Vendor: Cisco

Exam Code: 200-105

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

Version: DEMO

QUESTION 1
After you configure a new router to connect to a host through the GigabitEthernet0/0 port of the router, you log in to the router and observe that the new link is down.
Which action corrects the Problem?

A. Use a crossover cable between the host and R1.
B. Use a straight through cable between the host and R1.
C. Configure the host to use R1 as the default gateway.
D. Use a rollover cable between the host and R1.

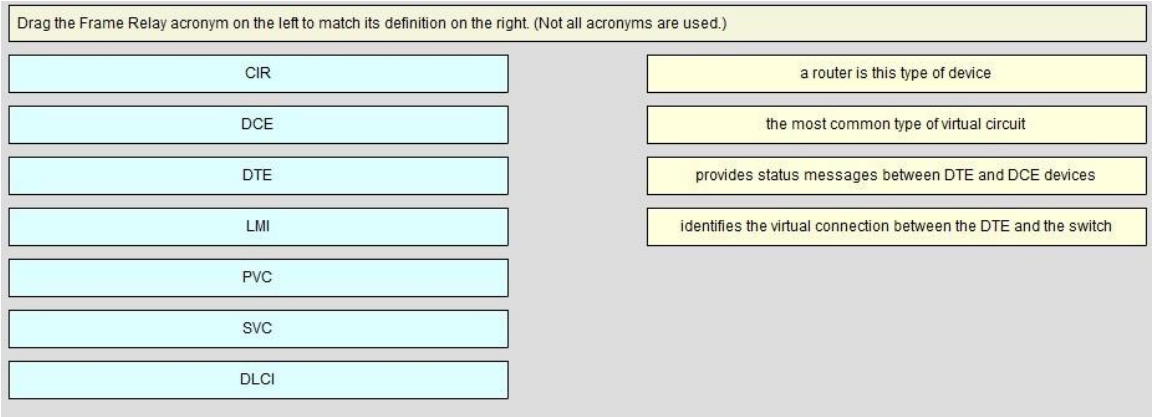
Answer: A

QUESTION 2
Which two statements about the spanning-tree bridge ID are true? (Choose two)

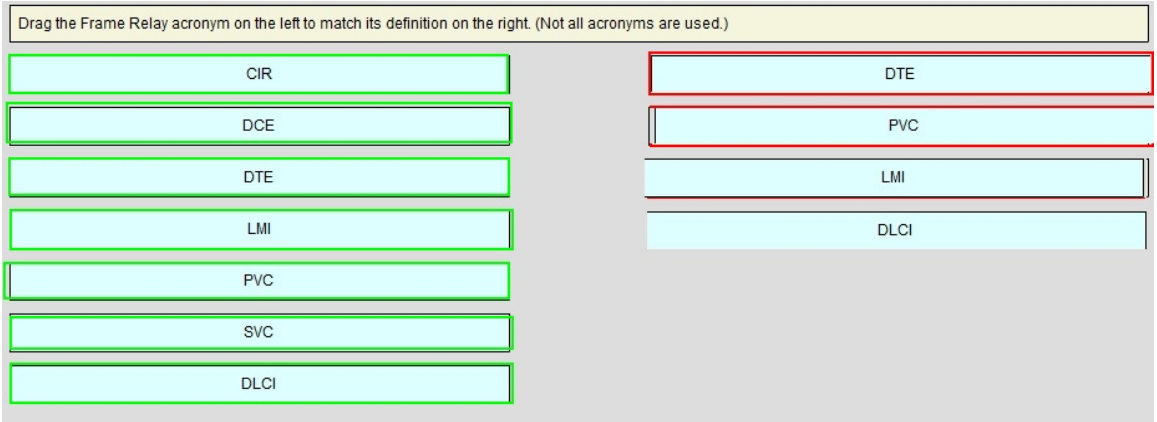
A. It is composed of a 4-bit bridge priority and a 12-bit system ID extension.
B. The bridge ID is transmitted in the IP header to elect the root bridge.
C. The system ID extension is a value between 1 and 4095.
D. It is composed of an 8-bit bridge priority and a 16-bit system ID extension.
E. The bridge priority must be incremented in blocks of 4096.

Answer: AE

QUESTION 3
Drag and Drop Question
Drat the Frame Relay acronym on the left to match its definition on the right. (Not all acronyms are used)



Answer:



Explanation:
Enhanced Interior Gateway Routing Protocol (EIGRP) is a Cisco proprietary routing protocol, so it is vendor-specific. By default, EIGRP internal routes have an administrative distance value of 90. OSPF uses cost as its metric. By default, the cost of an interface is calculated based on bandwidth with the formula cost= 10000 0000/bandwidth (in bps). OSPF elects a DR on each broadcast and nonbroadcast multiaccess networks (like Ethernet and Frame Relay environments, respectively). It doesn't elect a DR on point-to-point link (like a serial WAN).

QUESTION 4
Which identification number is valid for an extended ACL?

