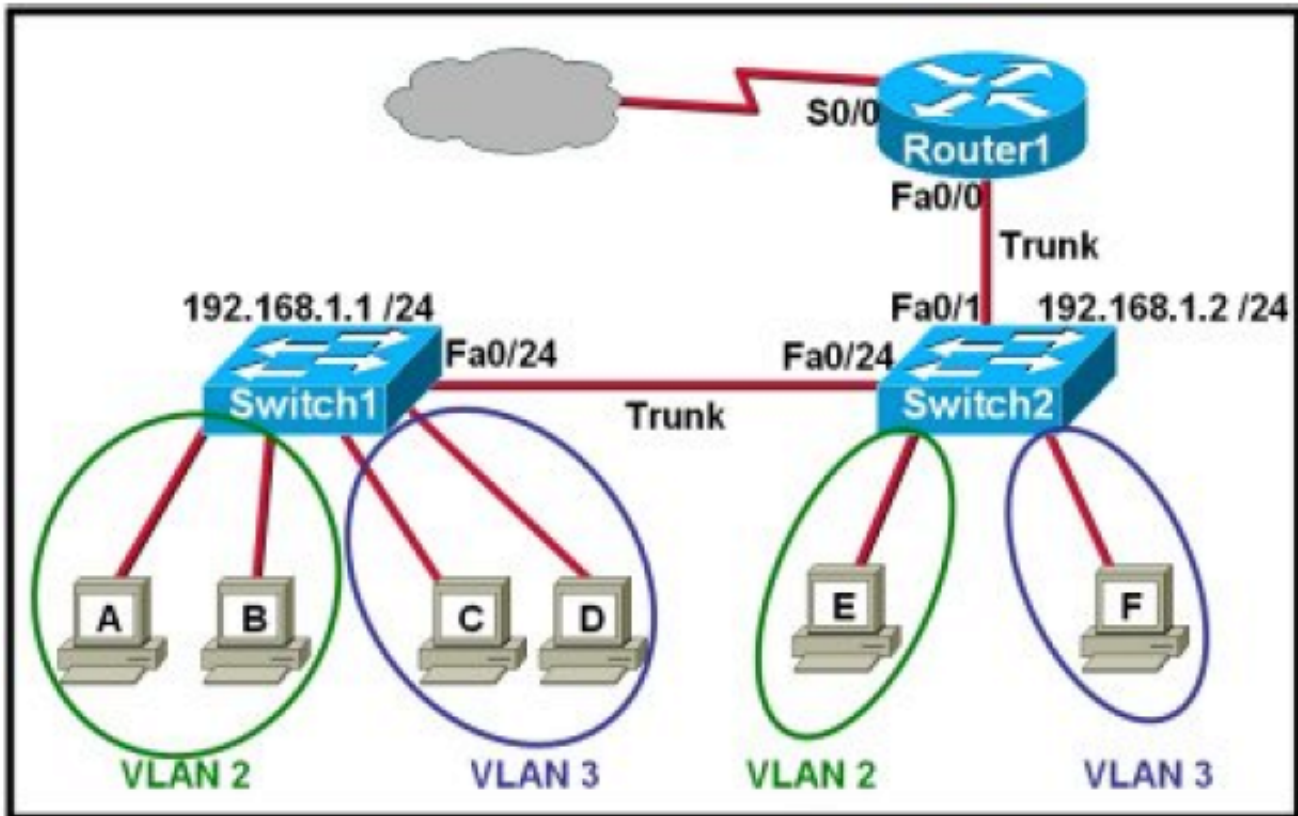
Answer: C,F

Explanation:

