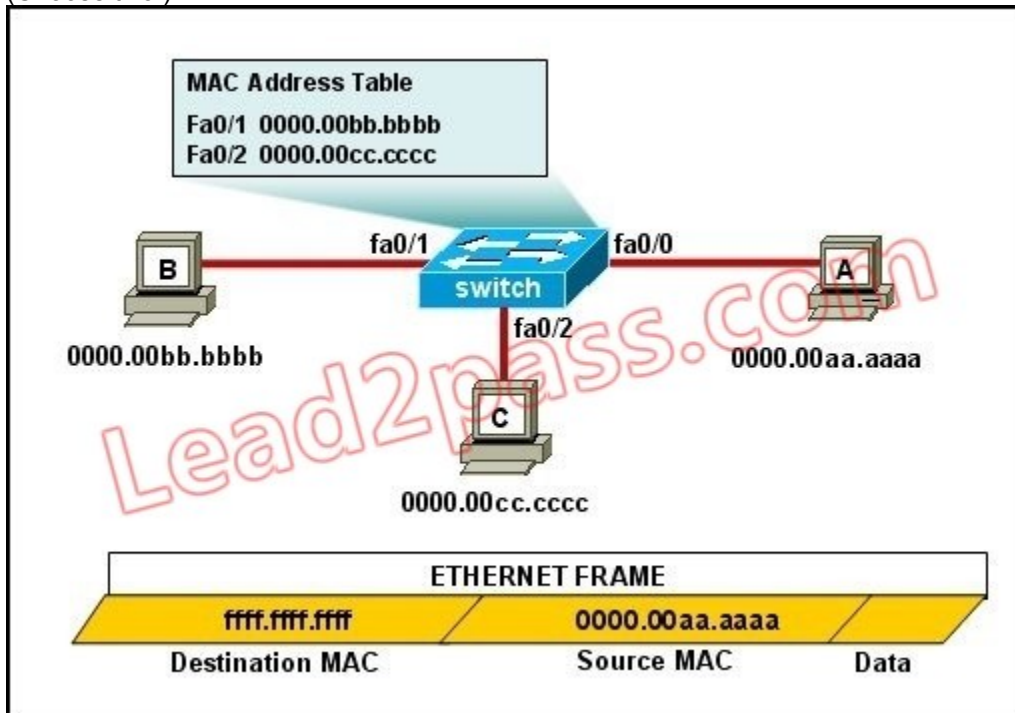**Interconnecting Cisco Networking Devices Part 1 (ICND1) (100-101)**

QUESTION 21
Refer to the exhibit. The MAC address table is shown in its entirety. The Ethernet frame that is shown arrives at the switch. What two operations will the switch perform when it receives this frame? (Choose two.)

A. The switch will not forward a frame with this destination MAC address.
B. The MAC address of 0000.00aa.aaaa will be added to the MAC Address Table.
C. The MAC address of ffff.ffff.ffff will be added to the MAC address table.
D. The frame will be forwarded out all active switch ports except for port fa0/0.
E. The frame will be forwarded out fa0/0 and fa0/1 only.
F. The frame will be forwarded out all the ports on the switch.

Answer: BD
Explanation:
If the switch already has the MAC address in its table for the destination, it will forward the frame directly to the destination port. If it was not already in its MAC table, then they frame would have been flooded out all ports except for the port that it came from.

QUESTION 22
On a Cisco switch, which protocol determines if an attached VoIP phone is from Cisco or from another vendor?

A. RTP
B. TCP
C. CDP
D. UDP

Answer: C
Explanation:
The Cisco Unified IP Phone uses CDP to communicate information such as auxiliary VLAN ID, per port power management details, and Quality of Service (QoS) configuration information with the

Cisco Catalyst switch.

QUESTION 23
Refer to the exhibit. What must be configured to establish a successful connection from Host A to switch SW-A through router RT-A?

VLAN1 192.168.2.0/28 Fa0/0
.5 .1
SW-A RT-A Host A

A. VLAN 1 on RT-A
B. IP routing on SW-A
C. default gateway on SW-A
D. crossover cable connecting SW-A and RT-A

Answer: C
Explanation:
In order for the switch to reach networks that are not local, such as networks attached to different interfaces of the router, it will need to set its default gateway to be the IP address of the attached router.

QUESTION 24
A switch receives a frame on one of its ports. There is no entry in the MAC address table for the destination MAC address. What will the switch do with the frame?

A. drop the frame
B. forward it out of all ports except the one that received it
C. forward it out of all ports
D. store it until it learns the correct port

Answer: B

QUESTION 25
At which layer of the OSI model does the protocol that provides the information that is displayed by the show cdp neighbors command operate?

