

Lead2pass.100-101

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**Vendor: Cisco**

**Exam Code: 100-101**

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

**This dump is 100% valid, Got 4 OSPF questions and OSPF Lab sim with 6 routers, with 5 lab questions.**

## Exam A

### QUESTION 1

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?

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```
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.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 2

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.

**Correct Answer:** BE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Ethernet networking uses Carrier Sense Multiple Access with Collision Detect (CSMA/CD), a

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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 3

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.

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

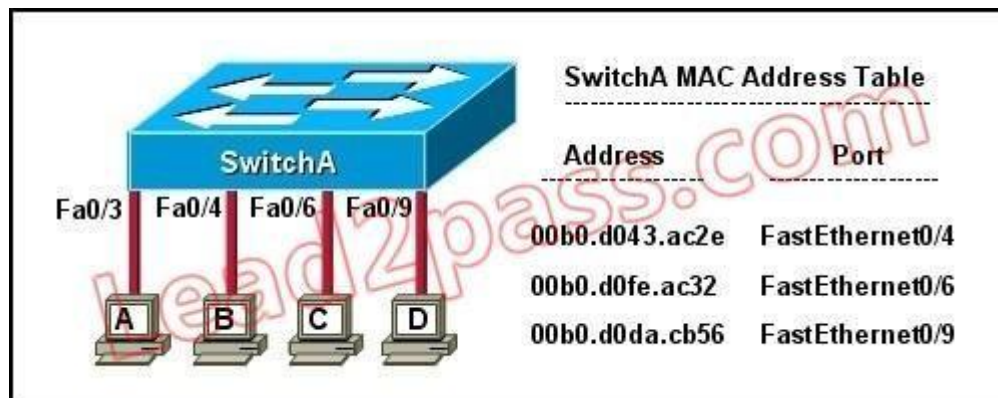
When frame receives the frame, it checks the source address on MAC table if MAC address found in MAC table it tries to forward if not in MAC table adds the Address on MAC table. After checking the source address, it checks the destination address on MAC table, if MAC address found on MAC table it forwards to proper ports otherwise floods on all ports except the source port. In this case, the MAC address shown is already in the table so it will be forwarded directly.

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#### QUESTION 4

Refer to the exhibit. The exhibit is showing the topology and the MAC address table. Host A sends a data frame to host D. What will the switch do when it receives the frame from host A?



- A. The switch will add the source address and port to the MAC address table and forward the frame to host D.
- B. The switch will discard the frame and send an error message back to host A.
- C. The switch will flood the frame out of all ports except for port Fa0/3.
- D. The switch will add the destination address of the frame to the MAC address table and forward the frame to host D.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

When switch receives the data frame from the host not having the MAC address already on the MAC table, it will add the MAC address to source port on MAC address table and sends the data frame.

#### QUESTION 5

Which address type does a switch use to make selective forwarding decisions?

- A. source IP address
- B. destination IP address
- C. source and destination IP address
- D. source MAC address
- E. destination MAC address

**Correct Answer:** E

**Section:** (none)

**Explanation**

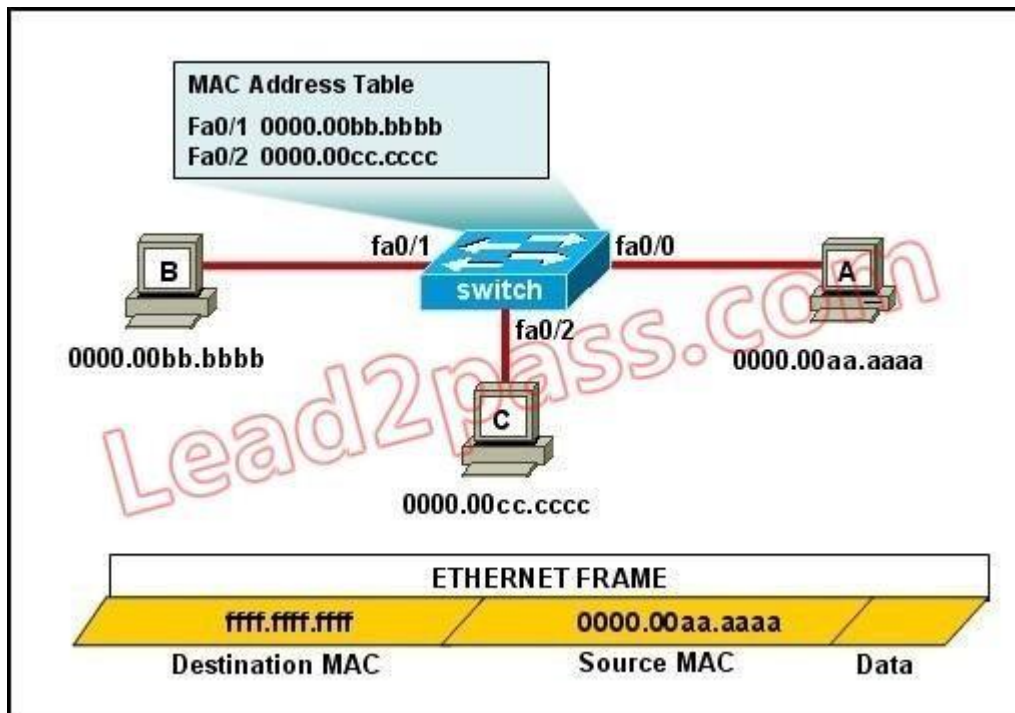
**Explanation/Reference:**

Explanation:

Switches analyze the destination MAC to make its forwarding decision since it is a layer 2 device. Routers use the destination IP address to make forwarding decisions.

**QUESTION 6**

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.
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**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 the frame would have been flooded out all ports except for the port that it came from.

#### **QUESTION 7**

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

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 8**

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

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 9

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 "First Test, First Pass" - [www.lead2pass.com](http://www.lead2pass.com) 15  
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- C. forward it out of all ports
- D. store it until it learns the correct port

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**



**QUESTION 10**

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

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 11**

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

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 12**

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

**Correct Answer:** CD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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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 13

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

**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 switches. 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. It 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 distribution layers. Manageability: Consistency between switches at each level makes management more simple. Each layer

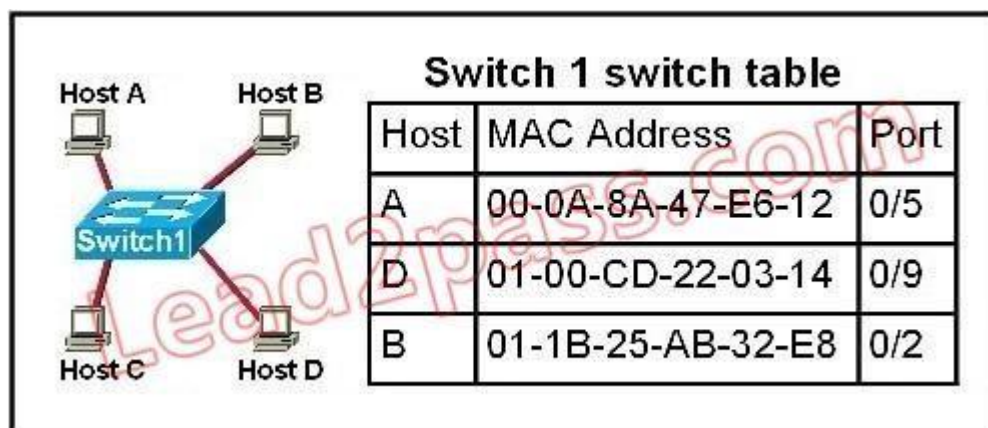
of the hierarchical design performs specific functions that are consistent throughout that layer. Therefore, if you need to change the functionality of an access layer switch, you could repeat that change across all access layer switches in the network because they presumably perform the same functions 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 14

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?

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- 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

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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.

**QUESTION 15**

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

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Switch is a layer 2 device and doesn't use network layer for packet forwarding. The IP address

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may be used only for administrative purposes such as Telnet access or for network management purposes.

**QUESTION 16**

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.

**Correct Answer:** ABE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 17**

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

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 18**

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
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**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 19**

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

**Correct Answer:** CD

**Section:** (none)

**Explanation**

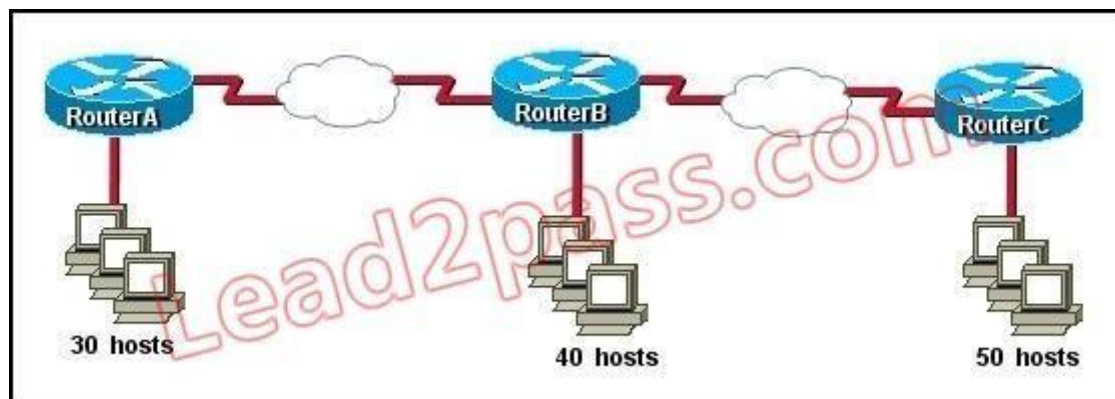
**Explanation/Reference:**

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 20

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

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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#### QUESTION 21

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

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 22**

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.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 23**

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

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 24

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.

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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

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#### **QUESTION 25**

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

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

/30 CIDR corresponds to mask 255.255.255.252 whose binary is 11111100 which means 6 subnet bits and 2 host bits which means 62 subnets and 2 hosts per subnet.

**QUESTION 26**

Which one of the following IP addresses is the last valid host in the subnet using mask 255.255.255.224?

- A. 192.168.2.63
- B. 192.168.2.62
- C. 192.168.2.61
- D. 192.168.2.60
- E. 192.168.2.32

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

With the 224 there are 8 networks with increments of 32 One of these is 32 33 62 63 where 63 is broadcast so 62 is last valid host out of given choices.

**QUESTION 27**

An administrator is in the process of changing the configuration of a router. What command will allow the administrator to check the changes that have been made prior to saving the new configuration?

- A. Router# show startup-config
- B. Router# show current-config
- C. Router# show running-config
- D. Router# show memory
- E. Router# show flash
- F. Router# show processes

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

This command followed by the appropriate parameter will show the running config hence the admin will be able to see what changes have been made, and then they can be saved.

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**QUESTION 28**

Which statements accurately describe CDP? (Choose three.)

- A. CDP is an IEEE standard protocol.
- B. CDP is a Cisco proprietary protocol.
- C. CDP is a datalink layer protocol.
- D. CDP is a network layer protocol.
- E. CDP can discover directly connected neighboring Cisco devices.
- F. CDP can discover Cisco devices that are not directly connected.

**Correct Answer:** BCE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

CDP (Cisco Discovery Protocol) is a proprietary protocol designed by Cisco to help administrators collect information about both locally attached and remote devices. By using CDP, you can gather hardware and protocol information about neighbor devices containing useful info for troubleshooting and documenting the network.

**QUESTION 29**

On a live network, which commands will verify the operational status of router interfaces? (Choose two.)

- A. Router# show interfaces
- B. Router# show ip protocols
- C. Router# debug interface
- D. Router# show ip interface brief
- E. Router# show start

**Correct Answer:** AD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Both these commands will show the current status of the interfaces, either in show or debug mode both will display the information.

**QUESTION 30**

Which router command will configure an interface with the IP address 10.10.80.1/19?

- A. router(config-if)# ip address 10.10.80.1/19
- B. router(config-if)# ip address 10.10.80.1 255.255.0.0
- C. router(config-if)# ip address 10.10.80.1 255.255.255.0
- D. router(config-if)# ip address 10.10.80.1 255.255.224.0
- E. router(config-if)# ip address 10.10.80.1 255.255.240.0
- F. router(config-if)# ip address 10.10.80.1 255.255.255.240

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

255.255.224 equal /19 in CIDR format hence the answer

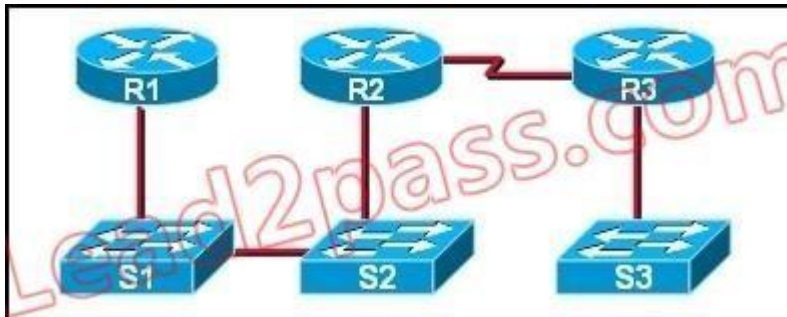
### QUESTION 31

Refer to the exhibit. If CDP is enabled on all devices and interfaces, which devices will appear in

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the output of a show cdp neighbors command issued from R2?



- A. R2 and R3
- B. R1 and R3
- C. R3 and S2
- D. R1, S1, S2, and R3
- E. R1, S1, S2, R3, and S3

**Correct Answer:** C

**Section:** (none)

**Explanation**

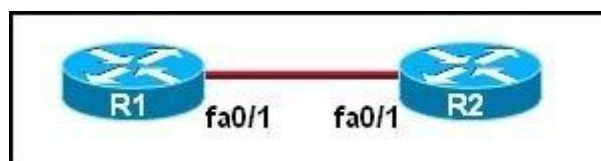
**Explanation/Reference:**

Explanation:

A Cisco device enabled with CDP sends out periodic interface updates to a multicast address in order to make itself known to neighbors. Since it is a layer two protocol, these packets are not routed. So the devices detected would be immediate connected neighbors.

### QUESTION 32

Refer to the exhibit. The two routers have had their startup configurations cleared and have been restarted. At a minimum, what must the administrator do to enable CDP to exchange information between R1 and R2?



- A. Configure the router with the cdp enable command.
- B. Enter no shutdown commands on the R1 and R2 fa0/1 interfaces.
- C. Configure IP addressing and no shutdown commands on both the R1 and R2 fa0/1 interfaces.
- D. Configure IP addressing and no shutdown commands on either of the R1 or R2 fa0/1 interfaces.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

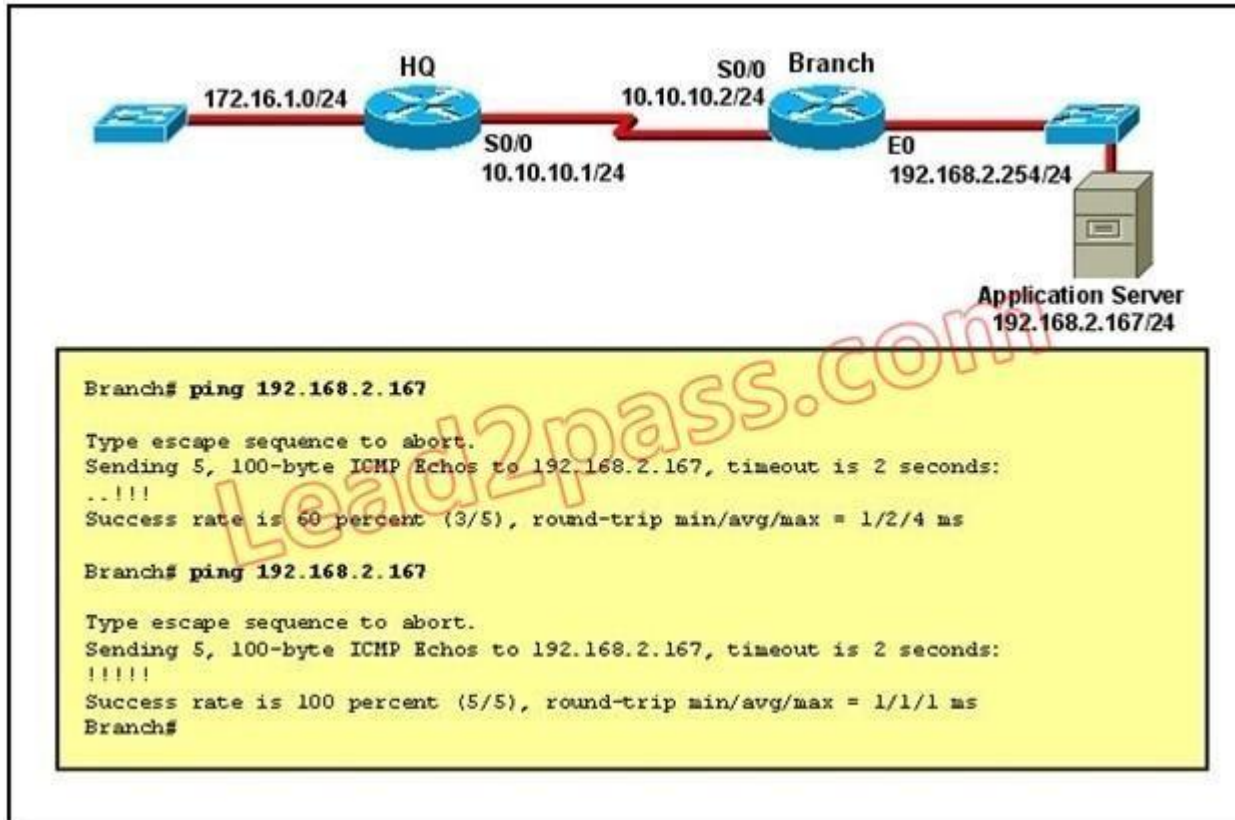
Explanation:

If the shut down commands are not entered, then CDP can exchange information between the two routers, else it would fail.

