Vendor: Cisco

Exam Code: 200-105

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

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QUESTION 1
Which protocol provides a method of sharing VLAN configuration information between two Cisco switches?

A. STP
B. VTP
C. 802.1Q
D. RSTP

Correct Answer: B
**Explanation:**Understanding VLAN Trunk Protocol (VTP)
http://www.cisco.com/en/US/tech/tk389/tk689/technologies_tech_note09186a0080094c52.shtml

Introduction
VLAN Trunk Protocol (VTP) reduces administration in a switched network. When you configure a new VLAN on one VTP server, the VLAN is distributed through all switches in the domain. This reduces the need to configure the same VLAN everywhere. VTP is a Cisco-proprietary protocol that is available on most of the Cisco Catalyst series products.

QUESTION 2
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.)
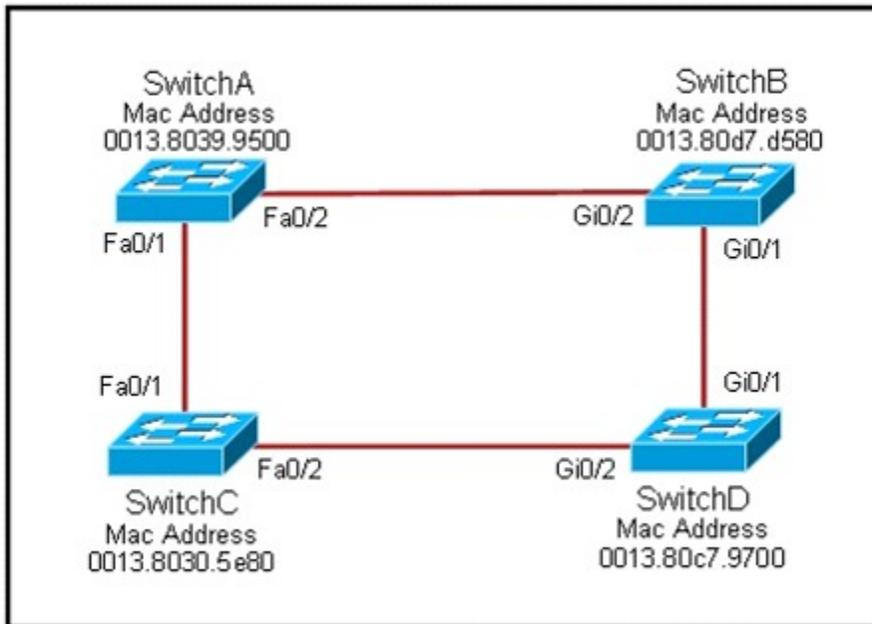
A. SwitchA, Fa0/2, designated
B. SwitchA, Fa0/1, root
C. SwitchB, Gi0/2, root
D. SwitchB, Gi0/1, designated
E. SwitchC, Fa0/2, root
F. SwitchD, Gi0/2, root
Correct Answer: ABF
Explanation:
The question says "no other configuration changes have been made" so we can understand

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 3
Which three statements are typical characteristics of VLAN arrangements? (Choose three.)

A. A new switch has no VLANs configured.
B. Connectivity between VLANs requires a Layer 3 device.
C. VLANs typically decrease the number of collision domains.
D. Each VLAN uses a separate address space.
E. A switch maintains a separate bridging table for each VLAN.
F. VLANs cannot span multiple switches.

Correct Answer: BDE
Explanation:
By default, all ports on a new switch belong to VLAN 1 (default & native VLAN). There are also some well-known VLANs (for example: VLAN 1002 for fddi-default; VLAN 1003 for token-ring...) configured by default -> A is not correct.
To communicate between two different VLANs we need to use a Layer 3 device like router or Layer 3 switch -> B is correct.
VLANs don't affect the number of collision domains, they are the same -> C is not correct.
Typically, VLANs increase the number of broadcast domains.We must use a different network (or sub-network) for each VLAN. For example we can use 192.168.1.0/24 for VLAN 1, 192.168.2.0/24 for VLAN 2 -> D is correct.
A switch maintains a separate bridging table for each VLAN so that it can send frame to ports on the same VLAN only. For example, if a PC in VLAN 2 sends a frame then the switch look-ups its bridging table and only sends frame out of its ports which belong to VLAN 2 (it also sends this frame on trunk ports) -> E is correct.
We can use multiple switches to expand VLAN -> F is not correct.

QUESTION 4
Refer to the exhibit. Why has this switch not been elected the root bridge for VLAN1?

```
Switch# show spanning-tree vlan 1
VLAN0001
  Spanning tree enabled protocol rstp
  Root ID    Priority     20481
             Address      0008.217a.5800
             Cost         38
             Port         1 (FastEthernet0/1)
             Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority     32769  (priority 32768 sys-id-ext 1)
             Address      0008.205e.6600
             Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time 300


Interface          Role Sts Cost       Prio.Nbr Type
------------------ ---- --- ---------- -------- ---------------------------------
Fa0/1              Root FWD 19         128.1    P2p
Fa0/4              Desg FWD 38         128.1    P2p
Fa0/11             Altn BLK 57         128.1    P2p
Fa0/13             Desg FWD 38         128.1    P2p
```

A. It has more than one interface that is connected to the root network segment.
B. It is running RSTP while the elected root bridge is running 802.1d spanning tree.
C. It has a higher MAC address than the elected root bridge.
D. It has a higher bridge ID than the elected root bridge.

Correct Answer: D
Explanation:
http://www.cisco.com/en/US/tech/tk389/tk621/technologies_tech_note09186a008009482f.shtml
When a switch receives a BPDU, it first compares priority, the lower number wins. If a tie, compare MAC, the smaller one wins. Here Switch has 32769 priority which is greater than 20481 so switch will not elect for root bridge. It says the bridge priority for Switch is 32769, and the root priority is 20481. Which means that some other switch has the lower priority and won the election for VLAN 1.

QUESTION 5
Which term describes a spanning-tree network that has all switch ports in either the blocking or fowarding state?

A. converged
B. redundant
C. provisioned
D. spanned

Correct Answer: A
Explanation:
Spanning Tree Protocol convergence (Layer 2 convergence) happens when bridges and switches have transitioned to either the forwarding or blocking state. When layer 2 is converged, root bridge is elected and all port roles (Root, Designated and Non-Designated) in all switches are selected.

QUESTION 6