VLAN Trunking Protocol (VTP) <http://archive.networknewz.com/2004/0317.html>

VTP Modes **Server Mode** Once VTP is configured on a Cisco switch, the default mode used is Server Mode. In any given VTP management domain, at least one switch must be in Server Mode. When in Server Mode, a switch can be used to add, delete, and modify VLANs, and this information will be passed to all other switches in the VTP management domain. **Client Mode** When a switch is configured to use VTP Client Mode, it is simply the recipient of any VLANs added, deleted, or modified by a switch in Server Mode within the same management domain. A switch in VTP client mode cannot make any changes to VLAN information. **Transparent Mode** A switch in VTP Transparent Mode will pass VTP updates received by switches in Server Mode to other switches in the VTP management domain, but will not actually process the contents of these messages. When individual VLANs are added, deleted, or modified on a switch running in transparent mode, the changes are local to that particular switch only, and are not passed to other switches in the VTP management domain.

6. Refer to the exhibit.



Which two statements are true about interVLAN routing in the topology that is shown in the exhibit? (Choose two.)

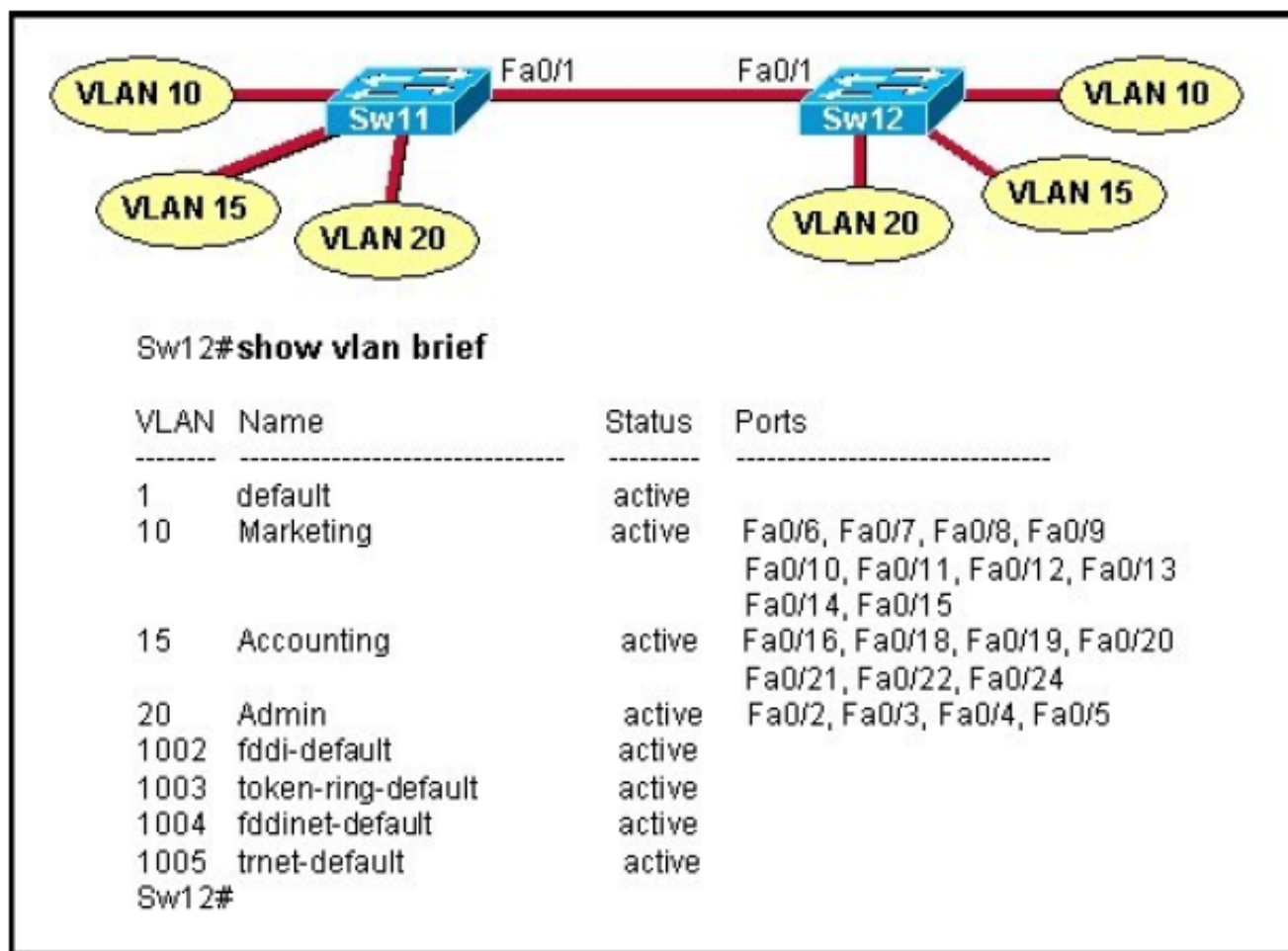
- A. Host E and host F use the same IP gateway address.
- B. Router1 and Switch2 should be connected via a crossover cable.
- C. Router1 will not play a role in communications between host A and host D.
- D. The FastEthernet 0/0 interface on Router1 must be configured with subinterfaces.
- E. Router1 needs more LAN interfaces to accommodate the VLANs that are shown in the exhibit.
- F. The FastEthernet 0/0 interface on Router1 and the FastEthernet 0/1 interface on Switch2 trunk ports must be configured using the same encapsulation type.