### QUESTION 33

Refer to the exhibit. The network administrator is testing connectivity from the branch router to the newly installed application server. What is the most likely reason for the first ping having a success rate of only 60 percent?

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- A. The network is likely to be congested, with the result that packets are being intermittently dropped.
- B. The branch router had to resolve the application server MAC address.
- C. There is a short delay while NAT translates the server IP address.
- D. A routing table lookup delayed forwarding on the first two ping packets.
- E. The branch router LAN interface should be upgraded to FastEthernet.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Initially the MAC address had to be resolved, but later on it was confirmed to ping went straight away

**QUESTION 34**

What two things does a router do when it forwards a packet? (Choose two.)

- A. switches the packet to the appropriate outgoing interfaces
- B. computes the destination host address
- C. determines the next hop on the path
- D. updates the destination IP address
- E. forwards ARP requests

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Without following these two processes namely switching the packet to appropriate interface and telling the packet where to go by providing it with a destination IP address, the purpose of the same would not be solved.

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**QUESTION 35**

Which two of these functions do routers perform on packets? (Choose two.)

- A. examine the Layer 2 headers of inbound packets and use that information to determine the next hops for the packets
- B. update the Layer 2 headers of outbound packets with the MAC addresses of the next hops
- C. examine the Layer 3 headers of inbound packets and use that information to determine the next hops for the packets
- D. examine the Layer 3 headers of inbound packets and use that information to determine the complete paths along which the packets will be routed to their ultimate destinations
- E. update the Layer 3 headers of outbound packets so that the packets are properly directed to valid next hops
- F. update the Layer 3 headers of outbound packets so that the packets are properly directed to their ultimate destinations

**Correct Answer:** BC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

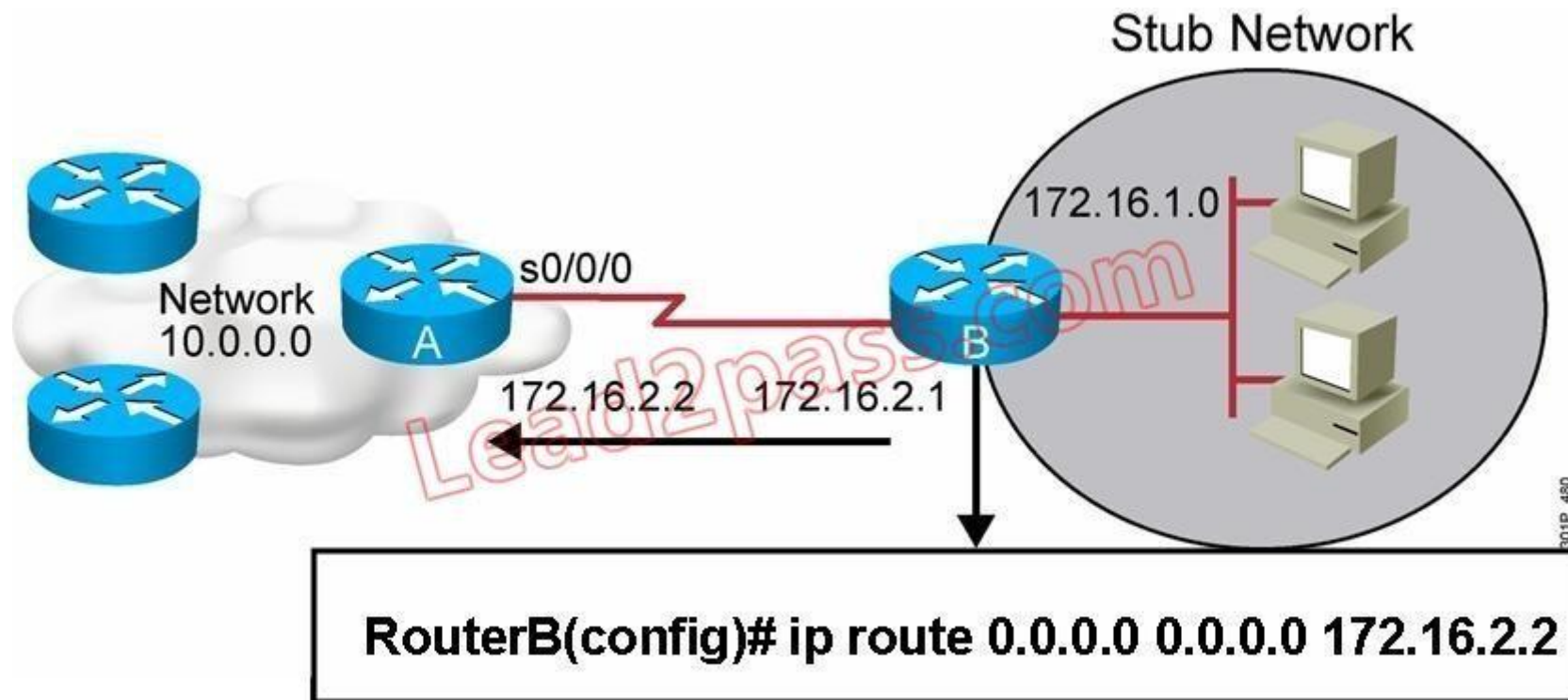
This is the basic function of the router to receive incoming packets and then forward them to their required destination. This is done by reading layer 3



headers of inbound packets and update the info to layer 2 for further hopping.

### QUESTION 36

Refer to the exhibit. Which two statements are correct? (Choose two.)



- A. This is a default route.
- B. Adding the subnet mask is optional for the ip route command.
- C. This will allow any host on the 172.16.1.0 network to reach all known destinations beyond RouterA.
- D. This command is incorrect, it needs to specify the interface, such as s0/0/0 rather than an IP address.
- E. The same command needs to be entered on RouterA so that hosts on the 172.16.1.0 network can reach network 10.0.0.0.

**Correct Answer: AC**

**Section: (none)**

### Explanation

**Explanation/Reference:**

Explanation:

This is obviously the default value for the route which is set between the routers and since it is entered in such a manner that it ensures connectivity between the stub network and any host

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lying beyond RouterA.

### QUESTION 37

Which statements are true regarding ICMP packets? (Choose two.)

- A. They acknowledge receipt of TCP segments.
- B. They guarantee datagram delivery.
- C. TRACERT uses ICMP packets.
- D. They are encapsulated within IP datagrams.
- E. They are encapsulated within UDP datagrams.

**Correct Answer:** CD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 38

The command `ip route 192.168.100.160 255.255.255.224 192.168.10.2` was issued on a router. No routing protocols or other static routes are configured on the router. Which statement is true about this command?

- A. The interface with IP address 192.168.10.2 is on this router.
- B. The command sets a gateway of last resort for the router.
- C. Packets that are destined for host 192.168.100.160 will be sent to 192.168.10.2.
- D. The command creates a static route for all IP traffic with the source address 192.168.100.160.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

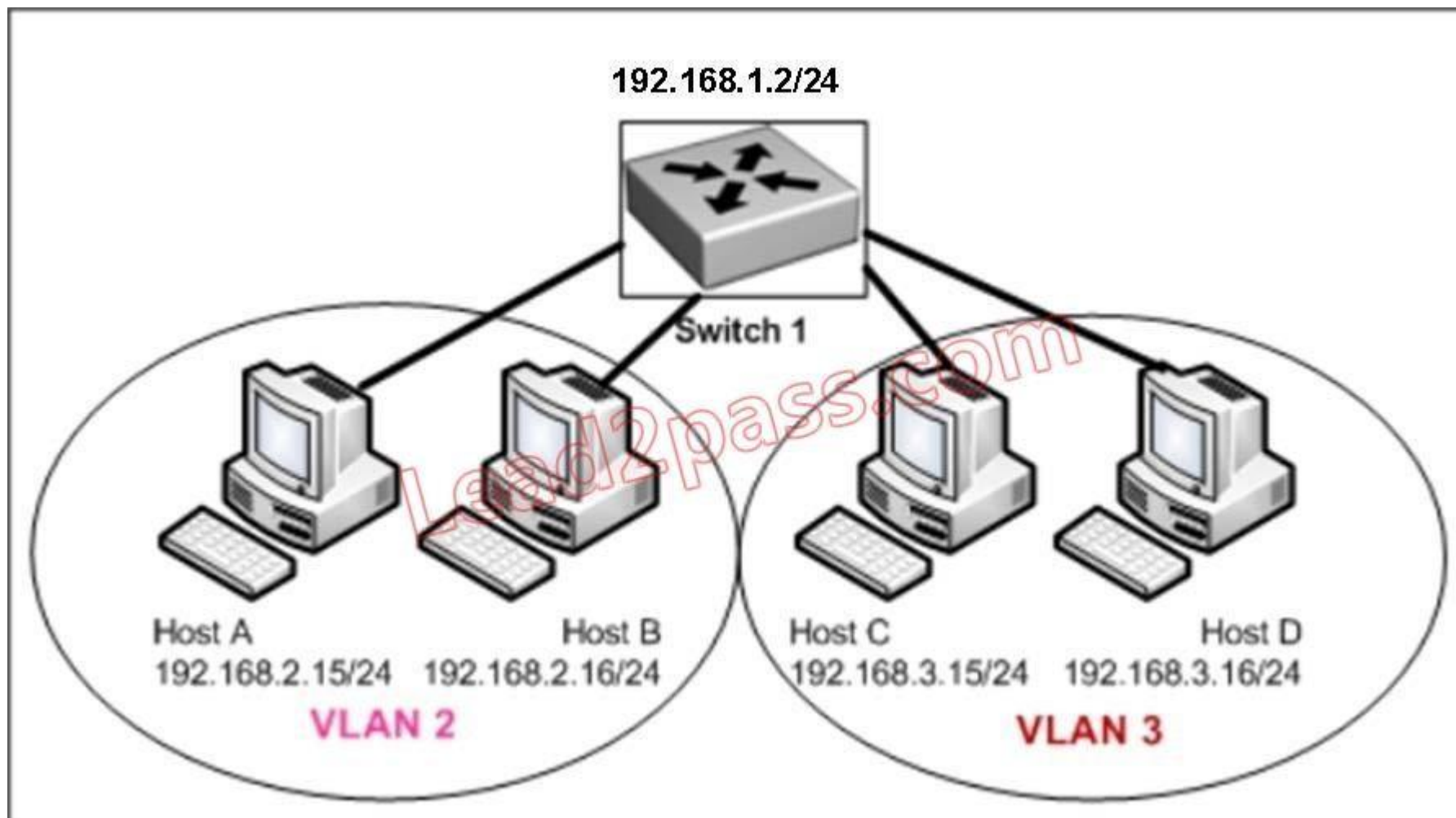
160 it's actually network address of /27 so any address within the range of 160 network will be sent to 192.168.10.2

**QUESTION 39**

Refer to the exhibit. Host A can communicate with Host B but not with Hosts C or D. How can the network administrator solve this problem?

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A. Configure Hosts C and D with IP addresses in the 192.168.2.0 network.

- B. Install a router and configure a route to route between VLANs 2 and 3.
- C. Install a second switch and put Hosts C and D on that switch while Hosts A and B remain on the original switch.
- D. Enable the VLAN trunking protocol on the switch.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Two VLANs require a router in between otherwise they cannot communicate through a simple switch mechanism

#### QUESTION 40

Refer to the exhibit. What is the simplest way to configure routing between the regional office network 10.89.0.0/20 and the corporate network?



- A. router1(config)#ip route 10.89.0.0 255.255.240.0 10.89.16.2
- B. router2(config)#ip route 10.89.3.0 255.255.0.0 10.89.16.2
- C. router1(config)#ip route 10.89.0.0 255.255.240.0 10.89.16.1 "First Test, First Pass" - www.lead2pass.com 29  
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- D. router2(config)#ip route 0.0.0.0 0.0.0.0 10.89.16.1

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The fourth command makes it possible for all hosts beyond R2 and all hosts beyond R1 to interact with each other, hence it is the most simplest technique.

#### QUESTION 41

Refer to the exhibit. Which command would you use to configure a static route on Router1 to network 192.168.202.0/24 with a nondefault administrative distance?



- A. router1(config)#ip route 1 192.168.201.1 255.255.255.0 192.168.201.2
- B. router1(config)#ip route 192.168.202.0 255.255.255.0 192.168.201.2 1
- C. router1(config)#ip route 5 192.168.202.0 255.255.255.0 192.168.201.2
- D. router1(config)#ip route 192.168.202.0 255.255.255.0 192.168.201.2 5

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Since it has /24 CIDR and it also has a non default administrative distance, the answer has to be option D.

**QUESTION 42**

What does administrative distance refer to?

- A. the cost of a link between two neighboring routers
- B. the advertised cost to reach a network
- C. the cost to reach a network that is administratively set
- D. a measure of the trustworthiness of a routing information source

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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Explanation:

Administrative distance is the first criterion that a router uses to determine which routing protocol to use if two protocols provide route information for the same destination. Administrative distance is a measure of the trustworthiness of the source of the routing information. The smaller the administrative distance value, the more reliable the protocol.

**QUESTION 43**

Which IOS command is used to initiate a login into a VTY port on a remote router?

- A. router# login
- B. router# telnet
- C. router# trace
- D. router# ping
- E. router(config)# line vty 0 5
- F. router(config-line)# login

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

VTY ports are telnet ports hence command B will initiate login to the telnet port.

**QUESTION 44**

In the configuration of NAT, what does the keyword overload signify?

- A. When bandwidth is insufficient, some hosts will not be allowed to access network translation.
- B. The pool of IP addresses has been exhausted.
- C. Multiple internal hosts will use one IP address to access external network resources.
- D. If the number of available IP addresses is exceeded, excess traffic will use the specified address pool.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 45**

What happens when computers on a private network attempt to connect to the Internet through a Cisco router running PAT?

- A. The router uses the same IP address but a different TCP source port number for each connection.
- B. An IP address is assigned based on the priority of the computer requesting the connection.
- C. The router selects an address from a pool of one-to-one address mappings held in the lookup table.
- D. The router assigns a unique IP address from a pool of legally registered addresses for the duration of the connection.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Port Address Translation makes the PC connect to the Internet but using different TCP source port

#### **QUESTION 46**

When configuring NAT, the Internet interface is considered to be what?

- A. local  
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- B. inside
- C. global
- D. outside



**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Network address translation or NAT requires the Internet to be considered as an outside interface else it won't serve the purpose it intends to.

#### QUESTION 47

The ip helper-address command does what?

- A. assigns an IP address to a host
- B. resolves an IP address from a DNS server
- C. relays a DHCP request across networks
- D. resolves an IP address overlapping issue

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

When the DHCP client sends the DHCP request packet, it doesn't have an IP address. So it uses the all-zeroes address, 0.0.0.0, as the IP source address. And it doesn't know how to reach the DHCP server, so it uses a general broadcast address, 255.255.255.255, for the destination. So the router must replace the source address with its own IP address, for the interface that received the request. And it replaces the destination address with the address specified in the ip helper- address command. The client device's MAC address is included in the payload of the original DHCP request packet, so the router doesn't need to do anything to ensure that the server receives this information.

#### QUESTION 48

Refer to the exhibit. The network administrator made the entries that are shown and then saved the configuration. From a console connection, what password or password sequence is required for the administrator to access privileged mode on Router1?

```
Router# configure terminal
Router(config)# hostname Router1
Router1(config)# enable secret sanfran
Router1(config)# enable password cisco
Router1(config)# line vty 0 4
Router1(config-line)# password sanjose
Router1(config-line)#
```



- A. cisco
- B. sanfran
- C. sanjose
- D. either cisco or sanfran
- E. either cisco or sanjose
- F. sanjose and sanfran

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

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The enable secret password takes precedence over the enable password, so sanfran will be used.

#### **QUESTION 49**

The following commands are entered on the router:

```
Burbank(config)# enable secret fortress
Burbank(config)# line con 0
Burbank(config-line)# login
Burbank(config-line)# password n0way1n
Burbank(config-line)# exit
Burbank(config)# service password-encryption
```

What is the purpose of the last command entered?

- A. to require the user to enter an encrypted password during the login process
- B. to prevent the vty, console, and enable passwords from being displayed in plain text in the configuration files
- C. to encrypt the enable secret password
- D. to provide login encryption services between hosts attached to the router

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 50**

What is the effect of using the service password-encryption command?

- A. Only the enable password will be encrypted.
- B. Only the enable secret password will be encrypted.
- C. Only passwords configured after the command has been entered will be encrypted.
- D. It will encrypt the secret password and remove the enable secret password from the configuration.
- E. It will encrypt all current and future passwords.

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Encryption further adds a level of security to the system as anyone having access to the database of passwords cannot reverse the process of encryption to know the actual passwords which isn't the case if the passwords are stored simply.

**QUESTION 51**

An administrator has connected devices to a switch and, for security reasons, wants the dynamically learned MAC addresses from the address table added to the running configuration.

What must be done to accomplish this?

- A. Enable port security and use the keyword sticky.
- B. Set the switchport mode to trunk and save the running configuration.
- C. Use the switchport protected command to have the MAC addresses added to the configuration.
- D. Use the no switchport port-security command to allow MAC addresses to be added to the configuration.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

One can configure MAC addresses to be sticky. These can be dynamically learned or manually

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configured, stored in the address table, and added to the running configuration. If these addresses are saved in the configuration file, the interface does not need to dynamically relearn them when the switch restarts, hence enabling security as desired.

#### **QUESTION 52**

A company has placed a networked PC in a lobby so guests can have access to the corporate directory. A security concern is that someone will disconnect the directory PC and re-connect their laptop computer and have access to the corporate network. For the port servicing the lobby, which three configuration steps should be performed on the switch to prevent this? (Choose three.)

- A. Enable port security.
- B. Create the port as a trunk port.
- C. Create the port as an access port.
- D. Create the port as a protected port.
- E. Set the port security aging time to 0.
- F. Statically assign the MAC address to the address table.
- G. Configure the switch to discover new MAC addresses after a set time of inactivity.

**Correct Answer:** ACF

**Section:** (none)

**Explanation**

#### **Explanation/Reference:**

Explanation:

If port security is enabled and the port is only designated as access port, and finally static MAC address is assigned, it ensures that even if a physical connection is done by taking out the directory PC and inserting personal laptop or device, the connection cannot be made to the corporate network, hence ensuring safety.

