



**Vendor:** Cisco

**Exam Code:** 100-105

**Exam Name:** Interconnecting Cisco Networking Devices  
Part 1 (ICND1)

**Version:** DEMO

### QUESTION 1

How does a switch differ from a hub?

- A. A switch does not induce any latency into the frame transfer time.
- B. A switch tracks MAC addresses of directly-connected devices.
- C. A switch operates at a lower, more efficient layer of the OSI model.
- D. A switch decreases the number of broadcast domains.
- E. A switch decreases the number of collision domains.

**Answer: B**

**Explanation:**

Some of the features and functions of a switch include:

A switch is essentially a fast, multi-port bridge, which can contain dozens of ports. Rather than creating two collision domains, each port creates its own collision domain. In a network of twenty nodes, twenty collision domains exist if each node is plugged into its own switch port. If an uplink port is included, one switch creates twenty-one single-node collision domains. A switch dynamically builds and maintains a Content-Addressable Memory (CAM) table, holding all of the necessary MAC information for each port. For a detailed description of how switches operate, and their key differences to hubs, see the reference link below.

<http://www.cisco.com/warp/public/473/lan-switch-cisco.shtml>

### QUESTION 2

What must occur before a workstation can exchange HTTP packets with a web server?

- A. A UDP connection must be established between the workstation and its default gateway.
- B. A UDP connection must be established between the workstation and the web server.
- C. A TCP connection must be established between the workstation and its default gateway.
- D. A TCP connection must be established between the workstation and the web server.
- E. An ICMP connection must be established between the workstation and its default gateway.
- F. An ICMP connection must be established between the workstation and the web server.

**Answer: D**

**Explanation:**

HTTP uses TCP port 80.

<http://pentestlab.wordpress.com/2012/03/05/common-tcpip-ports/>

### QUESTION 3

How does TCP differ from UDP? (Choose two.)

- A. TCP provides best effort delivery.
- B. TCP provides synchronized communication.
- C. TCP segments are essentially datagrams.
- D. TCP provides sequence numbering of packets.
- E. TCP uses broadcast delivery.

**Answer: BD**

**Explanation:**

TCP differs from UDP in the following ways: TCP provides best effort delivery.

TCP provides synchronized communication. TCP segments are essentially datagrams.

TCP provides sequence numbering of packets. TCP uses broadcast delivery.

#### QUESTION 4

##### Drag and Drop Question

On the left are various network protocols. On the right are the layers of the TCP/IP model. Assuming a reliable connection is required, move the protocols on the left to the TCP/IP layers on the right to show the proper encapsulation for an email message sent by a host on a LAN. (Not all options are used.)

UDP	application layer
SNMP	transport layer
IP	internet layer
ARP	network access layer
Ethernet	
TCP	
SMTP	

##### Answer:

On the left are various network protocols. On the right are the layers of the TCP/IP model. Assuming a reliable connection is required, move the protocols on the left to the TCP/IP layers on the right to show the proper encapsulation for an email message sent by a host on a LAN. (Not all options are used.)

UDP	SMTP
SNMP	TCP
IP	IP
ARP	Ethernet
Ethernet	
TCP	
SMTP	

#### QUESTION 5

A workstation has just resolved a browser URL to the IP address of a server. What protocol will the workstation now use to determine the destination MAC address to be placed into frames directed toward the server?

- A. HTTP
- B. DNS
- C. DHCP
- D. RARP
- E. ARP

##### Answer: E

##### Explanation:

The RARP protocol is used to translate hardware interface addresses to protocol addresses. The RARP message format is very similar to the ARP format. When the booting computer sends the broadcast ARP request, it places its own hardware address in both the sending and receiving fields in the encapsulated ARP data packet. The RARP server will fill in the correct sending and receiving IP addresses in its response to the message. This way the booting computer will know

its IP address when it gets the message from the RARP server.

#### QUESTION 6

The network manager has requested a 300-workstation expansion of the network. The workstations are to be installed in a single broadcast domain, but each workstation must have its own collision domain. The expansion is to be as cost-effective as possible while still meeting the requirements. Which three items will adequately fulfill the request? (Choose three).