A. 1
B. 64
C. 99
D. 100
E. 299
F. 1099

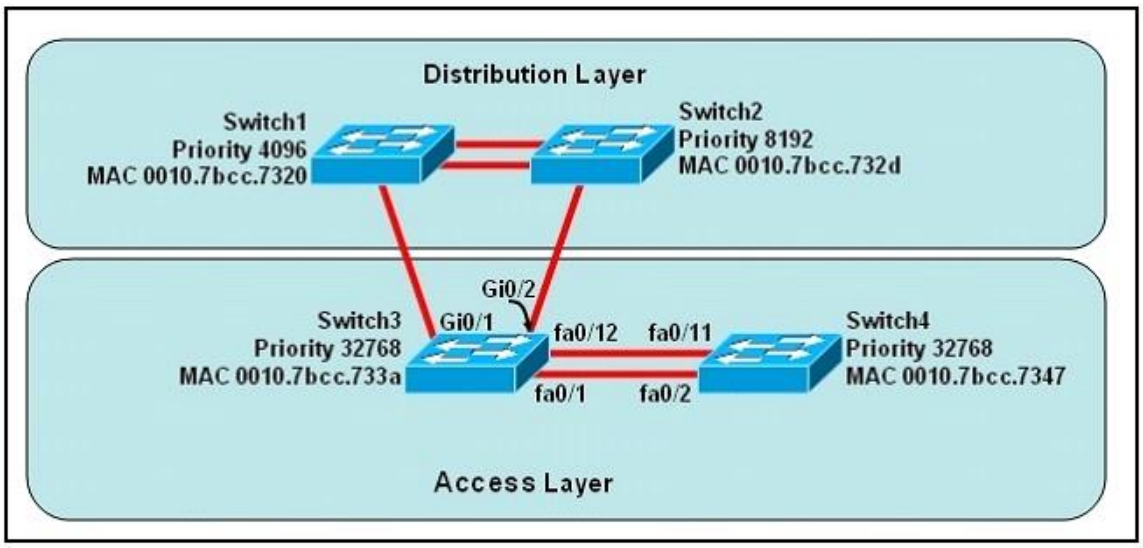
Answer: D

QUESTION 5
Which configuration enables OSPF for network 192.168.1.0/24?

A. router ospf
router-id 192.168.1.0
B. router ospf 1
network 192.168.1.0 255.255.255.0 area 0
C. router ospf 1
neighbor 192.168.1.0
D. router ospf 1
area 0 virtual-link 192.168.1.0

Answer: B

QUESTION 6
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 thatof 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)

QUESTION 7
Which port state is introduced by Rapid-PVST?

A. learning

B. listening
C. discarding
D. forwarding

Answer: C
Explanation:
Spanning Tree from PVST+ to Rapid-PVST Migration Configuration Example
Reference 1:
http://www.cisco.com/en/US/products/hw/switches/ps708/products_configuration_example09186a00807b0670.shtml
Reference 2:
http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cfa.shtml
PVST+ is based on IEEE802.1D Spanning Tree Protocol (STP). But PVST+ has only 3 port states (discarding, learning and forwarding) while STP has 5 port states (blocking, listening, learning, forwarding and disabled). So discarding is a new port state in PVST+.

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

Background Information
802.1D Spanning Tree Protocol (STP) has a drawback of slow convergence. Cisco Catalyst switches support three types of STPs, which are PVST+, rapid-PVST+ and MST.
PVST+ is based on IEEE802.1D standard and includes Cisco proprietary extensions such as BackboneFast, UplinkFast, and PortFast. Rapid-PVST+ is based on IEEE 802.1w standard and has a faster convergence than 802.1D. RSTP (IEEE 802.1w) natively includes most of the Cisco proprietary enhancements to the 802.1D Spanning Tree, such as BackboneFast and UplinkFast.
Rapid-PVST+ has these unique features:
Uses Bridge Protocol Data Unit (BPDU) version 2 which is backward compatible with the 802.1D STP, which uses BPDU version 0.
All the switches generate BPDUs and send out on all the ports every 2 seconds, whereas in 802.1D STP only the root bridge sends the configuration BPDUs.
Port Roles--Root port, designated port, alternate port and backup port.
Port States--Discarding, Learning, and Forwarding.
Port Types--Edge Port (PortFast), Point-to-Point and Shared port.
Rapid-PVST uses RSTP to provide faster convergence. When any RSTP port receives legacy 802.1D BPDU, it falls back to legacy STP and the inherent fast convergence benefits of 802.1w are lost when it interacts with legacy bridges.

QUESTION 8
A network administrator is troubleshooting an EIGRP problem on a router and needs to confirm the IP addresses of the devices with which the router has established adjacency.
The retransmit interval and the queue counts for the adjacent routers also need to be checked.
What command will display the required information?

