

## Questions

1. What term is assigned to an untagged VLAN on an IEEE 802.1Q trunk?
  - A. Primary VLAN
  - B. Management VLAN
  - C. Secondary VLAN
  - D. Native VLAN
2. Switches SW1 and SW2 are directly connected with a Gigabit Ethernet connection. Which of the following Dynamic Trunk Protocol (DTP) mode combinations will FAIL to bring up a trunk between the switches?
  - A. SW1: Dynamic Desirable – SW2: Dynamic Auto
  - B. SW1: Trunk – SW2: Dynamic Auto
  - C. SW1: Dynamic Auto – SW2: Dynamic Auto
  - D. SW1: Trunk – SW2: Dynamic Desirable
3. Switches SW1 and SW2 are directly connected with a Gigabit Ethernet connection. Which of the following Port Aggregation Protocol (PAgP) mode combinations will successfully bring up an EtherChannel between the switches?
  - A. SW1: Auto – SW2: Auto
  - B. SW1: On – SW2: Desirable
  - C. SW1: On – SW2: Auto
  - D. SW1: Auto – SW2: Desirable
4. An EtherChannel's load-balancing algorithm is to set "dst-mac," and the EtherChannel contains eight ports. What information determines the specific link in an EtherChannel used to send a specific packet?
  - A. The last 2 bits of the destination MAC address
  - B. The last 3 bits of the destination MAC address
  - C. The last 4 bits of the destination MAC address
  - D. The last 8 bits of the destination MAC address
5. Which Spanning Tree Protocol (STP) variant allows different collections of VLANs to share different Spanning Tree instances, resulting in an optimal Spanning Tree topology for each VLAN without the overhead of having a Spanning Tree instance for each VLAN?

- A. CST
- B. PVST+
- C. MSTP
- D. Rapid PVST+

6. When configuring MSTP, what Spanning Tree instance is used by any VLANs not explicitly assigned an instance?

- A. Those VLANs will not participate in STP.
- B. MST0
- C. MST1
- D. Those VLANs will share the instance assigned to the Native VLAN.

7. Which if the following is NOT a Rapid PVST+ port state?

- A. Discarding
- B. Listening
- C. Learning
- D. Forwarding

8. Which of the following features creates a Rapid PVST+ Edge Port?

- A. PortFast
- B. UplinkFast
- C. BackboneFast
- D. BPDUGuard

9. What will a Cisco Catalyst switch in VTP Transparent mode do when it receives a VTP advertisement?

- A. The switch will flood the advertisement out all other trunk links, other than the trunk it was received on.
- B. The switch will drop the advertisement.
- C. The switch will send a VTP Reject message back to the sending switch.
- D. The switch will update its VLAN database, based on the advertisement, but the advertisement will not be forwarded.

10. What parameter exchanged in VTP advertisements determines how authoritative a VTP update is?

- A. Configuration Register
- B. Metric
- C. Distance
- D. Configuration Revision Number

## Questions and Answers

1. What term is assigned to an untagged VLAN on an IEEE 802.1Q trunk?

- A. Primary VLAN
- B. Management VLAN
- C. Secondary VLAN
- D. Native VLAN

**Answer: D**

Explanation: VLANs on an IEEE 802.1Q trunk have four Tag Bytes added to each of their frames. One purpose of these Tag Bytes is to identify the VLAN membership of the frames. However, one VLAN, called the Native VLAN, is not tagged. As a result, neighboring switches should agree on the Native VLAN being used on a trunk that is interconnecting to those switches.

### Video Reference: 3.1.1 Review of IEEE 802.1Q Trunking

2. Switches SW1 and SW2 are directly connected with a Gigabit Ethernet connection. Which of the following Dynamic Trunk Protocol (DTP) mode combinations will FAIL to bring up a trunk between the switches?

- A. SW1: Dynamic Desirable – SW2: Dynamic Auto
- B. SW1: Trunk – SW2: Dynamic Auto
- C. SW1: Dynamic Auto – SW2: Dynamic Auto
- D. SW1: Trunk – SW2: Dynamic Desirable

**Answer: C**

Explanation: DTP modes of Trunk and Dynamic Desirable both initiate the formation of a trunk by sending DTP frames. The mode of Dynamic Auto will setup a trunk if it receives a DTP frame, but it doesn't initiate trunk formation. Also, Access mode prevents a trunk from being formed. As a result, the only two mode combinations that would fail to bring up a trunk are: (1) one side set to Access (regardless of the other side's mode) and (2) both sides set to Dynamic Auto.

### Video Reference: 3.1.2 Troubleshooting 802.1Q Trunks

3. Switches SW1 and SW2 are directly connected with a Gigabit Ethernet connection. Which of the following Port Aggregation Protocol (PAgP) mode combinations will successfully bring up an EtherChannel between the switches?

- A. SW1: Auto – SW2: Auto
- B. SW1: On – SW2: Desirable
- C. SW1: On – SW2: Auto
- D. SW1: Auto – SW2: Desirable

**Answer: D**

Explanation: A mode of On isn't technically a PAgP or LACP mode. It simply tells the port(s) to be in an EtherChannel, without sending or processing any PAgP or LACP frames. Therefore, if one side is set to On, the other side must also be set to On in order for an EtherChannel to be brought up. The mode of Auto will cause a port to bring join an EtherChannel if it receives PAgP frames from the far end. However, the Auto mode does not initiate the joining of an EtherChannel. As a result, other than both sides being set to the On mode, only two combinations of PAgP settings will cause an EtherChannel to be brought up: (1) both sides set to Desirable or (2) one side set to Desirable and the other side set to Auto.