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

Answer: E
Explanation:
CDP is a device discovery protocol that runs over Layer 2 (the data link layer) on all Cisco-manufactured devices (routers, bridges, access servers, and switches) and allows network management applications to discover Cisco devices that are neighbors of already known devices. With CDP, network management applications can learn the device type and the Simple Network Management Protocol (SNMP) agent address of neighboring devices running lower-layer, transparent protocols.

QUESTION 26
Which two characteristics apply to Layer 2 switches? (Choose two.)

A. increases the number of collision domains
B. decreases the number of collision domains
C. implements VLAN
D. decreases the number of broadcast domains
E. uses the IP address to make decisions for forwarding data packets

Answer: AC
Explanation:
Layer 2 switches offer a number of benefits to hubs, such as the use of VLANs and each switch port is in its own separate collision domain, thus eliminating collisions on the segment.

QUESTION 27
Which two commands will display the current IP address and basic Layer 1 and 2 status of an interface? (Choose two.)

A. router#show version
B. router#show ip interface
C. router#show protocols
D. router#show controllers
E. router#show running-config

Answer: CD
Explanation:
Router#show protocols displays status of configured Layer 2 and 3 protocols while show controllers Displays statistics for interface hardware including the current IP address

QUESTION 28
Which two characteristics describe the access layer of the hierarchical network design model? (Choose two.)

A. layer 3 support
B. port security
C. redundant components
D. VLANs
E. PoE

Answer: AB
Explanation:
Benefits of a Hierarchical Network Scalability:
The modularity of the design of hierarchical networks allows you to replicate design elements as the network grows including the use of layer 3 support on network swithces.
Because each instance of the module is consistent, expansion is easy to plan and implement. Redundancy: Redundancy at the core and distribution layers ensures path availability in case of any hardware failure in any of the devices on these layers. Performance: Link aggregation between levels and high- performance core and distribution level switches allows for near wire speed throughout the network. Properly designed hierarchical networks can achieve near wire speed between all devices. Security: Port security at the access level, and policies at the distribution layer make the network more secure. is important to keep the core layer free from any tasks that may compromise the speed of the link, all security should be handled at the access and distrubution

layers. Manageability: Consistency between switches at each level makes management more simple. Each layer of the hierarchical design performs specific functions that are consistent throughout that layer. Therefore, if you need to change the functionality of an access layer switch, you could repeat that change across all access layer switches in the network because they presumably perform the same functions at their layer. Maintainability:
Because hierarchical networks are modular in nature and scale very easily, they are easy to maintain. With other network topology designs, manageability becomes increasingly complicated as the network grows. In the hierarchical model, switch functions are different at each layer. You can save money by using less expensive access layer switches at the lowest layer, and spend more on the distribution and core layer switches to achieve high performance on the network.

QUESTION 29
Refer to the topology and switching table shown in the graphic. Host B sends a frame to Host C. What will the switch do with the frame?
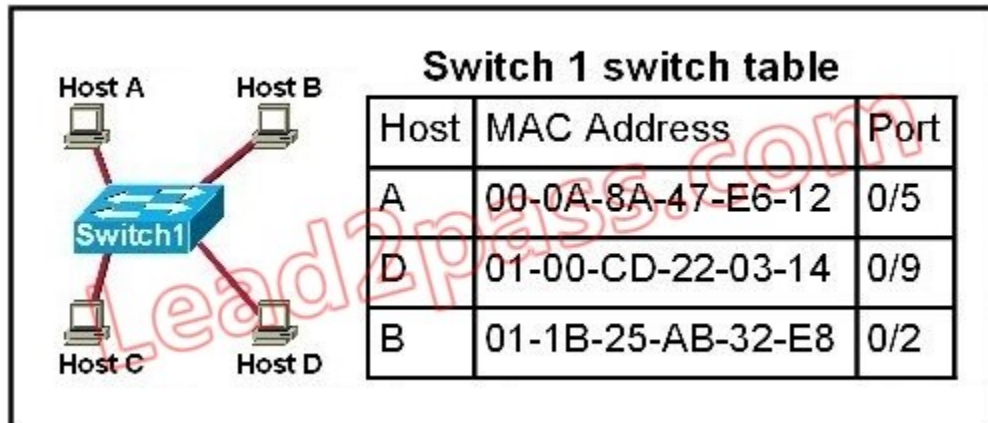
A. drop the frame
B. send the frame out all ports except port 0/2
C. return the frame to Host B
D. send an ARP request for Host C
E. send an ICMP Host Unreachable message to Host B
F. record the destination MAC address in the switching table and send the frame directly to Host C

Answer: B
Explanation:
An Ethernet switch appears to use the same logic as a transparent bridge. However, the internal logic of the switch is optimized for performing the basic function of choosing when to forward and when to filter a frame. Just as with a transparent bridge, the basic logic of a LAN switch is as follows:

Step 1   A frame is received.