Answer: D,F

Explanation:

http://www.cisco.com/en/US/tech/tk389/tk815/technologies_configuration_example09186a_00800949fd.shtml

7. Refer to the exhibit.



A technician has configured the FastEthernet 0/1 interface on Sw11 as an access link in VLAN 1. Based on the output from the show vlan brief command issued on Sw12, what will be the result of making this change on Sw11?

- A. Only the hosts in VLAN 1 on the two switches will be able to communicate with each other.
- B. The hosts in all VLANs on the two switches will be able to communicate with each other.
- C. Only the hosts in VLAN 10 and VLAN 15 on the two switches will be able to communicate with each other.
- D. Hosts will not be able to communicate between the two switches.

Answer: D

Explanation:

VLANs are local to each switch's database, and VLAN information is not passed between switches without implementing VLAN Trunk Protocol (VTP). Trunks carry traffic from all VLANs to and from the switch by default but, can be configured to carry only specified VLAN traffic. Trunk links are required to pass VLAN information between switches. So Sw11 port should be trunk not access port. Additionally, there are no ports assigned to VLAN 1.

8. Which two states are the port states when RSTP has converged? (Choose two.)

- A. discarding
- B. listening
- C. learning
- D. forwarding
- E. disabled

Answer: A,D

Explanation:

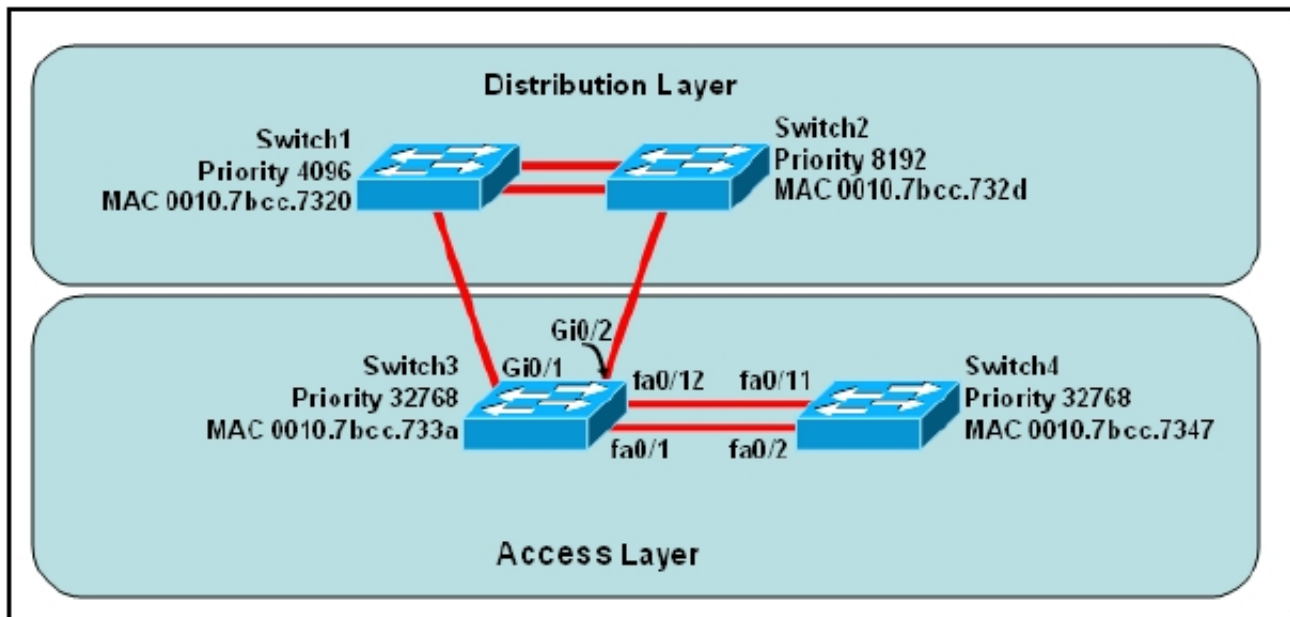
Understanding Rapid Spanning Tree Protocol (802.1w)

http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cf a.shtml

Port States There are only three port states left in RSTP that correspond to the three possible operational states. The 802.1D disabled, blocking, and listening states are merged into a unique 802.1w discarding state. RSTP only has 3 port states which are discarding, learning and forwarding. When RSTP has converged there are only 2 port states left: discarding and forwarding.

STP (802.1D) Port State	RSTP (802.1w) Port State	Is Port Included in Active Topology?	Is Port Learning MAC Addresses?
Disabled	Discarding	No	No
Blocking	Discarding	No	No
Listening	Discarding	Yes	No
Learning	Learning	Yes	Yes
Forwarding	Forwarding	Yes	Yes

9. Refer to the exhibit.



At the end of an RSTP election process, which access layer switch port will assume the discarding role?

- A. Switch3, port fa0/1
- B. Switch3, port fa0/12
- C. Switch4, port fa0/11
- D. Switch4, port fa0/2
- E. Switch3, port Gi0/1
- F. Switch3, port Gi0/2

Answer: C

Explanation:

In this question, we only care about the Access Layer switches (Switch3 & 4). Switch 3 has a lower bridge ID than Switch 4 (because the MAC of Switch3 is smaller than that of Switch4) so both ports of Switch3 will be in forwarding state. The alternative port will surely belong to Switch4. Switch4 will need to block one of its ports to avoid a bridging loop between the two switches. But how does Switch4 select its blocked port? Well, the answer is based on the BPDUs it receives from Switch3. A BPDU is superior than another if it has:

1. A lower Root Bridge ID
2. A lower path cost to the Root
3. A lower Sending Bridge ID
4. A lower Sending Port ID

These four parameters are examined in order. In this specific case, all the BPDUs sent by Switch3 have the same Root Bridge ID, the same path cost to the Root and the same Sending Bridge ID. The only parameter left to select the best one is the Sending Port ID (Port ID = port priority + port index). In this case the port priorities are equal because they use the default value, so Switch4 will compare port index values, which are unique to each port on the switch, and because Fa0/12 is inferior to Fa0/1, Switch4 will select the port connected with Fa0/1 (of Switch3) as its root port and block the other port -> Port fa0/11 of Switch4 will be

blocked (discarding role)

10. What is one benefit of PVST+?

- A. PVST+ supports Layer 3 load balancing without loops.
- B. PVST+ reduces the CPU cycles for all the switches in the network.
- C. PVST+ allows the root switch location to be optimized per VLAN.
- D. PVST+ automatically selects the root bridge location, to provide optimized bandwidth usage.