#### **QUESTION 53**

Why would a network administrator configure port security on a switch?

- A. to prevent unauthorized Telnet access to a switch port
- B. to prevent unauthorized hosts from accessing the LAN
- C. to limit the number of Layer 2 broadcasts on a particular switch port
- D. block unauthorized access to the switch management interfaces

**Correct Answer:** B

**Section:** (none)

**Explanation**

#### **Explanation/Reference:**

Explanation:

You can use the port security feature to restrict input to an interface by limiting and identifying MAC addresses of the stations allowed to access the port. When you assign secure MAC addresses to a secure port, the port does not forward packets with source addresses outside the group of defined addresses. If you limit the number of secure MAC addresses to one and assign a single secure MAC address, the workstation attached to that port is assured the full bandwidth of the port. If a port is configured as a secure port and the maximum number of secure MAC addresses is reached, when the MAC address of a station attempting to access the port is different from any of the identified secure MAC addresses, a security violation occurs. Also, if a station with a secure MAC address configured or learned on one secure port attempts to access another secure port, a violation is flagged.

#### **QUESTION 54**

How can you ensure that only the MAC address of a server is allowed by switch port Fa0/1?

- A. Configure port Fa0/1 to accept connections only from the static IP address of the server.  
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- B. Configure the server MAC address as a static entry of port security.
- C. Use a proprietary connector type on Fa0/1 that is incomputable with other host connectors.
- D. Bind the IP address of the server to its MAC address on the switch to prevent other hosts from spoofing the server IP address.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

When the MAC address is configured as static entry, no other address is allowed.

#### **QUESTION 55**

Refer to the exhibit. A network administrator has configured a Catalyst 2950 switch for remote management by pasting into the console the configuration commands that are shown in the exhibit. However, a Telnet session cannot be successfully established from a remote host. What should be done to fix this problem?

```
interface vlan 1
ip address 192.168.17.253 255.255.255.240
no shutdown
exit
ip default-gateway 192.168.17.1
line vty 0 15
password cisco
login
exit
```

- A. Change the first line to interface fastethernet 0/1.
- B. Change the first line to interface vlan 0/1.
- C. Change the fifth line to ip default-gateway 192.168.17.241.
- D. Change the fifth line to ip route 0.0.0.0 0.0.0.0 192.168.17.1.
- E. Change the sixth line to line con 0.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The default gateway for remote session is 192.168.17.241 and not the one given in the exhibit.

#### **QUESTION 56**

Which IP addresses are valid for hosts belonging to the 10.1.160.0/20 subnet? (Choose three.)

- A. 10.1.168.0
- B. 10.1.176.1
- C. 10.1.174.255
- D. 10.1.160.255
- E. 10.1.160.0
- F. 10.1.175.255

**Correct Answer:** ACD

**Section: (none)**

**Explanation**

**Explanation/Reference:**

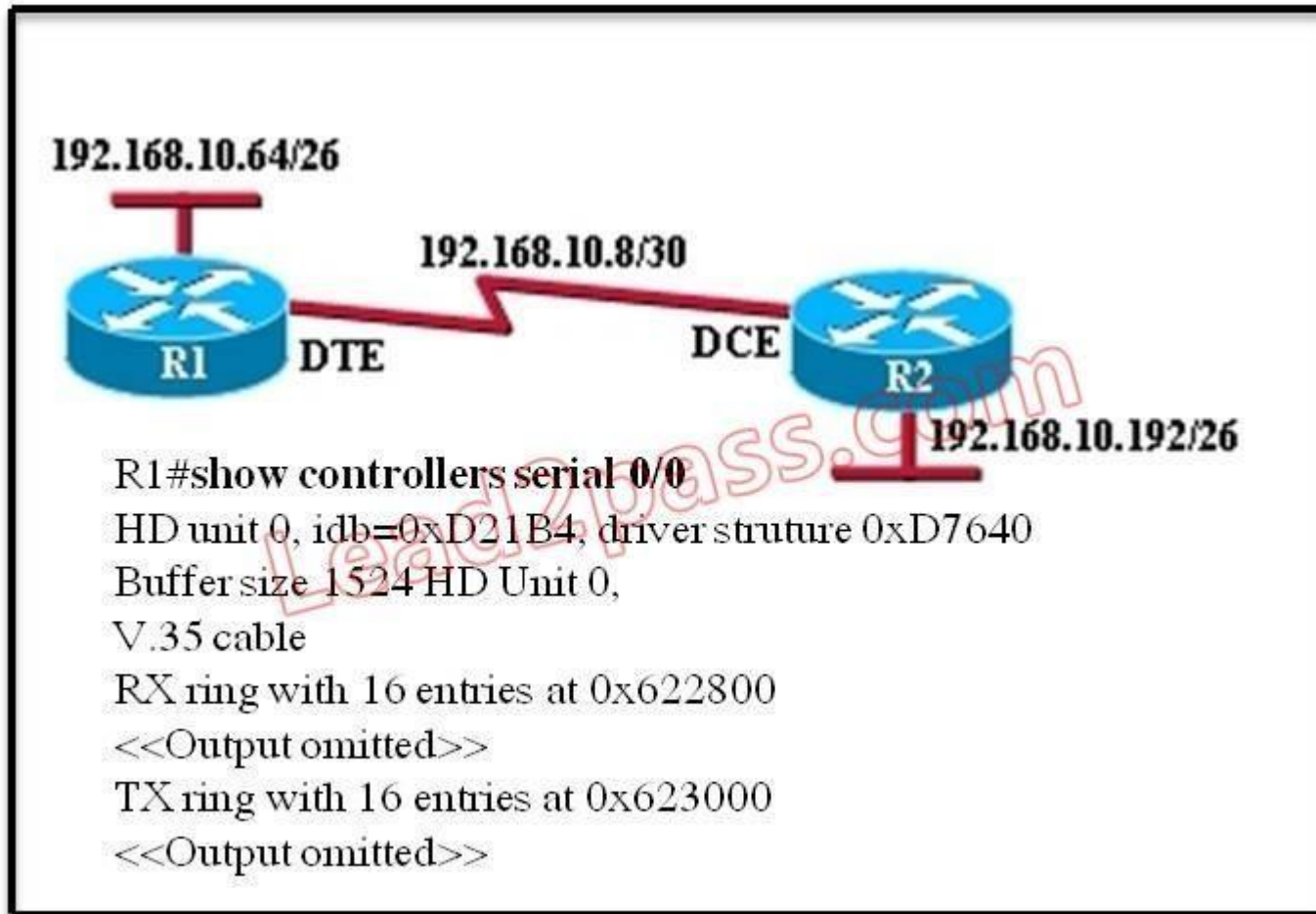
Explanation:

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All IP address in IP ranges between : 10.1.160.1 and 10.1.175.254 are valid as shown below Address: 10.1.160.0 00001010.00000001.1010 0000.00000000 Netmask:255.255.240.0 = 2011111111.11111111.1111 0000.00000000 Wildcard:0.0.15.25500000000.00000000.0000 1111.11111111 Which implies that  
Network: 10.1.160.0/20 00001010.00000001.1010 0000.00000000 HostMin:10.1.160.100001010.00000001.1010 0000.00000001  
HostMax:10.1.175.25400001010.00000001.1010 1111.11111110  
Broadcast:10.1.175.25500001010.00000001.1010 1111.11111111

**QUESTION 57**

Refer to the exhibit. An administrator cannot connect from R1 to R2. To troubleshoot this problem, the administrator has entered the command shown in the exhibit. Based on the output shown, what could be the problem?



- A. The serial interface is configured for half duplex.
- B. The serial interface does not have a cable attached.
- C. The serial interface has the wrong type of cable attached.
- D. The serial interface is configured for the wrong frame size.
- E. The serial interface has a full buffer.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

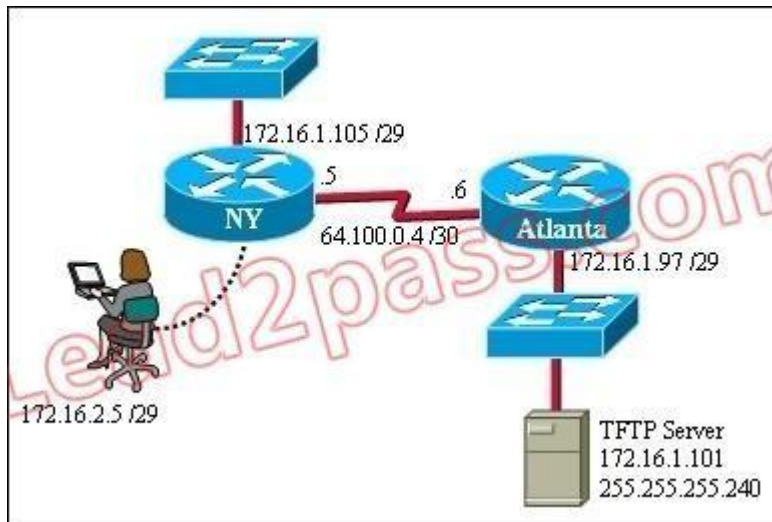
Explanation:

since the output is not forthcoming it shows that the type of cable attached is wrong, though the cable is connected since it shows the cable type. According to the figure DTE cable should connect to R1 on interface but while examining using show controllers serial 0/0 command it showing that a DCE is connected so the wrong type of cable is being used.

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**QUESTION 58**

Refer to the exhibit. A TFTP server has recently been installed in the Atlanta office. The network administrator is located in the NY office and has made a console connection to the NY router. After establishing the connection they are unable to backup the configuration file and IOS of the NY router to the TFTP server. What is the cause of this problem?



- A. The NY router has an incorrect subnet mask.
- B. The TFTP server has an incorrect IP address.
- C. The TFTP server has an incorrect subnet mask.
- D. The network administrator computer has an incorrect IP address.

**Correct Answer: C**

**Section: (none)**

**Explanation**



**Explanation/Reference:**

Explanation:

The subnet mask of the TFTP server needs to be in tune with the other network requirements else it won't be possible.

**QUESTION 59**

If a host experiences intermittent issues that relate to congestion within a network while remaining connected, what could cause congestion on this LAN?

- A. half-duplex operation
- B. broadcast storms
- C. network segmentation
- D. multicasting

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

A broadcast storm can consume sufficient network resources so as to render the network unable to transport normal traffic.

**QUESTION 60**

Refer to the exhibit. The junior network support staff provided the diagram as a recommended configuration for the first phase of a four-phase network expansion project. The entire network expansion will have over 1000 users on 14 network segments and has been allocated this IP

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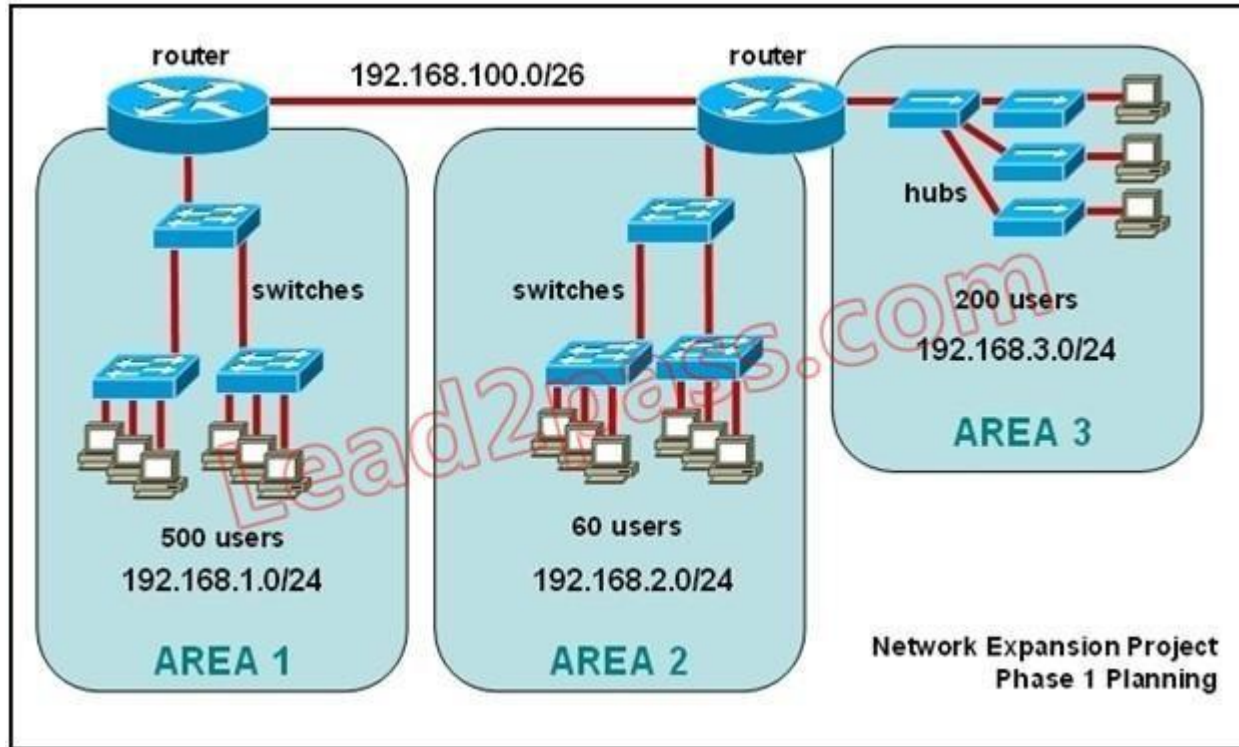
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address space.

192.168.1.1 through 192.168.5.255

192.168.100.1 through 192.168.100.255

What are three problems with this design? (Choose three.)



- A. The AREA 1 IP address space is inadequate for the number of users.
- B. The AREA 3 IP address space is inadequate for the number of users.
- C. AREA 2 could use a mask of /25 to conserve IP address space.
- D. The network address space that is provided requires a single network-wide mask.
- E. The router-to-router connection is wasting address space.
- F. The broadcast domain in AREA 1 is too large for IP to function.

**Correct Answer:** ACE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The given IP addresses of areas 1 and 3 along with network masks of 24 cannot accommodate 500 users so are inadequate, while the area 2 is having over capacity so its network mask can be reduced to 25 to accommodate the only 60 users it has.

**QUESTION 61**

Given an IP address of 192.168.1.42 255.255.255.248, what is the subnet address?

- A. 192.168.1.8/29
- B. 192.168.1.32/27
- C. 192.168.1.40/29
- D. 192.168.1.16/28
- E. 192.168.1.48/29

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**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

248 mask uses 5 bits (1111 1000)

42 IP in binary is (0010 1010)

The base subnet therefore is the lowest binary value that can be written without changing the output of an AND operation of the subnet mask and IP ...

1111 1000 AND

0010 1010 equals

0010 1000 - which is .40

/24 is standard class C mask.

adding the 5 bits from the .248 mask gives /29

**QUESTION 62**

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

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

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 63**

Which layer of the TCP/IP stack combines the OSI model physical and data link layers?

- A. Internet layer
- B. transport layer
- C. application layer
- D. network access layer

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The Internet Protocol Suite, TCP/IP, is a suite of protocols used for communication over the internet. The TCP/IP model was created after the OSI 7 layer model for two major reasons. First, the foundation of the Internet was built using the TCP/IP suite and through the spread of the World Wide Web and Internet, TCP/IP has been preferred. Second, a project researched by the Department of Defense (DOD) consisted of creating the TCP/IP protocols. The DOD's goal was to bring international standards which could not be met by the OSI model. Since the DOD was the largest software consumer and they preferred the TCP/IP suite, most vendors used this model rather than the OSI. Below is a side by side comparison of the TCP/IP and OSI models.

TCP/IP Model

VS.

OSI Model Application Layer 7

Application

Layer 6

Presentation

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Layer 5

Session Transport Layer 4

Transport Internet Layer 3

Network Network Access Layer 2

Data Link

Layer 1

Physical

**QUESTION 64**

Which protocol uses a connection-oriented service to deliver files between end systems?

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

**Correct Answer:** C

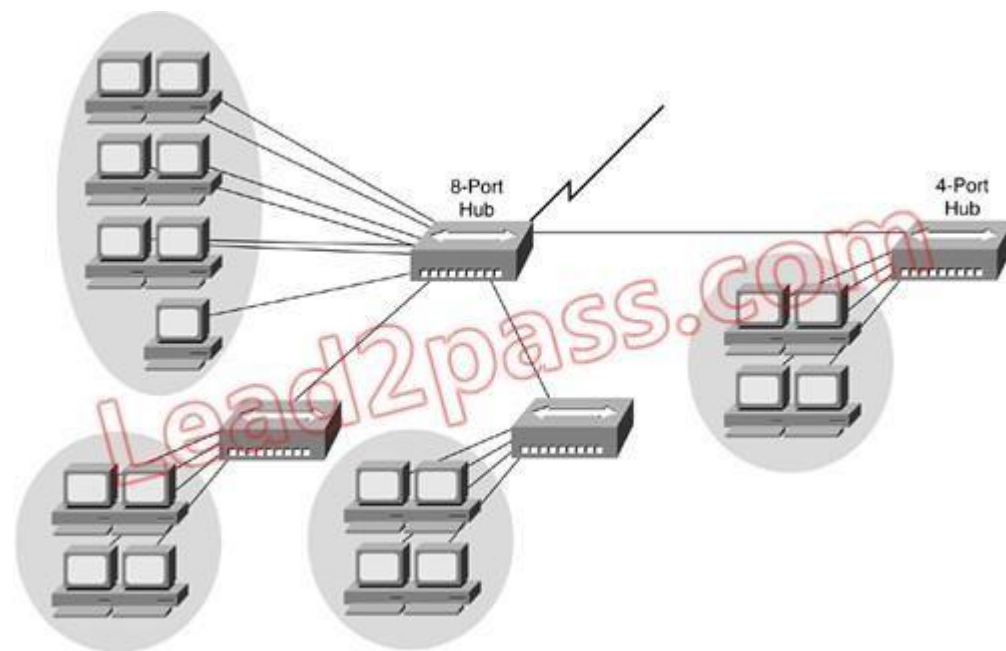
**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 65**

Refer to the exhibit. If the hubs in the graphic were replaced by switches, what would be virtually eliminated?