Step 2   If the destination is a broadcast or multicast, forward on all ports.

Step 3   If the destination is a unicast and the address is not in the address table, forward on all ports.

Step 4   If the destination is a unicast and the address is in the address table, forward the frame out the associated port, unless the MAC address is associated with the incoming port.

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QUESTION 30
What is the purpose of assigning an IP address to a switch?

A. provides local hosts with a default gateway address
B. allows remote management of the switch
C. allows the switch to respond to ARP requests between two hosts
D. ensures that hosts on the same LAN can communicate with each other

Answer: B
Explanation:
Switch is a layer 2 device and doesn't use network layer for packet forwarding. The IP address may be used only for administrative purposes such as Telnet access or for network management purposes.

QUESTION 31
Which three statements are true about the operation of a full-duplex Ethernet network? (Choose three.)

A. There are no collisions in full-duplex mode.
B. A dedicated switch port is required for each full-duplex node.
C. Ethernet hub ports are preconfigured for full-duplex mode.
D. In a full-duplex environment, the host network card must check for the availability of the network media before transmitting.
E. The host network card and the switch port must be capable of operating in full-duplex mode.

Answer: ABE
Explanation:
Half-duplex Ethernet is defined in the original 802.3 Ethernet and Cisco says you only use one wire pair with a digital signal running in both directions on the wire. It also uses the CSMA/CD protocol to help prevent collisions and to permit retransmitting if a collision does occur. If a hub is attached to a switch, it must operate in half-duplex mode because the end stations must be able to detect collisions. Half-duplex Ethernet--typically 10BaseT--is only about 30 to 40 percent efficient as Cisco sees it, because a large 10BaseT network will usually only give you 3- to 4Mbps--at most. Full-duplex Ethernet uses two pairs of wires, instead of one wire pair like half duplex. Also, full duplex uses a point-to-point connection between the transmitter of the transmitting device and the receiver of the receiving device, which means that with full-duplex data transfer, you get a faster data transfer compared to half duplex. And because the transmitted data is sent on a different set of wires than the received data, no collisions occur. The reason you don't need to worry about collisions is because now Full-duplex Ethernet is like a freeway with multiple lanes instead of the single-lane road provided by half duplex. Full-duplex Ethernet is supposed to offer 100 percent efficiency in both directions; this means you can get 20Mbps with a 10Mbps Ethernet running full duplex, or 200Mbps for FastEthernet.

QUESTION 32
What is the subnet address for the IP address 172.19.20.23/28?

A. 172.19.20.0
B. 172.19.20.15
C. 172.19.20.16
D. 172.19.20.20
E. 172.19.20.32

Answer: C

QUESTION 33
What is the subnet address of 172.16.159.159/22?

A. 172.16.0.0
B. 172.16.128.0
C. 172.16.156.0
D. 172.16.159.0
E. 172.16.159.128
F. 172.16.192.0

Answer: C
Explanation:
Converting to binary format it comes to
11111111.11111111.11111100.00000000 or
255.255.252.0
Starting with 172.16.0.0 and having increment of 4 we get.

QUESTION 34
An administrator is working with the 192.168.4.0 network, which has been subnetted with a /26 mask. Which two addresses can be assigned to hosts within the same subnet? (Choose two.)

A. 192.168.4.61
B. 192.168.4.63
C. 192.168.4.67
D. 192.168.4.125
E. 192.168.4.128
F. 192.168.4.132

Answer: CD
Explanation:
Only the values of host with 67 and 125 fall within the range of /26 CIDR subnet mask, all others lie beyond it.