- A. one IP subnet with a mask of 255.255.254.0
- B. two IP subnets with a mask of 255.255.255.0
- C. seven 48-port hubs
- D. seven 48-port switches
- E. one router interface
- F. seven router interfaces

**Answer:** ADE

#### Explanation:

of 255.255.254.0 can absorb 510 hosts being 23 bits mask and also 7\*48 port switches can handle this much hosts and router interface is required to be minimum to avoid unnecessary wastage hence the answers.

#### QUESTION 7

Refer to the exhibit. SwitchA receives the frame with the addressing shown. According to the command output also shown in the exhibit, how will SwitchA handle this frame?

SwitchA# **show mac-address-table**

< non-essential output omitted >

Destination Address	Address Type	VLAN	Destination Port
00b0.d056.fe4d	Dynamic	1	FastEthernet0/3
00b0.d043.ac2e	Dynamic	1	FastEthernet0/4
00b0.d0fe.ac32	Dynamic	1	FastEthernet0/5
00b0.d0da.cb56	Dynamic	1	FastEthernet0/6

**Frame received by SwitchA:**

Source MAC	Destination MAC	Source IP	Destination IP
00b0.d056.fe4d	00b0.d0da.cb56	192.168.40.5	192.168.40.6

- A. It will drop the frame.
- B. It will forward the frame out port Fa0/3 only.
- C. It will flood the frame out all ports.
- D. It will flood the frame out all ports except Fa0/3.

**Answer:** D

**Explanation:**

Switches learn the MAC addresses of PCs or workstations that are connected to their switch ports by examining the source address of frames that are received on that port. Machines may have been removed from a port, turned off, or moved to another port on the same switch or a different switch. This could cause confusion in frame forwarding. The MAC address entry is automatically discarded or aged out after 300 seconds. If there is not MAC address of destination host in MAC table, switch sends broadcast to all ports except the source to find out the destination host. In the output there is no MAC address of the given host so the switch will flood to all ports except the source port, which is port fa 0/3.

**QUESTION 8**

Which two statements describe the operation of the CSMA/CD access method? (Choose two.)

- A. In a CSMA/CD collision domain, multiple stations can successfully transmit data simultaneously.
- B. In a CSMA/CD collision domain, stations must wait until the media is not in use before transmitting.
- C. The use of hubs to enlarge the size of collision domains is one way to improve the operation of the CSMA/CD access method.
- D. After a collision, the station that detected the collision has first priority to resend the lost data.
- E. After a collision, all stations run a random backoff algorithm. When the backoff delay period has expired, all stations have equal priority to transmit data.
- F. After a collision, all stations involved run an identical backoff algorithm and then synchronize with each other prior to transmitting data.

**Answer: BE**

**Explanation:**

Ethernet networking uses Carrier Sense Multiple Access with Collision Detect (CSMA/CD), a protocol that helps devices share the bandwidth evenly without having two devices transmit at the same time on the network medium. CSMA/CD was created to overcome the problem of those collisions that occur when packets are transmitted simultaneously from different nodes. And trust me, good collision management is crucial, because when a node transmits in a CSMA/CD network, all the other nodes on the network receive and examine that transmission. Only bridges and routers can effectively prevent a transmission from propagating throughout the entire network! So, how does the CSMA/CD protocol work? Like this: when a host wants to transmit over the network, it first checks for the presence of a digital signal on the wire. If all is clear (no other host is transmitting), the host will then proceed with its transmission. But it doesn't stop there. The transmitting host constantly monitors the wire to make sure no other hosts begin transmitting. If the host detects another signal on the wire, it sends out an extended jam signal that causes all nodes on the segment to stop sending data (think, busy signal). The nodes respond to that jam signal by waiting a while before attempting to transmit again. Backoff algorithms determine when the colliding stations can retransmit. If collisions keep occurring after 15 tries, the nodes attempting to transmit will then time out.

**QUESTION 9**

What are two common TCP applications? (Choose two.)

- A. TFTP
- B. SMTP
- C. SNMP
- D. FTP
- E. DNS

**Answer: BD**

**Explanation:**

SMTP uses TCP port 25, while FTP uses TCP ports 20 and 21.