- A. broadcast domains
- B. repeater domains
- C. Ethernet collisions
- D. signal amplification
- E. Ethernet broadcasts

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

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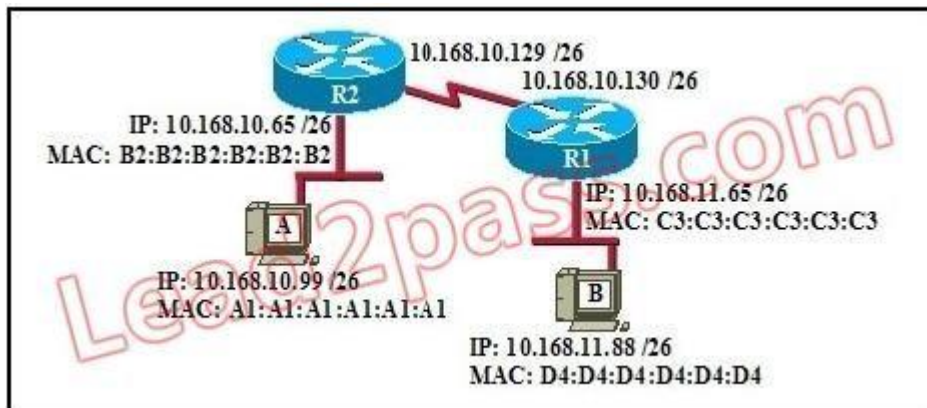
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Explanation:

Modern wired networks use a network switch to eliminate collisions. By connecting each device directly to a port on the switch, either each port on a switch becomes its own collision domain (in the case of half duplex links) or the possibility of collisions is eliminated entirely in the case of full duplex links.

#### QUESTION 66

Refer to the exhibit. If host A sends an IP packet to host B, what will the source physical address be in the frame when it reaches host B?



- A. 10.168.10.99
- B. 10.168.11.88
- C. A1:A1:A1:A1:A1:A1

- D. B2:B2:B2:B2:B2:B2
- E. C3:C3:C3:C3:C3:C3
- F. D4:D4:D4:D4:D4:D4

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

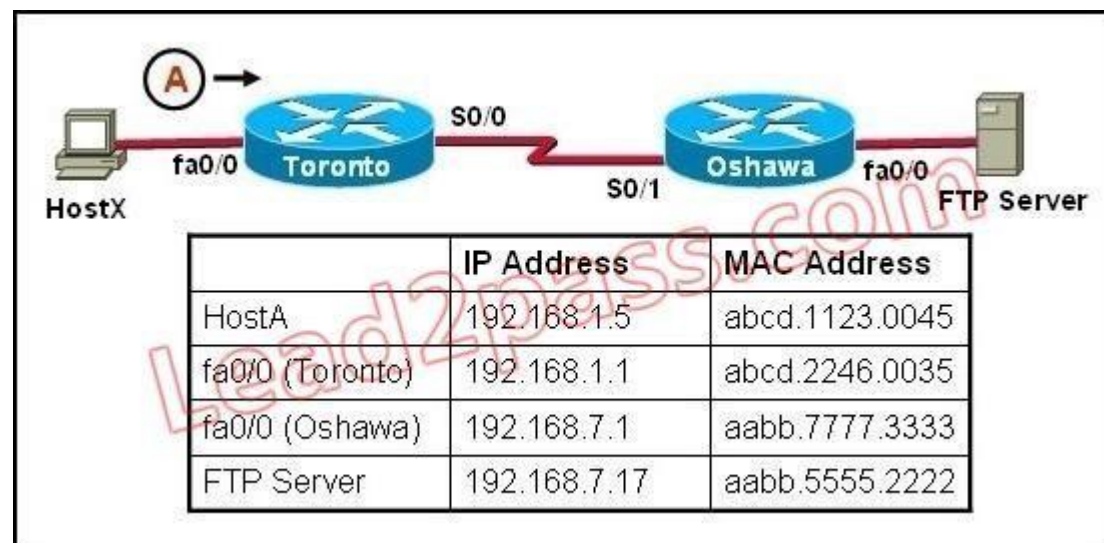
When packets transfer from one host to another across a routed segment, the source IP address always remains the same source IP address, and the source physical (MAC) address will be the existing router's interface address. Similarly, the destination IP address always remains the same and the destination physical (MAC) address is the destination router's interface address.

**QUESTION 67**

Refer to the exhibit. HostX is transferring a file to the FTP server. Point A represents the frame as it goes toward the Toronto router. What will the Layer 2 destination address be at this point?

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A. abcd.1123.0045

B. 192.168.7.17

- C. aabb.5555.2222
- D. 192.168.1.1
- E. abcd.2246.0035

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

For packets destined to a host on another IP network, the destination MAC address will be the LAN interface of the router. Since the FTP server lies on a different network, the host will know to send the frame to its default gateway, which is Toronto.

**QUESTION 68**

Which network device functions only at Layer 1 of the OSI model?



A.



B.



- C. "First Test, First Pass" - [www.lead2pass.com](http://www.lead2pass.com) 42  
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D.



E.

**Correct Answer: C**

**Section: (none)**

**Explanation**

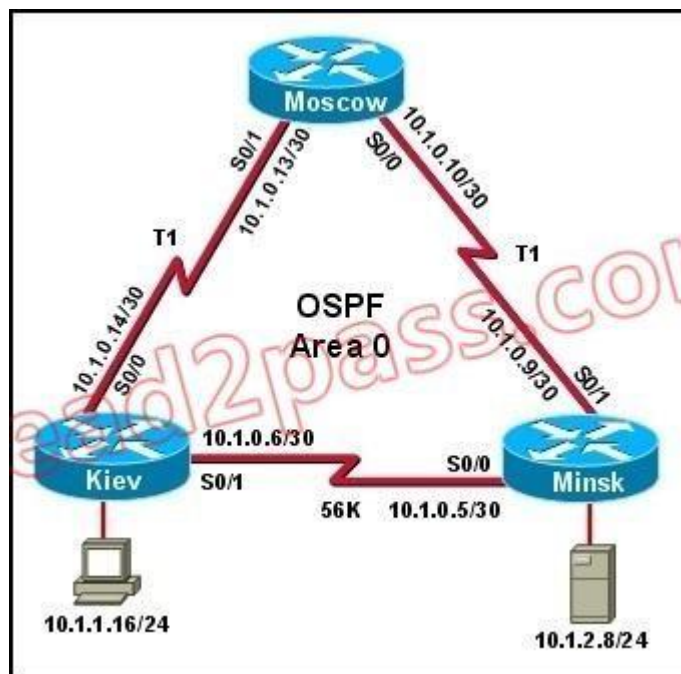
**Explanation/Reference:**

Explanation:

Most hubs are amplifying the electrical signal; therefore, they are really repeaters with several ports. Hubs and repeaters are Layer 1 (physical layer) devices.

#### QUESTION 69

Refer to the exhibit. The host in Kiev sends a request for an HTML document to the server in Minsk. What will be the source IP address of the packet as it leaves the Kiev router?



- A. 10.1.0.1
- B. 10.1.0.5
- C. 10.1.0.6
- D. 10.1.0.14
- E. 10.1.1.16
- F. 10.1.2.8

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

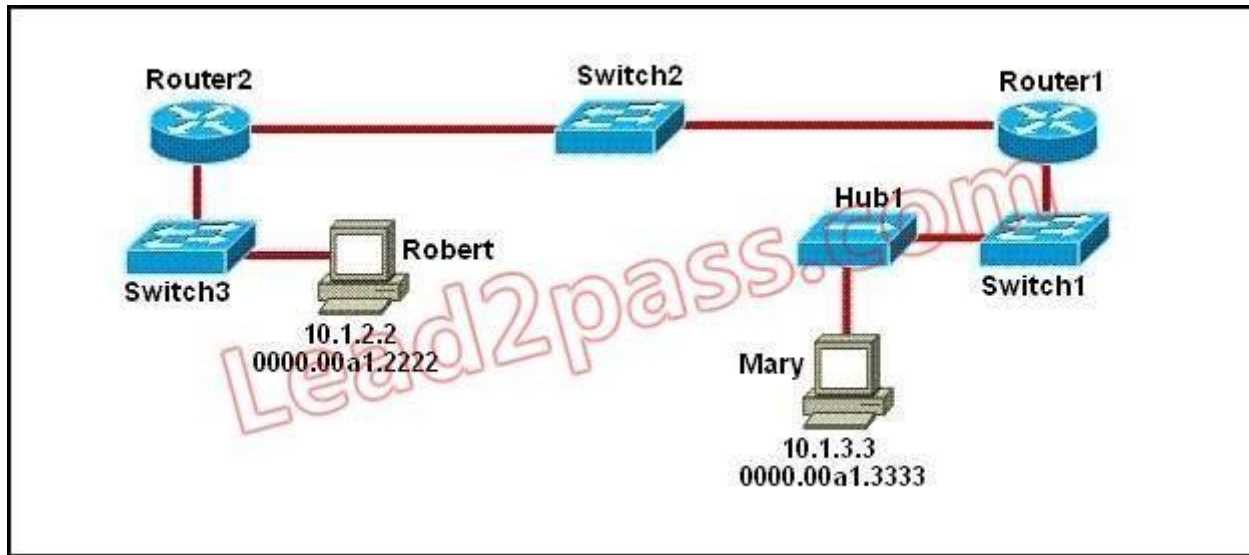
Although the source and destination MAC address will change as a packet traverses a network, the source and destination IP address will not unless network address translation (NAT) is being done, which is not the case here.

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#### **QUESTION 70**

Refer to the exhibit. As packets travel from Mary to Robert, which three devices will use the destination MAC address of the packet to determine a forwarding path? (Choose three.)



- A. Hub1
- B. Switch1
- C. Router1
- D. Switch2
- E. Router2
- F. Switch3

**Correct Answer:** BDF

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Switches use the destination MAC address information for forwarding traffic, while routers use the destination IP address information. Local Area Networks employ Layer 2 Switches and Bridges to forward and filter network traffic. Switches and Bridges operate at the Data Link Layer of the Open System Interconnect Model (OSI). Since Switches and Bridges operate at the Layer 2 they operate more intelligently than hubs, which work at Layer 1 (Physical Layer) of the OSI. Because the switches and bridges are able to listen to the traffic on the wire to examine the source and destination MAC address. Being able to listen to the traffic also allows the switches and bridges to compile a MAC address table to better filter and forward network traffic. To accomplish the above functions switches and bridges carry out the following tasks:

MAC address learning by a switch or a bridge is accomplished by the same method. The switch or bridge listens to each device connected to each of its ports and scan the incoming frame for the source MAC address. This creates a MAC address to port map that is cataloged in the switches/bridge MAC database. Another name for the MAC address table is content addressable memory or CAM table. When a switch or bridge is listening o the network

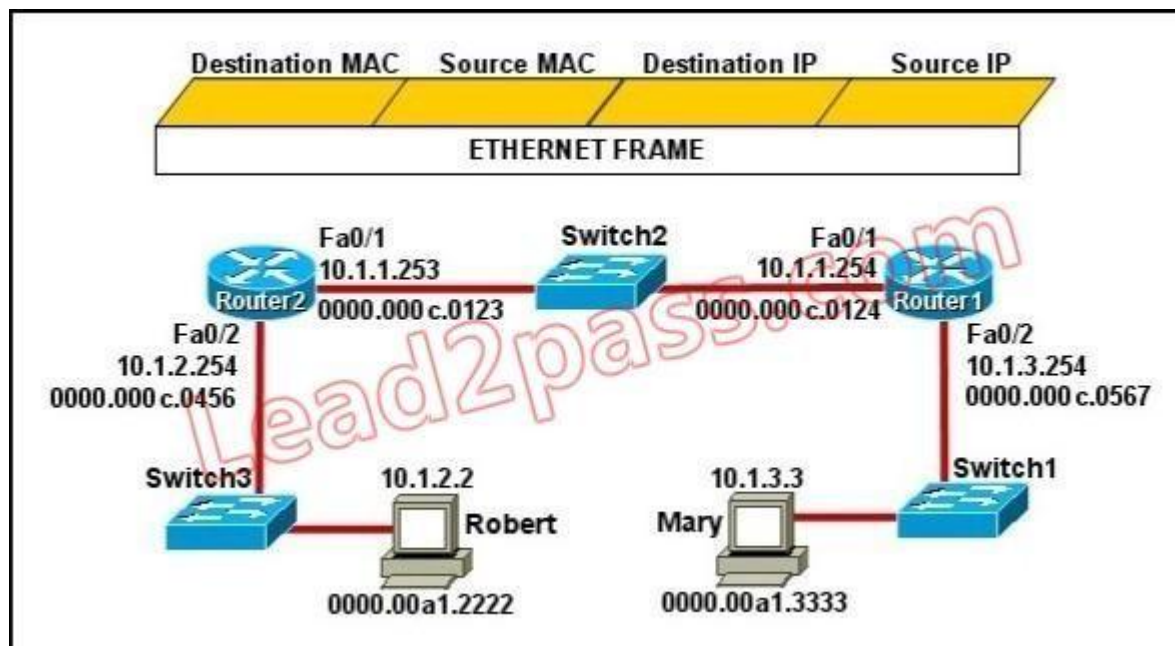
traffic, it receives each frame and compares it to the MAC address table. By checking the MAC table the switch/ bridge are able to determine which port the frame came in on. If the frame is on the MAC table the frame is filtered or transmitted on only that port. If the switch determines that the frame is not on the MAC table, the frame is forwarded out to all ports except the incoming port.

#### QUESTION 71

Refer to the exhibit. Mary is sending an instant message to Robert. The message will be broken

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into a series of packets that will traverse all network devices. What addresses will populate these packets as they are forwarded from Router1 to Router2?



Destination MAC	Source MAC	Destination IP	Source IP
0000.00a1.2222	0000.00a1.3333	10.1.2.2	10.1.3.3

- A.
- | Destination MAC | Source MAC     | Destination IP | Source IP |
|-----------------|----------------|----------------|-----------|
| 0000.000c.0123  | 0000.000c.0124 | 10.1.2.2       | 10.1.3.3  |
- B.
- | Destination MAC | Source MAC     | Destination IP | Source IP  |
|-----------------|----------------|----------------|------------|
| 0000.000c.0123  | 0000.000c.0124 | 10.1.1.253     | 10.1.1.254 |
- C.
- D.
- | Destination MAC | Source MAC     | Destination IP | Source IP  |
|-----------------|----------------|----------------|------------|
| 0000.00a1.2222  | 0000.00a1.3333 | 10.1.1.253     | 10.1.1.254 |
- | Destination MAC | Source MAC     | Destination IP | Source IP |
|-----------------|----------------|----------------|-----------|
| 0000.000c.0456  | 0000.000c.0567 | 10.1.2.2       | 10.1.3.3  |

E.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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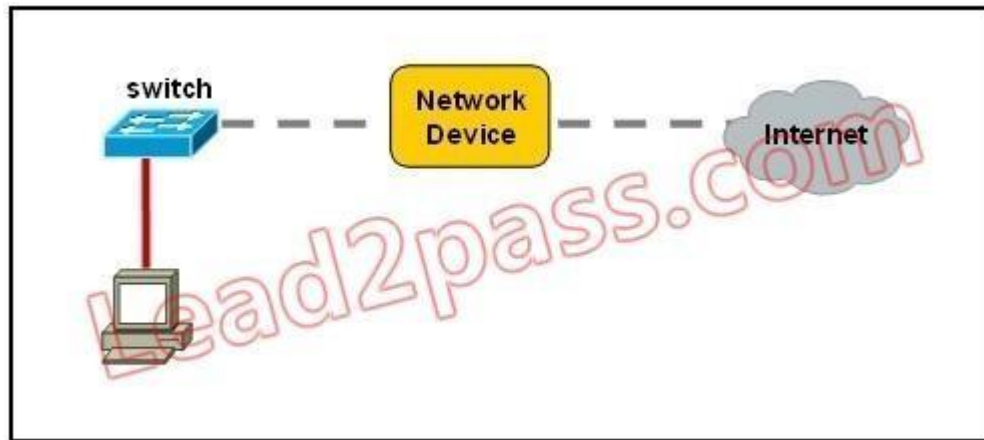
**Explanation:**

The Source and Destination IP address is not going to change. Host 1 IP address will stay as being the source IP and the Host 2 IP address will stay the destination IP address. Those two are not going to change. For the MAC address it is going to change each time it goes from one hope to another. (Except switches... they don't change anything) Frame leaving HOST 1 is going to have a source MAC of Host 1 and a destination MAC of Router1. Router 1 is going to strip that info off and then will make the source MAC address of Router1's exiting interface, and making Router2's interface as the destination MAC address. Then the same will happen... Router2 is going to change the source/destination info to the source MAC being the Router2

interface that it is going out, and the destination will be Host2's MAC address.

#### QUESTION 72

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

**Correct Answer: C**

**Section: (none)**

**Explanation**

#### **Explanation/Reference:**

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.

#### QUESTION 73

Which transport layer protocol provides best-effort delivery service with no acknowledgment receipt required?

- A. HTTP

- B. IP
- C. TCP  
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- D. Telnet
- E. UDP

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

UDP provides a connectionless datagram service that offers best-effort delivery, which means that UDP does not guarantee delivery or verify sequencing for any datagrams. A source host that needs reliable communication must use either TCP or a program that provides its own sequencing and acknowledgment services.

#### **QUESTION 74**

Which layer of the OSI model controls the reliability of communications between network devices using flow control, sequencing and acknowledgments?