**Video Reference: 3.1.3 Review of EtherChannel Operation**

4. An EtherChannel's load-balancing algorithm is to set "dst-mac," and the EtherChannel contains eight ports. What information determines the specific link in an EtherChannel used to send a specific packet?
- A. The last 2 bits of the destination MAC address
  - B. The last 3 bits of the destination MAC address
  - C. The last 4 bits of the destination MAC address
  - D. The last 8 bits of the destination MAC address

**Answer: B**

Explanation: The "dst-mac" load-balancing algorithm uses a packet's destination MAC address to select the physical connection in an EtherChannel bundle that is used to send a packet. The number of bits in the destination MAC address used to make the path selection decision is determined by the number of links in the EtherChannel. If there were only two links, the last bit in the destination MAC address would be used, because a single bit could represent two values (i.e. 0 or 1). Similarly, the last two bits in a destination MAC address would be used if the EtherChannel had four physical links (because two bits can be arranged in four different ways), and the last three bits in a destination MAC address would be used if the EtherChannel had eight physical links.

**Video Reference: 3.1.4 Troubleshooting EtherChannels**

5. Which Spanning Tree Protocol (STP) variant allows different collections of VLANs to share different Spanning Tree instances, resulting in an optimal Spanning Tree topology for each VLAN without the overhead of having a Spanning Tree instance for each VLAN?
- A. CST
  - B. PVST+
  - C. MSTP
  - D. Rapid PVST+

**Answer: C**

Explanation: Common Spanning Tree (CST) uses a single Spanning Tree topology for all VLANs, which could result a suboptimal tree for some VLANs. Per-VLAN Spanning Tree Protocol Plus (PVST+) and Rapid PVST+ give each VLAN its own Spanning Tree instance. While this results in each VLAN having an optimal tree, it can require a switch to maintain many Spanning Tree instances. Multiple Spanning Trees Protocol (MSTP), which is sometimes written as MST, recognizes that a specific Spanning Tree instance might be optimal for multiple VLANs. Therefore, rather than having each of those VLANs run their own identical instances of Spanning Tree, a single instance can be created. That instance is then joined by all VLANs whose optimal spanning tree is defined by that instance.

### **Video Reference: 3.1.5 Multiple Spanning Tree (MST) Theory**

6. When configuring MSTP, what Spanning Tree instance is used by any VLANs not explicitly assigned an instance?
- A. Those VLANs will not participate in STP.
  - B. MST0
  - C. MST1
  - D. Those VLANs will share the instance assigned to the Native VLAN.

#### **Answer: B**

Explanation: In addition to the instances you define in an MSTP configuration, a default instance of MST0 is created. All VLANs not explicitly assigned an MSTP instance are assigned to that MST0 instance.

### **Video Reference: 3.1.6 MST Configuration**

7. Which if the following is NOT a Rapid PVST+ port state?
- A. Discarding
  - B. Listening
  - C. Learning
  - D. Forwarding

#### **Answer: B**

Explanation: Traditional Spanning Tree Protocol (STP) has the following port states: (1) Blocking, (2) Listening, (3) Learning, and (4) Forwarding. However, Rapid PVST+ uses these port states: (1) Discarding, (2) Learning, and (3) Forwarding.

### **Video Reference: 3.1.8 Review of Rapid Spanning Tree Protocol (RSTP)**

8. Which of the following features creates a Rapid PVST+ Edge Port?
- A. PortFast

- B. UplinkFast
- C. BackboneFast
- D. BPDUGuard

**Answer: A**

Explanation: The PortFast feature causes a switch port to go active when an end station is connected, without waiting through any STP delays. In Rapid PVST+ terminology, a Point-to-Point interface (i.e. a full duplex switch port) enabled with the PortFast feature is called an Edge Port.

**Video Reference: 3.1.9 RSTP Configuration**

9. What will a Cisco Catalyst switch in VTP Transparent mode do when it receives a VTP advertisement?
- A. The switch will flood the advertisement out all other trunk links, other than the trunk it was received on.
  - B. The switch will drop the advertisement.
  - C. The switch will send a VTP Reject message back to the sending switch.
  - D. The switch will update its VLAN database, based on the advertisement, but the advertisement will not be forwarded.

**Answer: A**

Explanation: When a switch in VTP Transparent mode receives a VTP update, it will not update its VLAN database. However, it will flood the advertisement out all other trunk links, other than the trunk it was received on.

**Video Reference: 3.1.3 VLAN Trunking Protocol (VTP) Theory**

10. What parameter exchanged in VTP advertisements determines how authoritative a VTP update is?
- A. Configuration Register
  - B. Metric
  - C. Distance
  - D. Configuration Revision Number

**Answer: D**

Explanation: A switch configured for VTP uses the Configuration Revision Number of a VTP advertisement to determine whether or not a received VTP advertisement is more authoritative than the switch's local VLAN database.

**Video Reference: 3.1.3 VTP Configuration**