Answer: C

Explanation:

Per VLAN Spanning Tree (PVST) Introduction

http://www.cisco.com/en/US/tech/tk389/tk621/tk846/tsd_technology_support_sub-protocol_home.html Per VLAN Spanning Tree (PVST) maintains a spanning tree instance for each VLAN configured in the network. This means a switch can be the root bridge of a VLAN while another switch can be the root bridge of other VLANs in a common topology. For example, Switch 1 can be the root bridge for Voice data while Switch 2 can be the root bridge for Video data. If designed correctly, it can optimize the network traffic.
<http://www.ciscopress.com/articles/article.asp?p=102157&seqNum=4>

11. Which commands are required to properly configure a router to run OSPF and to add network 192.168.16.0/24 to OSPF area 0? (Choose two.)

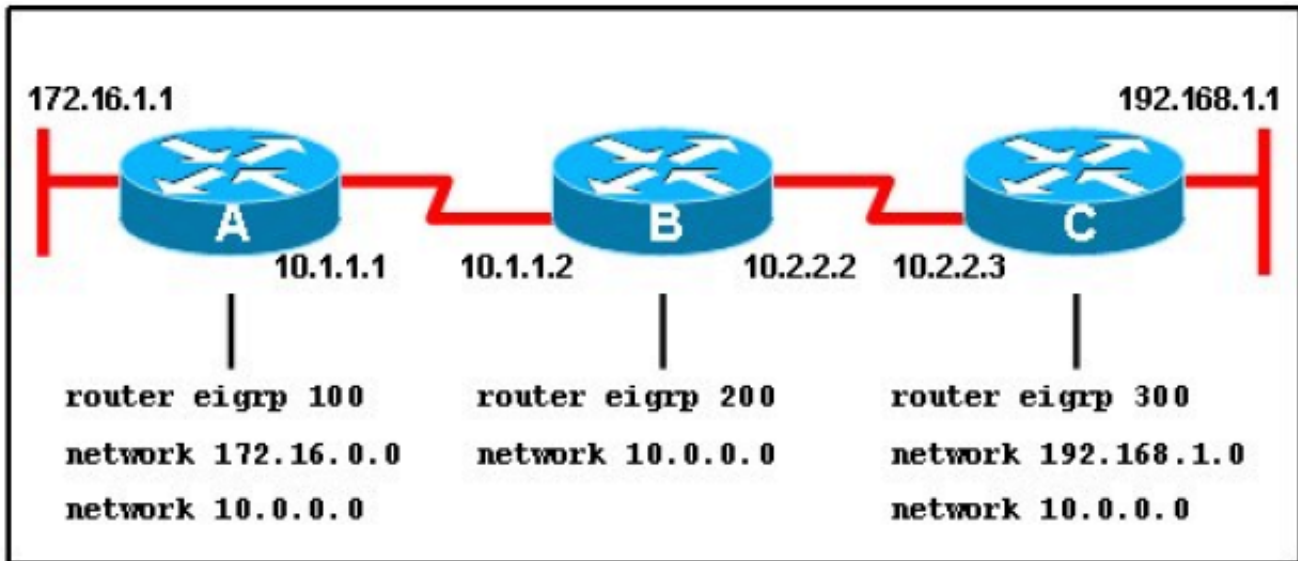
- A. Router(config)# router ospf 0
- B. Router(config)# router ospf 1
- C. Router(config)# router ospf area 0
- D. Router(config-router)# network 192.168.16.0 0.0.0.255 0
- E. Router(config-router)# network 192.168.16.0 0.0.0.255 area 0
- F. Router(config-router)# network 192.168.16.0 255.255.255.0 area 0

Answer: B,E

Explanation:

In the router ospf Command, the ranges from 1 to 65535 so 0 is an invalid number - B is correct but A is not correct. To configure OSPF, we need a wildcard in the "network" statement, not a subnet mask. We also need to assign an area to this process - E is correct.