- A. Physical
- B. Data-link
- C. Transport
- D. Network

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

There are many services that can be optionally provided by a transport-layer protocol, and different protocols may or may not implement them. Connection-oriented communication: It is normally easier for an application to interpret a connection as a data stream rather than having to deal with the underlying connection-less models, such as the datagram model of the User Datagram Protocol (UDP) and of the Internet Protocol (IP). Byte orientation: Rather than processing the messages in the underlying communication system format, it is often easier for an application to process the data stream as a sequence of bytes. This simplification helps applications work with various underlying message formats. Same order delivery: The network layer doesn't generally guarantee that packets of data will arrive in the same order that they were sent, but often this is a desirable feature. This is usually done through the use of segment numbering, with the receiver passing them to the application in order. This can cause head-of-line blocking. Reliability: Packets may be lost during transport due to network congestion and errors. By means of an error detection code, such as a checksum, the transport protocol may check that the data is not corrupted, and verify correct receipt by sending an ACK or NACK message to the sender. Automatic repeat request schemes may be used to retransmit lost or corrupted data.



Flow control: The rate of data transmission between two nodes must sometimes be managed to prevent a fast sender from transmitting more data than can be supported by the receiving data buffer, causing a buffer overrun. This can also be used to improve efficiency by reducing buffer underrun. Congestion avoidance: Congestion control can control traffic entry into a telecommunications network, so as to avoid congestive collapse by attempting to avoid oversubscription of any of the processing or link capabilities of the intermediate nodes and networks and taking resource reducing steps, such as reducing the rate of sending packets. For example, automatic repeat requests may keep the network in a congested state; this situation can be avoided by adding congestion avoidance to the flow control, including slow-start. This keeps the bandwidth consumption at a low level in the beginning of the transmission, or after packet retransmission. Multiplexing: Ports can provide multiple endpoints on a single node. For example, the name on a postal address is a kind of multiplexing, and distinguishes between different recipients of the same location. Computer applications will each listen for information on their own ports, which enables the use of more than one network service at the same time. It is part of the transport layer in the TCP/IP model, but of the session layer in the OSI model.

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### QUESTION 75

Drag and Drop Question

Drag the appropriate command on the left to the configuration task it accomplishes. (Not all options are used.)	
login password cantCome1n	encrypt all clear text passwords
enable password uwi11NeverNo	protect access to the user mode prompt
service password-encryption	set privileged mode encrypted password
line console 0 password friendS0nly	set password to allow Telnet connections
enable secret noWay1n4u	set privileged mode clear text password
line vty 0 4 password 2hard2Guess	



- A.
- B.
- C.
- D.

**Correct Answer:**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

```
service password-encryption
```

```
line console 0
password friend$0nly
```

```
enable secret noWay1n4u
```

```
line vty 0 4
password 2hard2Guess
```

```
enable password uwi11NeverNo
```

#### **QUESTION 76**

Drag and Drop Question

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Various protocols are listed on the left. On the right are applications for the use of those protocols. Drag the protocol on the left to an associated function for that protocol on the right. (Not all options are used.)

ICMP

A PC sends packets to the default gateway IP address the first time since the PC turned on.

DHCP

The network administrator is checking basic IP connectivity from a workstation to a server.

RARP

The TCP/IP protocol stack must find an IP address for packets destined for a URL.

UDP

A network device will automatically assign IP addresses to workstations.

DNS

ARP

- A.
- B.
- C.
- D.

**Correct Answer:**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

ARP

ICMP

DNS

DHCP

**QUESTION 77**

Drag and Drop Question

Move the protocol or service on the left to a situation on the right where it would be used. (Not all options are used.)

OSPF

ARP

NAT

DNS

SQL

DHCP

A PC with address 10.1.5.10 must access devices on the Internet.

Only routers and servers require static IP addresses. Easy IP administration is required.

A PC only knows a server as //Media Server . IP needs to send data to that server.

A protocol is needed to replace current static routes with automatic route updates.

- A.
- B.
- C.
- D.

**Correct Answer:**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

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NAT

DHCP

DNS

OSPF

**QUESTION 78**

Drag and Drop Question

Drag the definition on the left to the correct term on the right. Not all definitions on the left will be used.

a protocol that converts human-readable names into machine-readable addresses

used to assign IP addresses automatically and set parameters such as subnet mask and default gateway

a protocol for using HTTP or HTTPS to exchange XML-based messages over computer networks

a connectionless service that uses UDP to transfer files between systems

a protocol used to monitor and manage network devices

a reliable, connection-oriented service that uses TCP to transfer files between systems

SNMP

FTP

TFTP

DNS

DHCP

- A.
- B.
- C.
- D.

**Correct Answer:**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

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a protocol used to monitor and manage network devices

a reliable, connection-oriented service that uses TCP to transfer files between systems

a connectionless service that uses UDP to transfer files between systems

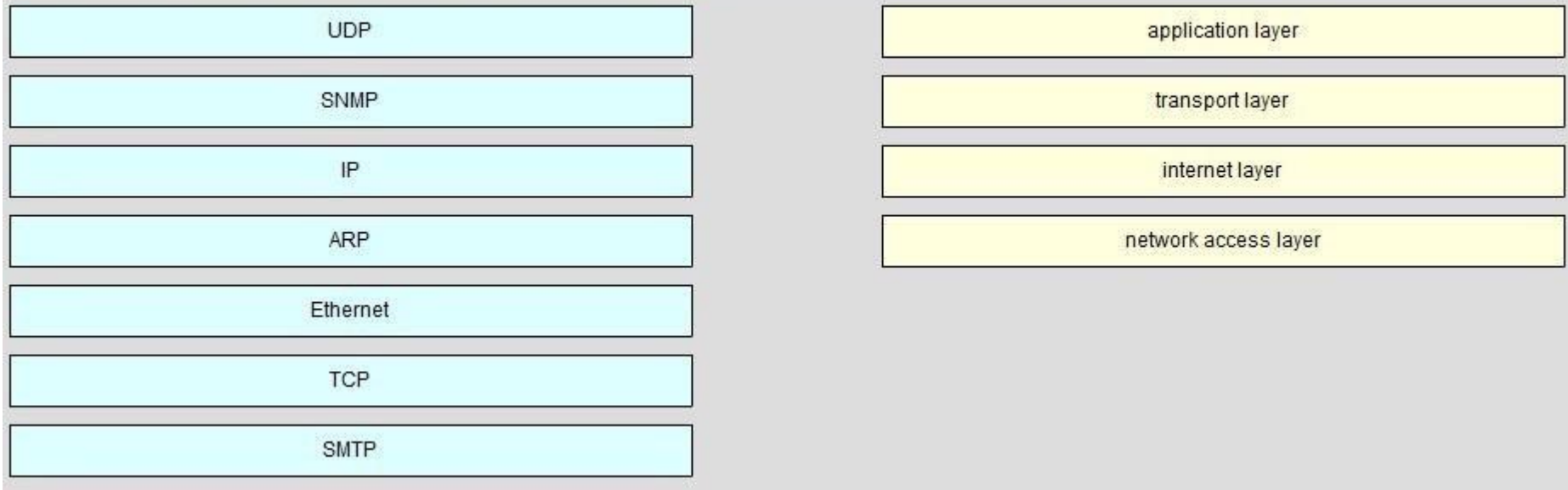
a protocol that converts human-readable names into machine-readable addresses

used to assign IP addresses automatically and set parameters such as subnet mask and default gateway

#### QUESTION 79

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.)



- A.
- B.
- C.
- D.

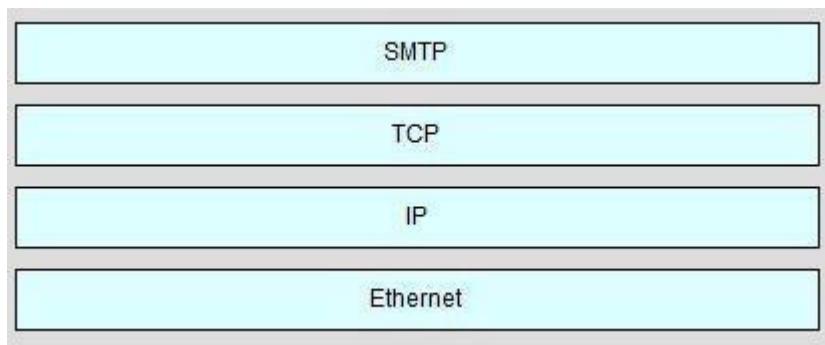
**Correct Answer:**

**Section: (none)**

**Explanation**

**Explanation/Reference:**







### QUESTION 80

#### Hotspot Questions

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**Instructions**

For both the Router and the Switch the simulated console mode needs to start and remain in enabled mode.

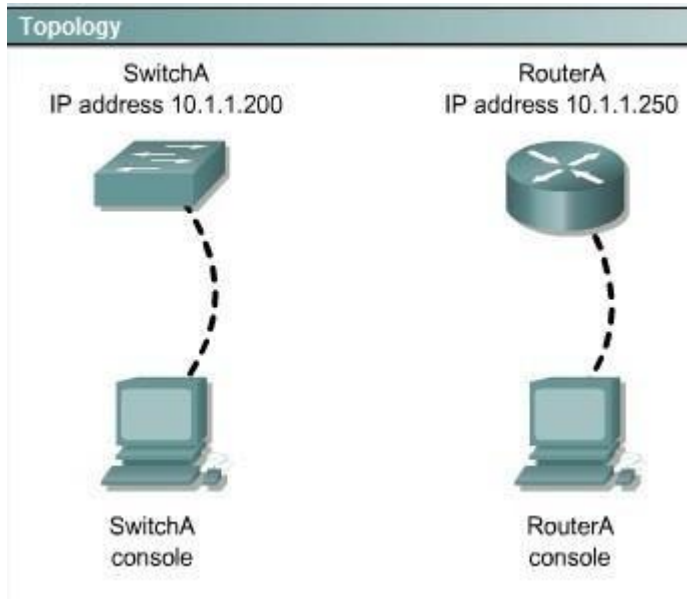
RouterA and SwitchA have been configured to operate in a private network which will connect to the Internet. You have been asked to review the configuration prior to cabling and implementation.

This task requires the use of various IOS commands to access and inspect the running configuration of RouterA and SwitchA. No configuration changes are necessary.

You will connect to RouterA and SwitchA via the console devices that are attached to each.

There are 4 multiple-choice questions with this task. Be sure to answer all of them before leaving this item. In order to score the maximum points you will need to have accessed both SwitchA and RouterA.

NOTE: The configuration command has been disabled for both the router and switch in this simulation.



Select two options which are security Issues which need to be modified before RouterA is used? (Choose two.)

- A. unencrypted weak password is configured to protect privilege mode
- B. inappropriate wording in banner message
- C. the virtual terminal lines have a weak password configured
- D. virtual terminal lines have a password, but it will not be used
- E. configuration supports un-secure web server access

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

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(This answer can be done by simulation only, don't know user name password and banner message etc)

## QUESTION 81

### Hotspot Questions

#### Instructions



For both the Router and the Switch the simulated console mode needs to start and remain in enabled mode.

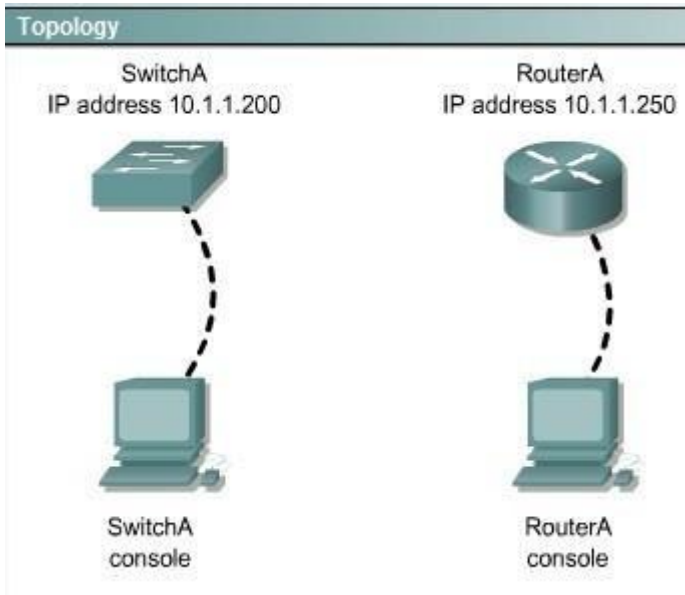
RouterA and SwitchA have been configured to operate in a private network which will connect to the Internet. You have been asked to review the configuration prior to cabling and implementation.

This task requires the use of various IOS commands to access and inspect the running configuration of RouterA and SwitchA. No configuration changes are necessary.

You will connect to RouterA and SwitchA via the console devices that are attached to each.

There are 4 multiple-choice questions with this task. Be sure to answer all of them before leaving this item. In order to score the maximum points you will need to have accessed both SwitchA and RouterA.

NOTE: The configuration command has been disabled for both the router and switch in this simulation.



Select three options which are security issues with the current configuration of SwitchA . (Choose three.)

- A. privilege mode is protected with an unencrypted password  
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- B. inappropriate wording in banner message
- C. virtual terminal lines are protected only by a password requirement
- D. both the username and password are weak
- E. telnet connections can be used to remotely manage the switch
- F. cisco user will be granted privilege level 15 by default

**Correct Answer:** ABD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

(This answer can be done by simulation only, don't know user name password and banner message etc)

## QUESTION 82

Hotspot Questions

#### Instructions



For both the Router and the Switch the simulated console mode needs to start and remain in enabled mode.

RouterA and SwitchA have been configured to operate in a private network which will connect to the Internet. You have been asked to review the configuration prior to cabling and implementation.

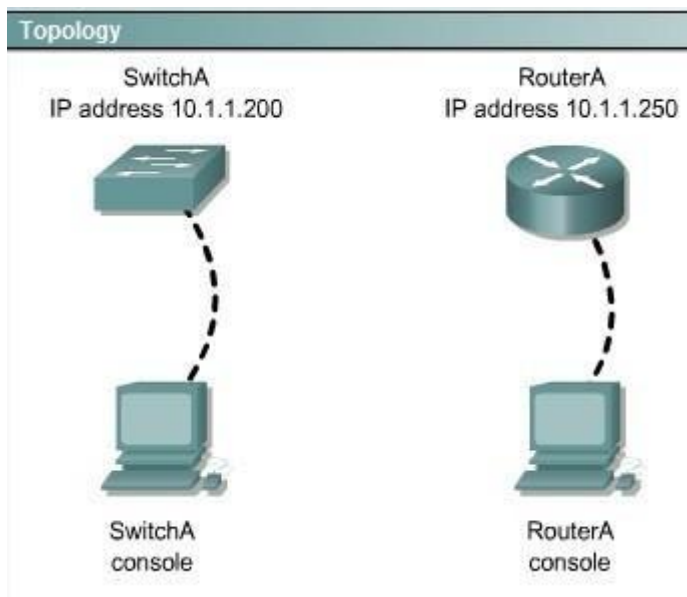
This task requires the use of various IOS commands to access and inspect the running configuration of RouterA and SwitchA. No configuration changes are necessary.

You will connect to RouterA and SwitchA via the console devices that are attached to each.

There are 4 multiple-choice questions with this task. Be sure to answer all of them before leaving this item. In order to score the maximum points you will need to have accessed both SwitchA and RouterA.

NOTE: The configuration command has been disabled for both the router and switch in this simulation.

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Which two of the following are true regarding the configuration of RouterA? (Choose two.)

- A. at least 5 simultaneous remote connections are possible
- B. only telnet protocol connections to RouterA are supported
- C. remote connections to RouterA using telnet will succeed
- D. console line connections will nevertime out due to inactivity
- E. since DHCP is not used on FaO/1 there is not a need to use the NAT protocol

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The IP address can accommodate 5 hosts at least, telnet can be accessed on the router

### QUESTION 83

Hotspot Questions

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#### Instructions



For both the Router and the Switch the simulated console mode needs to start and remain in enabled mode.

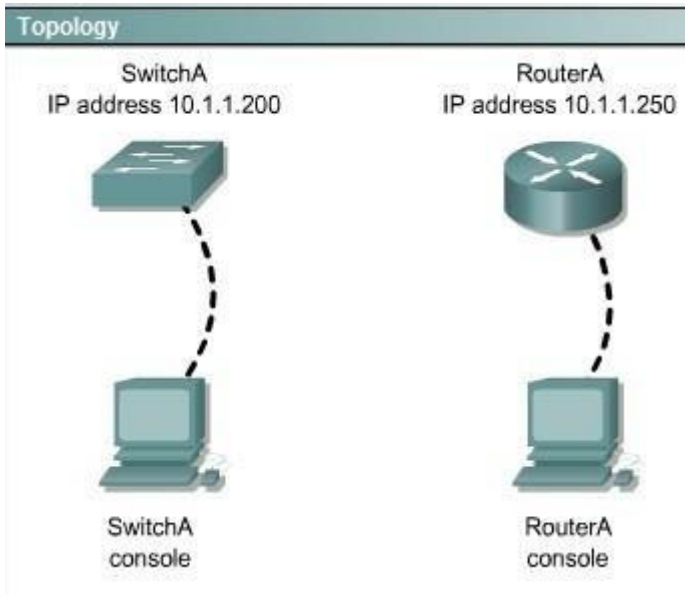
RouterA and SwitchA have been configured to operate in a private network which will connect to the Internet. You have been asked to review the configuration prior to cabling and implementation.

This task requires the use of various IOS commands to access and inspect the running configuration of RouterA and SwitchA. No configuration changes are necessary.

You will connect to RouterA and SwitchA via the console devices that are attached to each.

There are 4 multiple-choice questions with this task. Be sure to answer all of them before leaving this item. In order to score the maximum points you will need to have accessed both SwitchA and RouterA.

NOTE: The configuration command has been disabled for both the router and switch in this simulation.



Which of the following is true regarding the configuration of SwitchA?

- A. only 5 simultaneous remote connections are possible
- B. remote connections using ssh will require a username and password
- C. only connections from the local network will be possible
- D. console access to SwitchA requires a password

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Ssh login requires a user name and password always while other conditions may or may not be true.