<http://pentestlab.wordpress.com/2012/03/05/common-tcpip-ports/>

**QUESTION 10**

Refer to the exhibit. SwitchA receives the frame with the addressing shown in the exhibit.

According to the command output also shown in the exhibit, how will SwitchA handle this frame?

SwitchA# **show mac-address-table**  
< non-essential output omitted >

Destination Address	Address Type	VLAN	Destination Port
00b0.d056.fe4d	Dynamic	1	FastEthernet0/3
00b0.d043.ac2e	Dynamic	1	FastEthernet0/4
00b0.d0fe.ac32	Dynamic	1	FastEthernet0/5
00b0.d0da.cb56	Dynamic	1	FastEthernet0/6

**Frame received by SwitchA:**

Source MAC	Destination MAC	Source IP	Destination IP
00b0.d056.fe4d	00b0.d0da.895a	192.168.40.5	192.168.40.6

- A. It will drop the frame.
- B. It will forward the frame out port Fa0/6 only.
- C. It will forward the frame out port Fa0/3 only.
- D. It will flood the frame out all ports.
- E. It will flood the frame out all ports except Fa0/3.

**Answer: E**

**Explanation:**

When frame receives the frame, it checks the source address on MAC table if MAC address found in MAC table it tries to forward if not in MAC table adds the Address on MAC table. After checking the source address, it checks the destination address on MAC table, if MAC address found on MAC table it forwards to proper ports otherwise floods on all ports except the source port.

**QUESTION 12**

Which OSI layer header contains the address of a destination host that is on another network?

- A. application
- B. session
- C. transport
- D. network
- E. data link
- F. physical

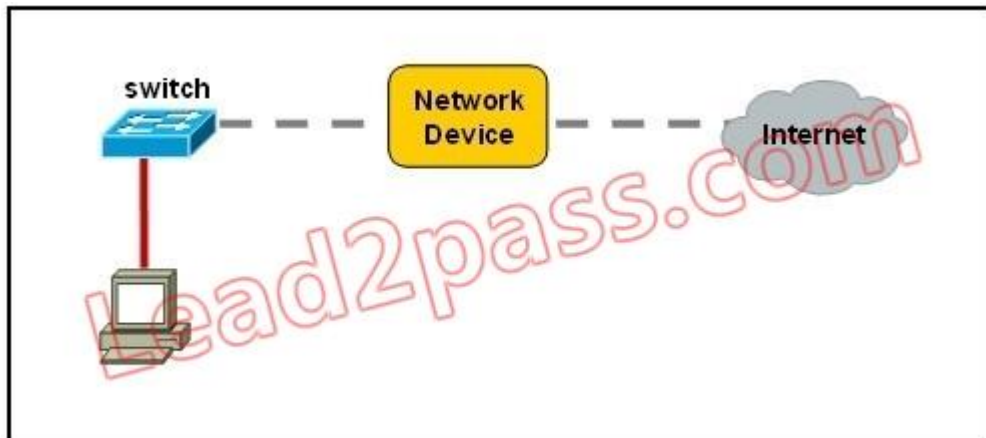
**Answer: D**

**Explanation:**

Only network address contains this information. To transmit the packets the sender uses network address and datalink address. But the layer 2 address represents just the address of the next hop device on the way to the sender. It is changed on each hop. Network address remains the same.

**QUESTION 13**

Refer to the exhibit. A network device needs to be installed in the place of the icon labeled Network Device to accommodate a leased line attachment to the Internet. Which network device and interface configuration meets the minimum requirements for this installation?



- A. a router with two Ethernet interfaces
- B. a switch with two Ethernet interfaces
- C. a router with one Ethernet and one serial interface
- D. a switch with one Ethernet and one serial interface
- E. a router with one Ethernet and one modem interface

**Answer: C**

**Explanation:**

Only a router can terminate a leased line attachment access circuit, and only a router can connect two different IP networks. Here, we will need a router with two interfaces, one serial connection for the line attachment and one Ethernet interface to connect to the switch on the LAN.



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