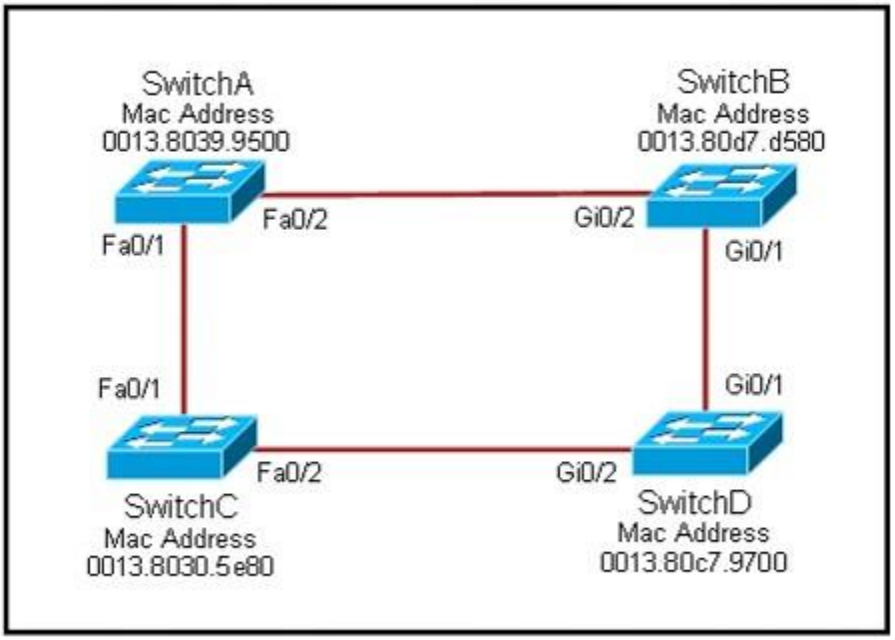
A. `Router# show ip eigrp adjacency`

B. `Router# show ip eigrp topology`
C. `Router#show ip eigrp interfaces`
D. `Router#show ip eigrp neighbors`

Answer: D
Explanation:
Implementing EIGRP
http://www.ciscopress.com/articles/article.asp?p=1171169&seqNum=3
Below is an example of the show ip eigrp neighbors command. The retransmit interval (Smooth Round Trip Timer SRTT) and the queue counts (Q count, which shows the number of queued EIGRP packets) for the adjacent routers are listed:

```
R1#show ip eigrp neighbors
IP-EIGRP neighbors for process 1
H Address Interface Hold Uptime SRTT RTO Q Seq (sec) (ms) Cnt Num
0 10.10.10.2 Fa0/0 12 00:00:39 1282 5000 0 3
```

QUESTION 9
Refer to the exhibit. Each of these four switches has been configured with a hostname, as well as being configured to run RSTP. No other configuration changes have been made.
Which three of these show the correct RSTP port roles for the indicated switches and interfaces? (Choose three.)



A. SwitchA, Fa0/2, designated
B. SwitchA, Fa0/1, root
C. SwitchB, Gi0/2, root
D. SwitchB, Gi0/1, designated
E. SwitchC, Fa0/2, root
F. SwitchD, Gi0/2, root

Answer: ABF
Explanation:

The question says "no other configuration changes have been made" so we can understand these switches have the same bridge priority. SwitchC has lowest MAC address so, it will become root bridge and 2 of its ports (Fa0/1 & Fa0/2) will be designated ports (DP). Because SwitchC is the root bridge the 2 ports nearest SwitchC on SwitchA (Fa0/1) and SwitchD (Gi0/2) will be root ports (RP) -> B and F are correct.
SwitchB must have a root port so which port will it choose? To answer this question we need to know about STP cost and port cost.
In general, "cost" is calculated based on bandwidth of the link. The higher the bandwidth on a link, the lower the value of its cost. Below are the cost values you should memorize:
Link speed Cost SwitchB will choose the interface with lower cost to the root bridge as the root port so we must calculate the cost on interface Gi0/1 & Gi0/2 of SwitchB to the root bridge. This can be calculated from the "cost to the root bridge" of each switch because a switch always advertises its cost to the root bridge in its BPDU. The receiving switch will add its local port cost value to the cost in the BPDU.
SwitchC advertises its cost to the root bridge with a value of 0. Switch D adds 4 (the cost value of 1Gbps link) and advertises this value (4) to SwitchB. SwitchB adds another 4 and learns that it can reach SwitchC via Gi0/1 port with a total cost of 8. The same process happens for SwitchA and SwitchB learns that it can reach SwitchC via Gi0/2 with a total cost of 23 -> Switch B chooses Gi0/1 as its root port.
Now our last task is to identify the port roles of the ports between SwitchA & SwitchB. It is rather easy as the MAC address of SwitchA is lower than that of SwitchB so Fa0/2 of SwitchA will be designated port while Gi0/2 of SwitchB will be alternative port.

QUESTION 10
Which two states are the port states when RSTP has converged? (Choose two.)

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

Answer: AD
Explanation:
Understanding Rapid Spanning Tree Protocol (802.1w)
http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cfa.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

QUESTION 11
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: ABD
Explanation:
http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cfa.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.

QUESTION 12
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: BE
Explanation:
In the router ospf
command, theranges from 1 to 65535 so o 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 assgin an area to this process - E is correct.

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