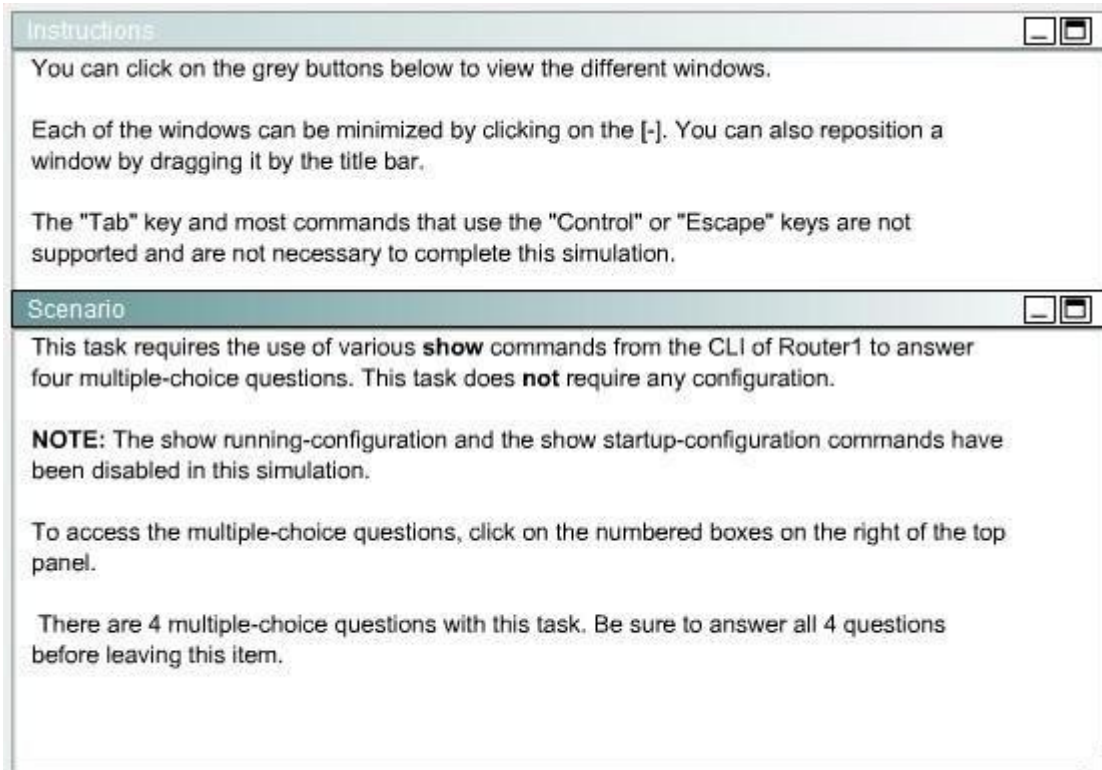
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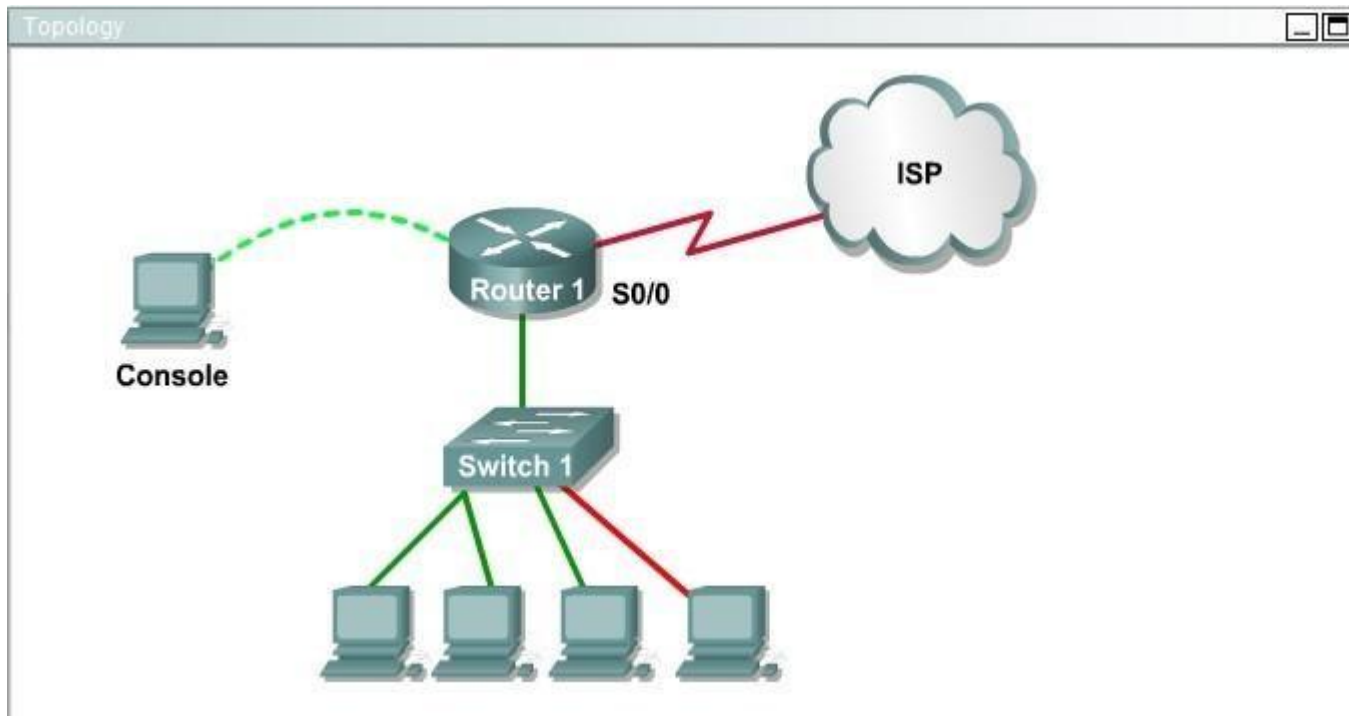
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#### **QUESTION 84**

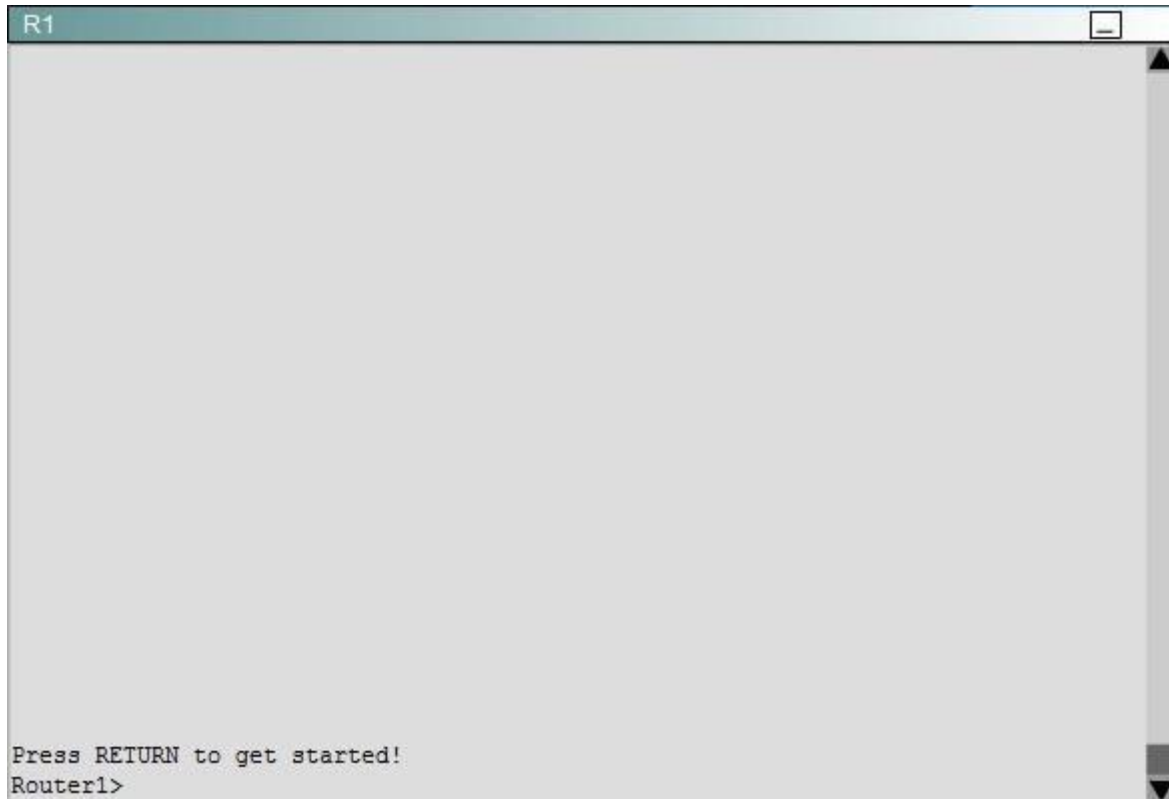
Lab Questions







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#### Question 1

What is the subnet broadcast address of the LAN connected to Router1?

- ☐ 192.168.8.15
- ☐ 192.168.8.31
- ☐ 192.168.8.63
- ☐ 192.168.8.127

A.  
B.

- C.
- D.

**Correct Answer:**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

The IP address assigned to FA0/1 is 192.168.8.9/29, making 192.168.8.15 the broadcast address.

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#### Question 2

What is the bandwidth on the WAN interface of Router1

- ☐ 16 Kbit/sec
- ☐ 32 Kbit/sec
- ☐ 64 Kbit/sec
- ☐ 128 Kbit/sec
- ☐ 512 Kbit/sec
- ☐ 1544 Kbit/sec

Answer: 16 Kbit/sec

Explanation:

Use the "show interface s0/0" to see the bandwidth set at 16 Kbit/sec.

### Question 3

Including the address on the Router1 Ethernet interface, how many hosts can have IP addresses on the LAN to which Router1 is connected?

- ☐ 6
- ☐ 30
- ☐ 62
- ☐ 126

Answer: 6

Explanation:

This is a /29 address, so there are 6 usable IP's on this subnet.

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### Question 4

The hosts in the LAN are not able to connect to the Internet. Which commands will correct this issue?

- ☐ Router1(conf)# interface fa0/0  
Router1(conf-if)# no shutdown
- ☐ Router1(conf)# interface fa0/1  
Router1(conf-if)# no shutdown
- ☐ Router1(conf)# interface s0/0  
Router1(conf-if)# no shutdown
- ☐ Router1(conf)# interface s0/1  
Router1(conf-if)# no shutdown
- ☐ Router1(conf)# interface s0/0  
Router1(conf-if)# ip address 10.11.12.13 255.255.255.252
- ☐ Router1(conf)# interface s0/1  
Router1(conf-if)# ip address 10.100.1.1255.255.255.252

Answer: Router1(conf)# interface fa0/1

Router1(conf0if)# no shutdown

Explanation:

Do a "show ip int brief" and you will see that Fa0/1 has an IP address assigned, but it is shut down.

#### QUESTION 85

Refer to the output of the corporate router routing table shown in the graphic. The corporate router receives an IP packet with a source IP address of 192.168.214.20 and a destination address of 192.168.22.3. What will the router do with this packet?

```
Corp#show ip route
...
Gateway of last resort is not set

C 192.168.13.0/24 is directly connected, Serial0/1
C 192.168.14.0/24 is directly connected, FastEthernet0/0
C 192.168.15.0/24 is directly connected, Serial0/0.102
C 192.168.20.0/24 is directly connected, Serial0/0.117
R 192.168.16.0/24 [120/1] via 192.168.15.2, 00:00:05, Serial0/0.102
R 192.168.17.0/24 [120/1] via 192.168.15.2, 00:00:05, Serial0/0.102
R 192.168.30.0/24 [120/2] via 192.168.20.2, 00:00:25, Serial0/0.117
R 192.168.19.0/24 [120/1] via 192.168.20.2, 00:00:25, Serial0/0.117
R 192.168.21.0/24 [120/3] via 192.168.20.2, 00:00:25, Serial0/0.117
R 192.168.214.0/24 [120/1] via 192.168.14.2, 00:00:22, FastEthernet0/0
```

- A. It will encapsulate the packet as Frame Relay and forward it out interface Serial 0/0.117.
- B. It will discard the packet and send an ICMP Destination Unreachable message out interface "First Test, First Pass" - www.lead2pass.com 60 Cisco 100-101 Exam FastEthernet 0/0.
- C. It will forward the packet out interface Serial 0/1 and send an ICMP Echo Reply message out interface serial 0/0.102.
- D. It will change the IP packet to an ARP frame and forward it out FastEthernet 0/0.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 86**

An administrator must assign static IP addresses to the servers in a network. For network 192.168.20.24/29, the router is assigned the first usable host address while the sales server is given the last usable host address. Which of the following should be entered into the IP properties box for the sales server?

- A. IP address: 192.168.20.14  
Subnet Mask: 255.255.255.248  
Default Gateway: 192.168.20.9
- B. IP address: 192.168.20.254  
Subnet Mask: 255.255.255.0  
Default Gateway: 192.168.20.1
- C. IP address: 192.168.20.30  
Subnet Mask: 255.255.255.248  
Default Gateway: 192.168.20.25
- D. IP address: 192.168.20.30  
Subnet Mask: 255.255.255.240  
Default Gateway: 192.168.20.17
- E. IP address: 192.168.20.30  
Subnet Mask: 255.255.255.240  
Default Gateway: 192.168.20.25

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 87**

What is the default administrative distance of the OSPF routing protocol?

- A. 90
- B. 100
- C. 110
- D. 120
- E. 130
- F. 170

**Correct Answer: C**

**Section: (none)**

**Explanation****Explanation/Reference:****QUESTION 88**

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

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- E. 172.19.20.32

**Correct Answer: C**

**Section: (none)**

**Explanation****Explanation/Reference:****QUESTION 89**

The network administrator has found the following problem. The remote networks 172.16.10.0, 172.16.20.0, and 172.16.30.0 are accessed through the Central router's serial 0/0 interface. No users are able to access 172.16.20.0. After reviewing the command output shown in the graphic, what is the most likely cause of the problem?



Central# debug ip rip

<some output text omitted>

Central#debug ip rip

1d00h: RIP: received v1 update from 172.16.100.2 on Serial0/0

1d00h: 172.16.10.0 in 1 hops

1d00h: 172.16.20.0 in 1 hops

1d00h: 172.16.30.0 in 1 hops

Central# show ip route

Gateway of last resort is not set

172.16.0.0/24 is subnetted, 8 subnets

C 172.16.150.0 is directly connected, FastEthernet0/0

C 172.16.220.0 is directly connected, Loopback2

C 172.16.210.0 is directly connected, Loopback1

C 172.16.200.0 is directly connected, Loopback0

R 172.16.30.0 [120/1] via 172.16.100.2, 00:00:07, Serial0/0

S 172.16.20.0 [1/0] via 172.16.150.15

R 172.16.10.0 [120/1] via 172.16.100.2, 00:00:07, Serial0/0

C 172.16.100.0 is directly connected, Serial0/0

- A. no gateway of last resort on Central
- B. Central router's not receiving 172.16.20.0 update
- C. incorrect static route for 172.16.20.0
- D. 172.16.20.0 not located in Central's routing table

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

#### QUESTION 90

Refer to the exhibit. The output is from a router in a large enterprise. From the output, determine the role of the router.

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```
RouterA# show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

