

# Chapter 1: Quiz – Packet Forwarding (Answers) CCNPv8 ENCOR

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## 1. What are two characteristics of a Layer 2 Ethernet switch access port? (Choose two.)

- **Access mode is the default operating mode for a port on a Layer 2 switch.**
- **An access port is associated with a single VLAN.**
- An access port uses 802.1Q frame encapsulation.
- Access ports require an SVI to be configured on the switch.
- A native VLAN is configured on each access port.

**Explanation:** Access mode is the default mode for a port on a Layer 2 switch and an access port is associated with a single VLAN. 802.1Q encapsulation and native VLANs are features of trunk ports, not access ports. Access ports can operate without an SVI configured on a Layer 2 switch.

## 2. Which packet forwarding process uses ternary content addressable memory (TCAM)?

- **hardware CEF**
- software CEF
- process switching
- complex packet forwarding

**Explanation:** Software CEF and process switching use the router general-purpose CPU for packet switching. Complex packet forwarding is performed by process switching.

## 3. What is a feature of a Cisco switch SVI?

- **An SVI is configured by setting it as a VLAN interface.**
- An SVI is configured by virtualizing a specified physical switch interface.
- One SVI is associated with the switch native VLAN by default.
- An SVI is operational if one of the switch interfaces is associated with any VLAN.

**Explanation:** A Cisco switch SVI (switch virtual interface) is configured by setting it as a VLAN interface and bringing the interface up. Native VLAN only applies to switch trunk ports, not to SVIs.

## 4. Which Cisco router component performs process switching of packets?

- **the general-purpose CPU**
- the ASIC
- the forwarding engine
- the TCAM

**Explanation:** The general-purpose CPU within a router is used to perform process switching of packets. ASICs, forwarding engines, and TCAM are switching and forwarding components of hardware CEF.

## **5. What is the difference between a routed switch port and a trunk port on a multilayer switch?**

- **A routed port is assigned an IP address.**
- A routed switch port forwards frames in multiple VLANs.
- A trunk port forwards Layer 3 packets.
- A routed port can be connected directly to switch access ports.

**Explanation:** A routed switch port is assigned an IP address, connected to a routed port on another multilayer switch or a router interface, and is used to forward Layer 3 packets. It is not connected to switch access or trunk ports. Switch trunk ports forward Layer 2 frames across multiple VLANs, not Layer 3 packets.

## **6. What would be the source of the entries in the ARP table of a particular IPv4 host?**

- **devices that the host has communicated with recently that are on the same IP network segment**
- all devices that the host has communicated with recently
- only an entry for the device that is the next hop to reach a remote network
- devices that the host has communicated with recently that are on remote IP networks

**Explanation:** The ARP table of an IPv4 host has entries for devices that the host has communicated with recently that are on the same IP network segment. This includes the device that is the next hop to reach a remote network. Devices that are on remote IP networks do not have entries in the host ARP table.

## **7. Which is the correct description of a native VLAN on a Cisco switch?**

- **the VLAN that contains any untagged network traffic on a trunk port**
- the VLAN that is always used to manage the switch
- the VLAN that is assigned to the switch SVI by default
- the VLAN that has a VLAN ID of 0

**Explanation:** Any VLAN can be used as the switch management VLAN. Switch SVIs can be assigned to any VLAN. Cisco switches do not support a VLAN ID of 0, and the concept of a native (untagged VLAN) only applies to trunk ports and trunk links.

**8. Which router memory component is used by CEF to make packet forwarding decisions?**

- **forwarding information base**
- routing table
- label information base
- routing information base

**Explanation:** Cisco CEF uses the forwarding information base and the adjacency table to make switching and forwarding decisions.

**9. Where does a Cisco switch store the MAC address table entries?**

- **CAM**
- TCAM
- adjacency table
- routing table.

**Explanation:** CAM (content addressable memory) is high-speed memory that contains the MAC address table used by a Cisco switch to forward Ethernet frames. TCAM, a routing table, and an adjacency table are used in Layer 3 packet switching and forwarding processes.

**10. Which CEF component enables multiple actions to be performed in addition to allowing or dropping traffic?**

- **TCAM**
- CAM
- FIB
- RIB
- adjacency table

**Explanation:** Ternary content addressable memory (TCAM) allows for the matching and evaluation of a packet on more than one field. This means in addition to allowing or dropping traffic, tasks such as redirecting a flow to a QoS policer, or specifying a pointer to a different entry in the routing table, are possible.

**11. What is a feature of virtual LANs (VLANs)?**

- **Logical segmentation is provided by creating multiple broadcast domains on a single switch.**
- A single collision domain is enabled on a switch that is shared between VLANs.

- Communication between different VLANs on the one switch is enabled by default.
- Switch port utilization is decreased because each port is only associated with one broadcast domain.

**Explanation:** Virtual LANs (VLANs) provide a logical segmentation by creating multiple broadcast domains on the same network switch. VLANs provide higher utilization of switch ports because a port could be associated to the necessary broadcast domain, and multiple broadcast domains can reside on the same switch. Network devices in one VLAN cannot communicate with devices in a different VLAN without the implementation of inter-VLAN routing.

**12. What are two characteristics of Layer 2 Ethernet trunk ports? (Choose two.)**

- **Trunk ports carry multiple VLANs.**
- **Trunk ports connect a switch to other switches or to other network devices.**
- Trunk ports ensure that broadcast communications are contained within one switch.
- Trunk ports automatically load balance data traffic between network devices.
- Trunk ports are only used to connect to network end devices.

**Explanation:** Trunk ports are used between switches or between a switch and another network device such as a server, firewall, or router. Trunk ports do not contain broadcasts to within one switch, do not only connect end-devices, and do not automatically load balance data traffic between network devices.