QUESTION 35
Refer to the exhibit. The internetwork is using subnets of the address 192.168.1.0 with a subnet mask of 255.255.255.224. The routing protocol in use is RIP version 1. Which address could be assigned to the FastEthernet interface on RouterA?
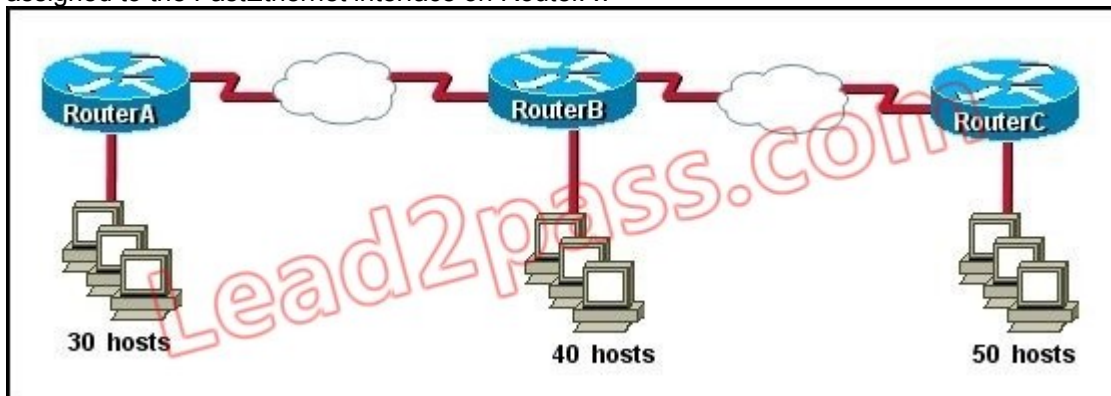
A. 192.168.1.31
B. 192.168.1.64
C. 192.168.1.127

D. 192.168.1.190
E. 192.168.1.192

Answer: D

QUESTION 36
What is the network address for the host with IP address 192.168.23.61/28?

A. 192.168.23.0
B. 192.168.23.32
C. 192.168.23.48
D. 192.168.23.56
E. 192.168.23.60

Answer: C
Explanation:
convert bit-length prefix to quad-dotted decimal representation, then from it find the number of bits used for subnetting you can find previously calculated number of subnets by separating subnets each having value of last bit used for subnet masking Find that your IP address is in which subnet, that subnet's first address is network address and last address is broadcast address. Based on above steps the answer is option C.

QUESTION 37
What is the best practice when assigning IP addresses in a small office of six hosts?

A. Use a DHCP server that is located at the headquarters.
B. Use a DHCP server that is located at the branch office.
C. Assign the addresses by using the local CDP protocol.
D. Assign the addresses statically on each node.

Answer: D
Explanation:
Its best to use static addressing scheme where the number of systems is manageable rather than use dynamic protocol as it is easy to operate and manage.

QUESTION 38
Refer to the exhibit. The enterprise has decided to use the network address 172.16.0.0. The network administrator needs to design a classful addressing scheme to accommodate the three subnets, with 30, 40, and 50 hosts, as shown. What subnet mask would accommodate this network?

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Net bits	Subnet mask	total-addresses per subnet
/20	255.255.240.0	4096
/21	255.255.248.0	2048
/22	255.255.252.0	1024
/23	255.255.254.0	512
/24	255.255.255.0	256
/25	255.255.255.128	128
/26	255.255.255.192	64
/27	255.255.255.224	32
/28	255.255.255.240	16
/29	255.255.255.248	8
/30	255.255.255.252	4

A. 255.255.255.192
B. 255.255.255.224
C. 255.255.255.240
D. 255.255.255.248
E. 255.255.255.252

Answer: A
Explanation:
Subnet mask A i.e. 255.255.255.192 with CIDR of /26 which means 64 hosts per subnet which are sufficient to accommodate even the largest subnet of 50 hosts.

QUESTION 39
Which two statements describe the IP address 10.16.3.65/23? (Choose two.)

A. The subnet address is 10.16.3.0 255.255.254.0.
B. The lowest host address in the subnet is 10.16.2.1 255.255.254.0.
C. The last valid host address in the subnet is 10.16.2.254 255.255.254.0
D. The broadcast address of the subnet is 10.16.3.255 255.255.254.0.
E. The network is not subnetted.

Answer: BD
Explanation:
The mask 255.255.254.0 (/23) used with a Class A address means that there are 15 subnet bits and 9 host bits. The block size in the third octet is 2 (256 - 254). So this makes the subnets in 0, 2, 4, 6, etc., all the way to 254. The host 10.16.3.65 is in the 2.0 subnet. The next subnet is 4.0, so the broadcast address for the 2.0 subnet is 3.255. The valid host addresses are 2.1 through 3.254

QUESTION 40
Given a Class C IP address subnetted with a /30 subnet mask, how many valid host IP addresses

are available on each of the subnets?

A. 1
B. 2
C. 4
D. 8
E. 252
F. 254

Answer: B
Explanation:
/30 CIDR corresponds to mask 55.255.255.252 whose binary is 11111100 which means 6 subnet bits and 2 host bits which means 62 subnets and 2 hosts per subnet.