 172.16.0.0/24 is subnetted, 1 subnets
C    172.16.1.0 is directly connected, Ethernet0/1
 10.0.0.0/30 is subnetted, 1 subnets
C    10.255.255.200 is directly connected, serial0/0
S*   0.0.0.0/0 is directly connected, serial0/0
RouterA#
```

- A. A Core router.
- B. The HQ Internet gateway router.
- C. The WAN router at the central site.
- D. Remote stub router at a remote site.

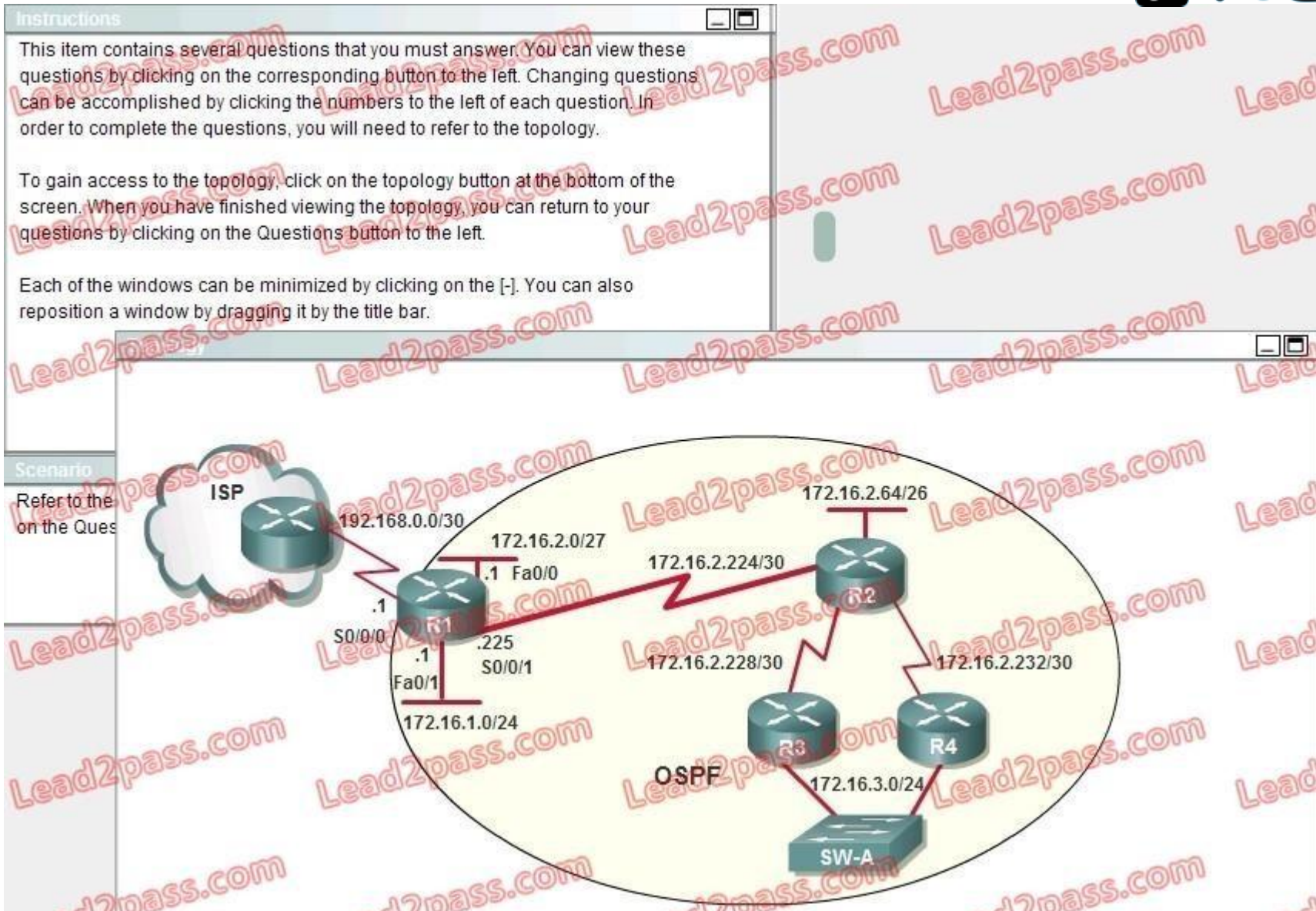
**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 91**



To allow or prevent load balancing to network 172.16.3.0/24, which of the following commands could be used in R2? (Choose two.)

- A. R2(config-if)#clock rate
- B. R2(config-if)#bandwidth
- C. R2(config-if)#ip ospf cost
- D. R2(config-if)#ip ospf priority
- E. R2(config-router)#distance ospf

**Correct Answer:** BC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

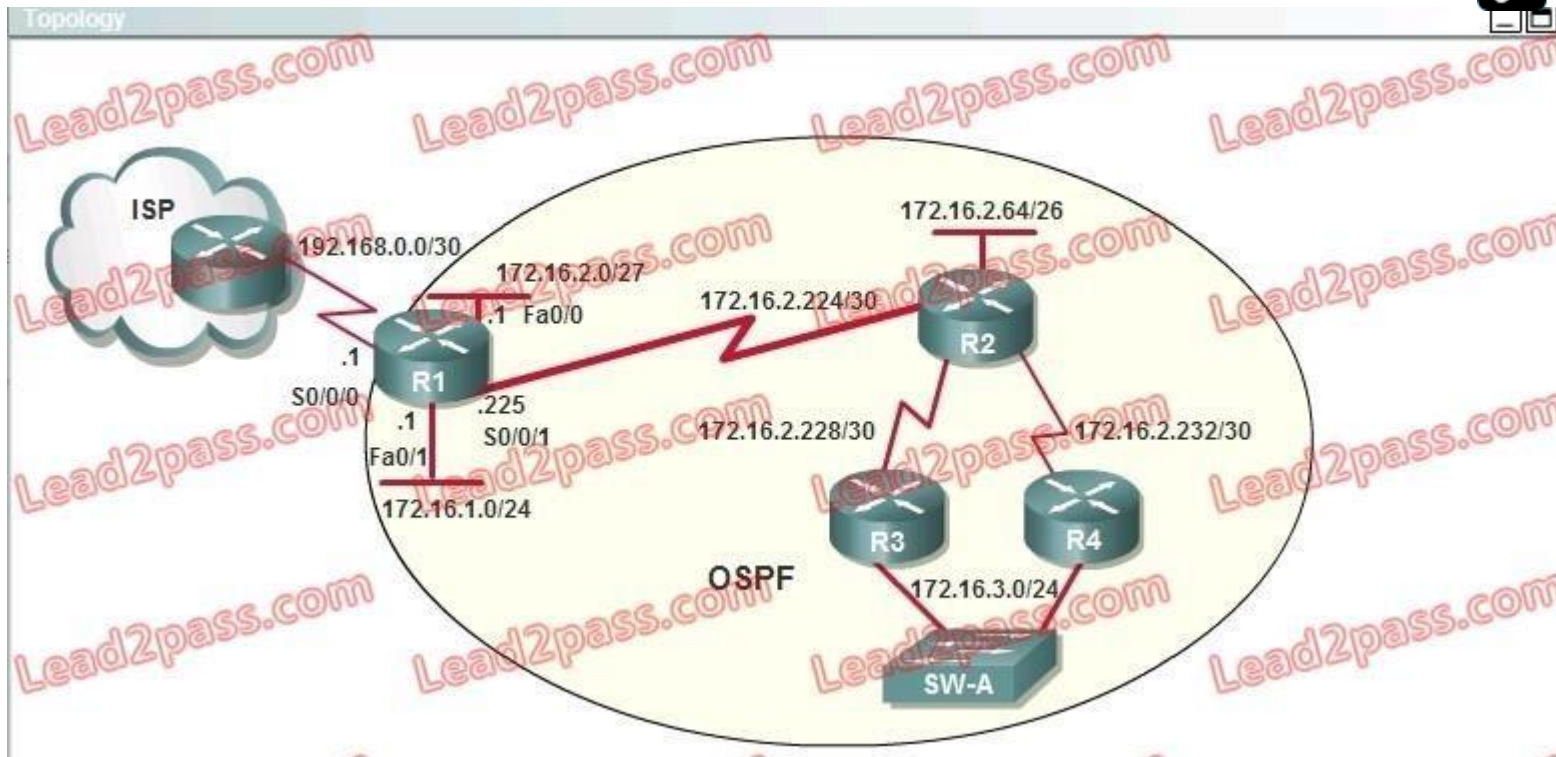
#### **QUESTION 92**

After the network has converged, what type of messaging, if any, occurs between R3 and R4?

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- A. No messages are exchanged
- B. Hellos are sent every 10 seconds.
- C. The full database from each router is sent every 30 seconds.
- D. The routing table from each router is sent every 60 seconds.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

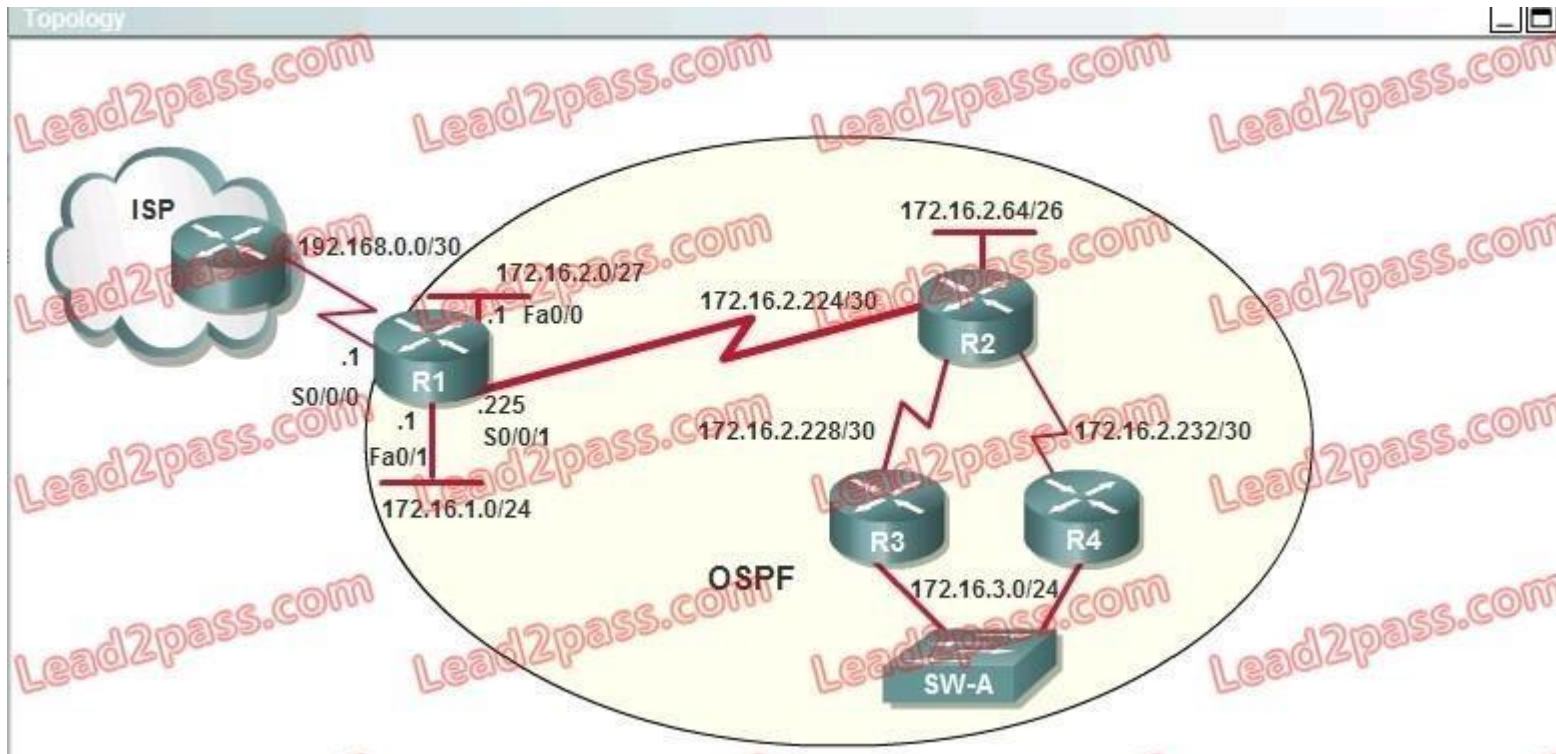
Explanation:

HELLO messages are used to maintain adjacent neighbors so even when the network is converged, hellos are still exchanged. On broadcast and point-to-point links, the default is 10 seconds, on NBMA the default is 30 seconds.

Although OSPF is a link-state protocol but the full database from each router is sent every 30 minutes (not seconds) -> C and D are not correct.

**QUESTION 93**

OSPF is configured using default classful addressing. With all routers and interfaces operational, how many networks will be in the routing table of R1 that are indicated to be learned by OSPF?



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- A. 2
- B. 3
- C. 4
- D. 5
- E. 6
- F. 7

**Correct Answer: C**

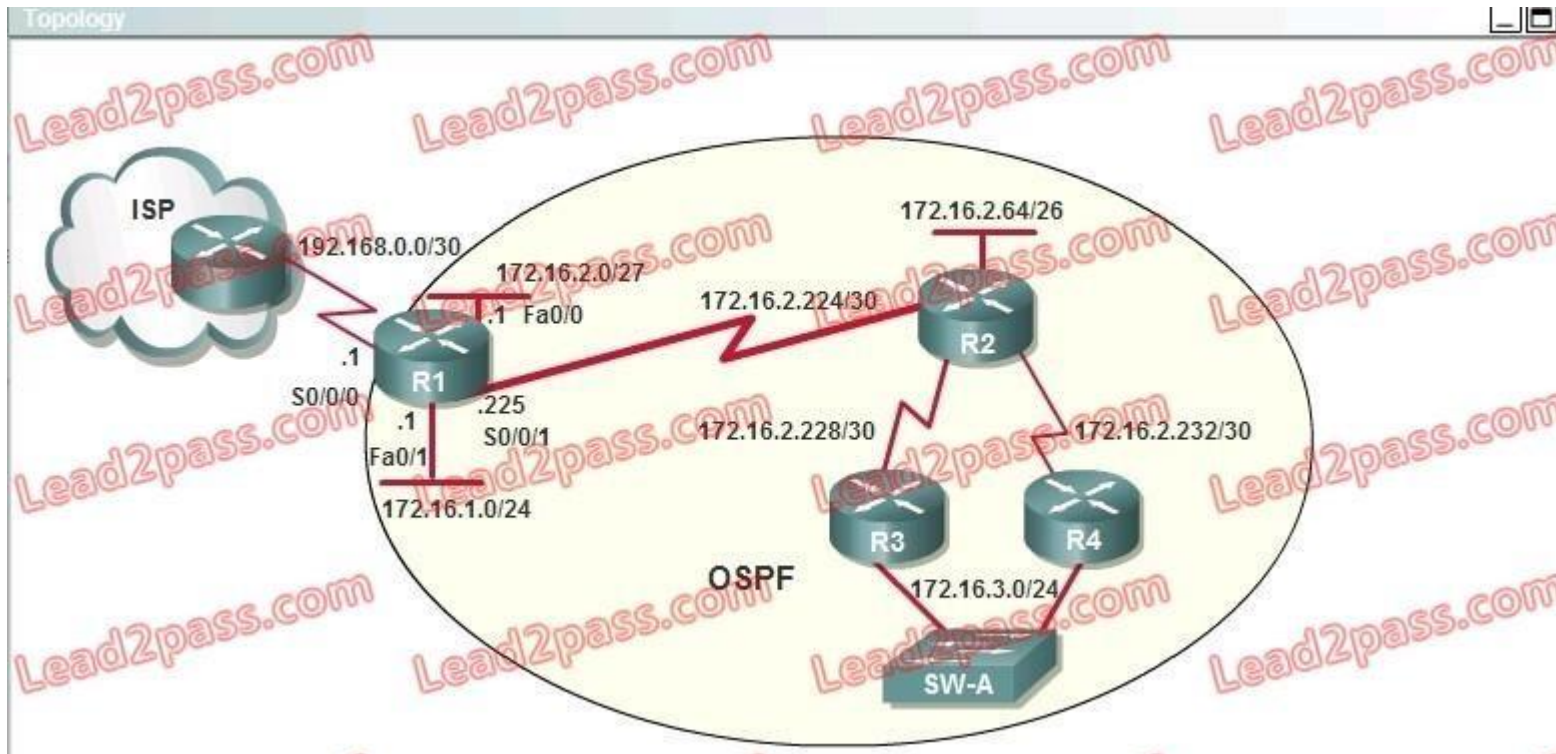
**Section: (none)**

**Explanation**

Explanation/Reference:

#### QUESTION 94

R1 is configured with the default configuration of OSPF. From the following list of IP addresses configured on R1, which address will the OSPF process select as the router ID?



- A. 192.168.0.1
- B. 172.16.1.1
- C. 172.16.2.1
- D. 172.16.2.225

**Correct Answer:** A

**Section:** (none)

**Explanation**



**Explanation/Reference:**

Explanation:

The Router ID (RID) is an IP address used to identify the router and is chosen using the following sequence:

+ The highest IP address assigned to a loopback (logical) interface. + If a loopback interface is not defined, the highest IP address of all active router's physical interfaces will be chosen.

+ The router ID can be manually assigned

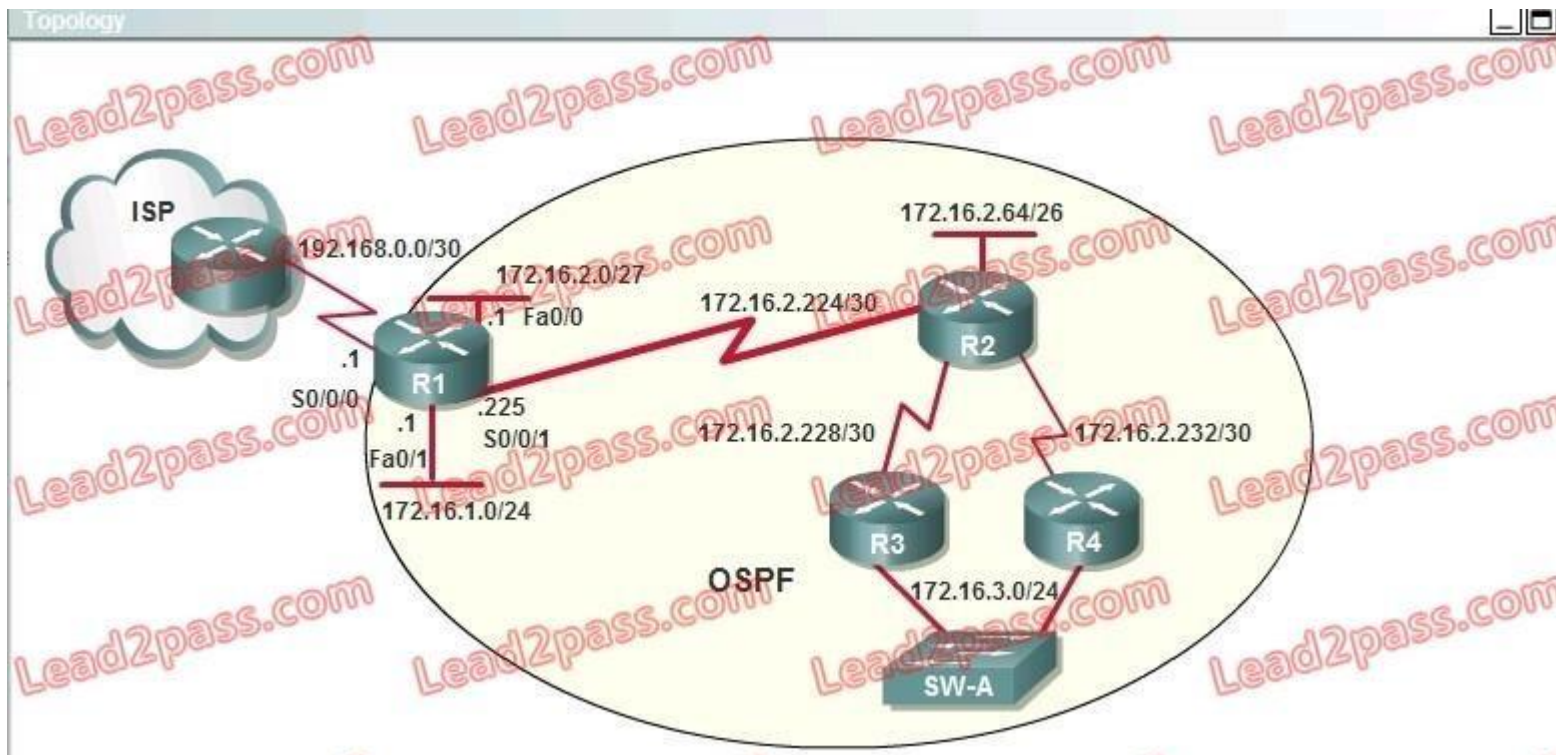
In this case, because a loopback interface is not configured so the highest active IP address 192.168.0.1 is chosen as the router ID.

**QUESTION 95**

R1 is unable to establish an OSPF neighbor relationship with R3. What are possible reasons for this problem? (Choose two)

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- A. All of the routers need to be configured for backbone Area 1.
- B. R1 and R2 are the DR and BDR, so OSPF will not establish neighbor adjacency with R3.



- C. A static route has been configured from R1 to R3 and prevents the neighbor adjacency from being established.
- D. The hello and dead interval timers are not set to the same values on R1 and R3.
- E. EIGRP is also configured on these routers with a lower administrative distance.
- F. R1 and R3 are configured in different areas.

**Correct Answer:** DF

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

To become OSPF neighbors, routers must meet these requirements: Hello interval, Dead interval and AREA number -> D and F are correct.

#### **QUESTION 96**

What information does a router running a link-state protocol use to build and maintain its topological database? (Choose two)

- A. hello packets
- B. SAP messages sent by other routers
- C. LSAs from other routers
- D. beacons received on point-to-point links
- E. routing tables received from other link-state routers
- F. TTL packets from designated routers

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 97**

ROUTER# show ip route

192.168.12.0/24 is variably subnetted, 9 subnets, 3 masks C 192.168.12.64 /28 is directly connected, Loopback1

C 192.168.12.32 /28 is directly connected, Ethernet0

C 192.168.12.48 /28 is directly connected, Loopback0

O 192.168.12.236 /30 [110/128] via 192.168.12.233, 00:35:36, Serial0 C 192.168.12.232 /30 is directly connected, Serial0

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O 192.168.12.245 /30 [110/782] via 192.168.12.233, 00:35:36, Serial0 O 192.168.12.240 /30 [110/128] via 192.168.12.233, 00:35:36, Serial0 O

192.168.12.253 /30 [110/782] via 192.168.12.233, 00:35:37, Serial0 O 192.168.12.249 /30 [110/782] via 192.168.12.233, 00:35:37, Serial0 O  
192.168.12.240/30 [110/128] via 192.168.12.233, 00:35:36, Serial 0

To what does the 128 refer to in the router output above?

- A. OSPF cost
- B. OSPF priority
- C. OSPF hop count
- D. OSPF ID number
- E. OSPF administrative distance

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

The first parameter is the Administrative Distance of OSPF (110) while the second parameter is the cost of OSPF.

#### QUESTION 98

Which of the following describe the process identifier that is used to run OSPF on a router? (Choose two)

- A. It is locally significant.
- B. It is globally significant.
- C. It is needed to identify a unique instance of an OSPF database.
- D. It is an optional parameter required only if multiple OSPF processes are running on the router.
- E. All routers in the same OSPF area must have the same process ID if they are to exchange routing information.

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 99

Open Shortest Path First (OSPF) is a routing protocol developed for Internet Protocol (IP) networks by the Interior Gateway Protocol (IGP) working group of the Internet Engineering Task Force (IETF). What is the default administrative distance of the OSPF routing protocol?

- A. 90

- B. 100
- C. 110
- D. 20
- E. 130
- F. 170

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

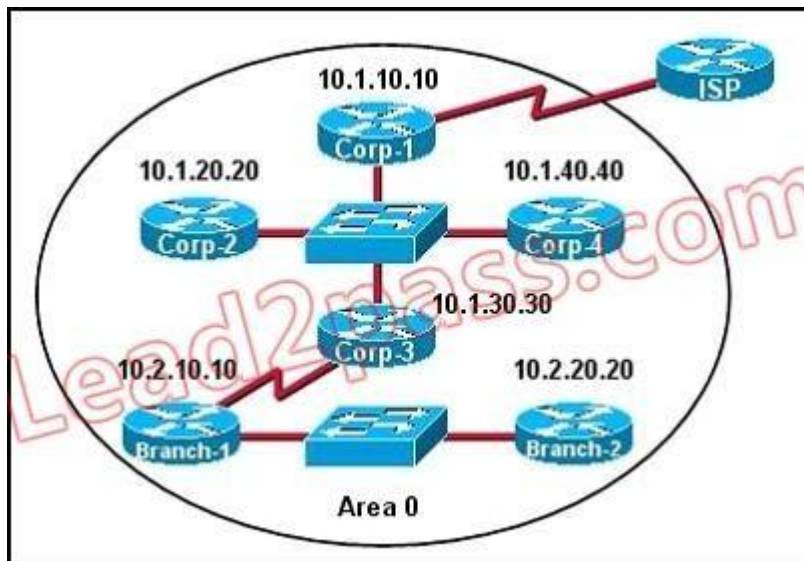
### QUESTION 100

The internetwork infrastructure of company XYZ consists of a single OSPF area as shown in the graphic. There is concern that a lack of router resources is impeding internetwork performance. As part of examining the router resources, the OSPF DRs need to be known. All the router OSPF

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priorities are at the default and the router IDs are shown with each router. Which routers are likely to have been elected as DR? (Choose two.)



- A. Corp-1
- B. Corp-2
- C. Corp-3
- D. Corp-4
- E. Branch-1
- F. Branch-2

**Correct Answer:** DF

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation

There are 2 segments on the topology above which are separated by Corp-3 router. Each segment will have a DR so we have 2 DRs.

To select which router will become DR they will compare their router-IDs. The router with highest (best) router-ID will become DR. The router-ID is chosen in the order below:

+ The highest IP address assigned to a loopback (logical) interface. + If a loopback interface is not defined, the highest IP address of all active router's physical interfaces will be chosen.

In this question, the IP addresses of loopback interfaces are not mentioned so we will consider IP addresses of all active router's physical interfaces.

Router Corp-4 (10.1.40.40) & Branch-2 (10.2.20.20) have highest "active" IP addresses so they will become DRs.

#### **QUESTION 101**

Which address are OSPF hello packets addressed to on point-to-point networks?

- A. 224.0.0.5
- B. 172.16.0.1
- C. 192.168.0.5
- D. 223.0.0.1
- E. 254.255.255.255

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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#### **QUESTION 102**

Which statements describe the routing protocol OSPF? (Choose three)

- A. It supports VLSM.
- B. It is used to route between autonomous systems.
- C. It confines network instability to one area of the network.
- D. It increases routing overhead on the network.
- E. It allows extensive control of routing updates.
- F. It is simpler to configure than RIP v2.

**Correct Answer:** ACE

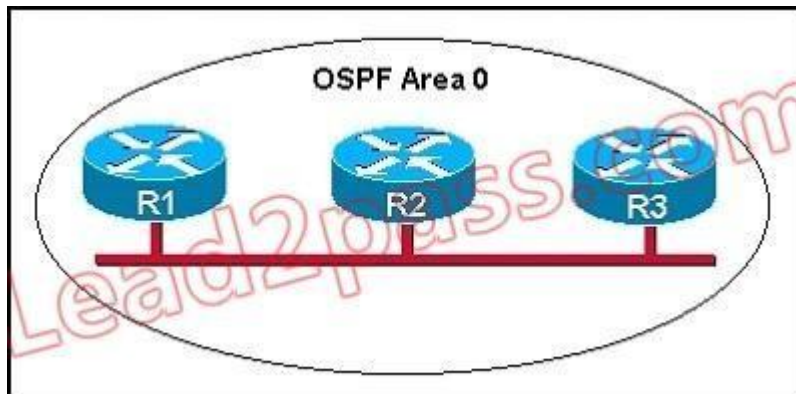
**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 103

R1 is unable to establish an OSPF neighbor relationship with R3. What are possible reasons for this problem? (Choose two)



- A. All of the routers need to be configured for backbone Area 1
- B. R1 and R2 are the DR and BDR, so OSPF will not establish neighbor adjacency with R3
- C. A static route has been configured from R1 to R3 and prevents the neighbor adjacency from being established.
- D. The hello and dead interval timers are not set to the same values on R1 and R3
- E. EIGRP is also configured on these routers with a lower administrative distance
- F. R1 and R3 are configured in different areas

**Correct Answer:** DF

**Section: (none)**

**Explanation**

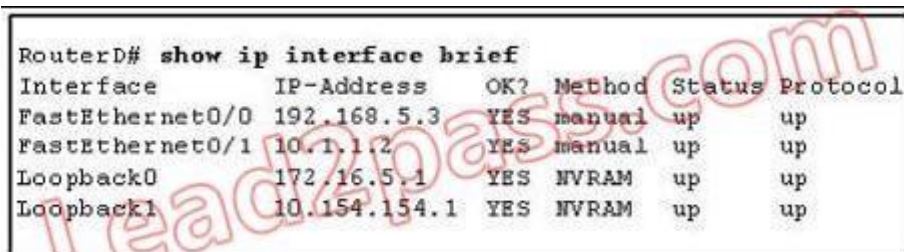
**Explanation/Reference:**

**QUESTION 104**

Given the output for this command, if the router ID has not been manually set, what router ID will OSPF use for this router?

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```
RouterD# show ip interface brief
Interface      IP-Address      OK? Method Status Protocol
FastEthernet0/0 192.168.5.3     YES manual up      up
FastEthernet0/1 10.1.1.2        YES manual up      up
Loopback0      172.16.5.1     YES NVRAM up      up
Loopback1      10.154.154.1   YES NVRAM up      up
```