12. Refer to the exhibit.



When running EIGRP, what is required for RouterA to exchange routing updates with RouterC?

- A. AS numbers must be changed to match on all the routers
- B. Loopback interfaces must be configured so a DR is elected
- C. The no auto-summary command is needed on Router A and Router C
- D. Router B needs to have two network statements, one for each connected network

Answer: A

Explanation:

Here we required same autonomous system between router A,B,C. Routing updated always exchange between in same EIGRP autonomous system. you can configure more than one EIGRP autonomous system on the same router. This is typically done at a redistribution point where two EIGRP autonomous systems are interconnected. Individual router interfaces should only be included within a single EIGRP autonomous system. Cisco does not recommend running multiple EIGRP autonomous systems on the same set of interfaces on the router. If multiple EIGRP autonomous systems are used with multiple points of mutual redistribution, it can cause discrepancies in the EIGRP topology table if correct filtering is not performed at the redistribution points. If possible, Cisco recommends you configure only one EIGRP autonomous system in any single autonomous system.

http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080093f07.shtml

13. Refer to the exhibit.

router# **show ip route**

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
U - per-user static route, o - ODR

Gateway of last resort is 192.168.4.1 to network 0.0.0.0

10.0.0.0/24 is subnetted, 3 subnets

- C 10.0.2.0 is directly connected, Ethernet1
- D 10.0.3.0 [90/2195456] via 192.168.1.2, 00:03:01, Serial0
- D 10.0.4.0 [90/2195456] via 192.168.3.1, 00:03:01, Serial1
- C 192.168.1.0/24 is directly connected, Serial0
- D 192.168.2.0/24 [90/2681856] via 192.168.1.2, 00:03:01, Serial0
- [90/2681856] via 192.168.3.1, 00:03:01, Serial1
- C 192.168.3.0/24 is directly connected, Serial1
- C 192.168.4.0/24 is directly connected, Serial2

How will the router handle a packet destined for 192.0.2.156?

- A. The router will drop the packet.
- B. The router will return the packet to its source.
- C. The router will forward the packet via Serial2.
- D. The router will forward the packet via either Serial0 or Serial1.

Answer: C

Explanation:

Router has pointed default router to 192.168.4.1 and this subnet is connected via serial 2 interface. Router does not have router for the 192.0.2.156. so it will use the default gateway

192.168.4.1. A default route identifies the gateway IP address to which the router sends all IP packets for which it does not have a learned or static route.

14. What is the default maximum number of equal-cost paths that can be placed into the routing table of a Cisco OSPF router?

- A. 2
- B. 4
- C. 16
- D. unlimited

Answer: B

Explanation:

4 is the default number of routes that OSPF will include in routing table if more than 4 equal cost routes exist for the same subnet. However, OSPF can include up to 16 equal cost routes in the routing table and perform load balancing amongst them. In order to configure this feature, you need to use the OSPF subcommand maximum-paths, i.e. maximum-paths 16.

15. Refer to the exhibit.

R1# show ip interface brief					
Interface	IP-Address	OK?	Method	Status Protocol	
FastEthernet0/0	192.168.1.2	YES	manual	up	up
FastEthernet1/0	172.16.4.1	YES	manual	up	up
Serial2/0	192.168.10.2	YES	manual	up	up
Serial3/0	unassigned	YES	unset	administratively down	down
Loopback0	1.1.1.1	YES	manual	up	up

If the router R1 returns the given output and has not had its router ID set manually, what address will EIGRP use as its router ID?

- A. 192.168.1.2
- B. 172.16.4.1
- C. 192.168.10.2
- D. 1.1.1.1

Answer: D

Explanation:

The router ID is selected according to the following rules:

manual configuration

highest up/up loopback

highest up/up physical interface

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