- A. 10.1.1.2
- B. 10.154.154.1
- C. 172.16.5.1
- D. 192.168.5.3

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

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### **QUESTION 105**

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.

**Correct Answer:** B

**Section:** (none)

**Explanation**

#### **Explanation/Reference:**

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 106**

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.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

HTTP uses TCP port 80.

#### **QUESTION 107**

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.

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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.

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#### **QUESTION 108**

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

**Correct Answer:** E

**Section:** (none)

**Explanation**

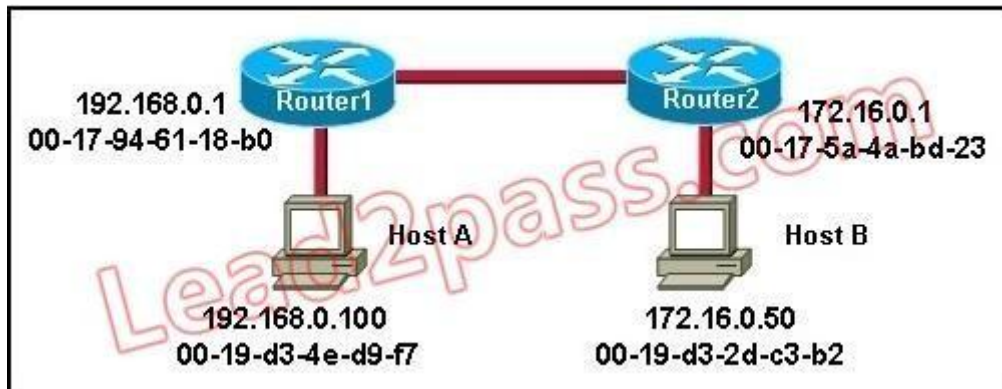
**Explanation/Reference:**

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 109**

Refer to the exhibit. Host A is sending a packet to Host B for the first time. What destination MAC address will Host A use in the ARP request?



- A. 192.168.0.1
- B. 172.16.0.50
- C. 00-17-94-61-18-b0
- D. 00-19-d3-2d-c3-b2
- E. ff-ff-ff-ff-ff-ff
- F. 255.255.255.255

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

For the initial communication, Host A will send a broadcast ARP (all F's) to determine the correct address to use to reach the destination.

**QUESTION 110**

The network manager has requested a 300-workstation expansion of the network. The

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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

**Correct Answer:** ADE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 111**

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

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

**Correct Answer:** BD

**Section:** (none)

## Explanation

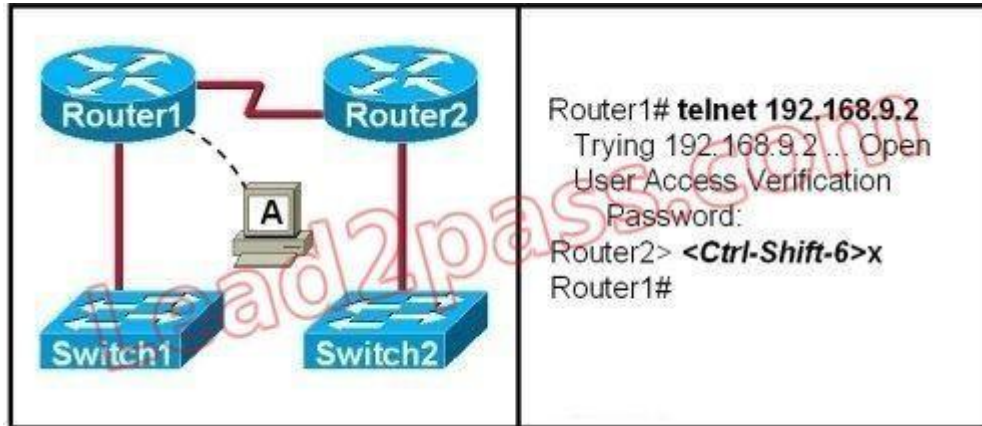
### Explanation/Reference:

Explanation:

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

### QUESTION 112

Refer to the exhibit. If the resume command is entered after the sequence that is shown in the exhibit, which router prompt will be displayed?



- A. Router1>
  - B. Router1#
  - C. Router2>
  - D. Router2#
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**Correct Answer: C**

**Section: (none)**

**Explanation**

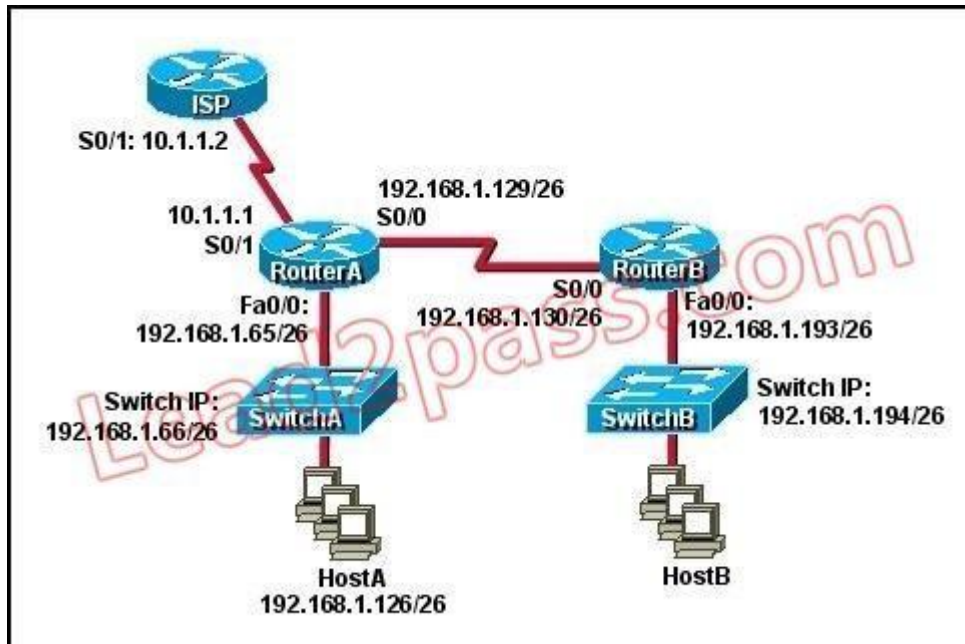
### Explanation/Reference:

Explanation:

The Ctrl-Shift-6 x command suspends the telnet session and hence the prompt will again be Router2>

### QUESTION 113

Refer to the exhibit. Which default gateway address should be assigned to HostA?



- A. 192.168.1.1
- B. 192.168.1.65
- C. 192.168.1.66
- D. 192.168.1.129
- E. 10.1.1.1
- F. 10.1.1.2

**Correct Answer:** B

**Section:** (none)

**Explanation**

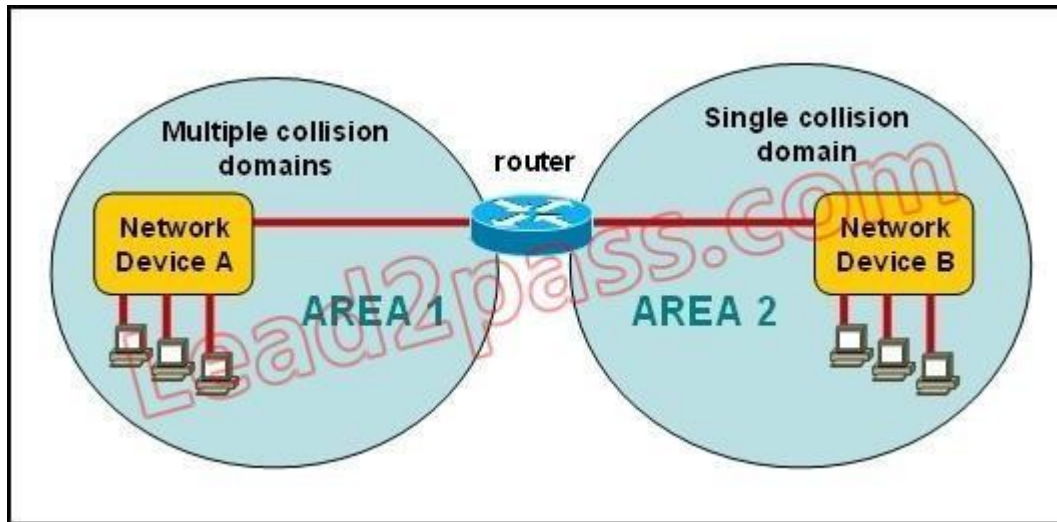
**Explanation/Reference:**

Explanation:

It should be one less than the switch IP to which it is connected so it will be B.

#### QUESTION 114

Refer to the exhibit. A network has been planned as shown. Which three statements accurately describe the areas and devices in the network plan? (Choose three.)



- A. Network Device A is a switch.
- B. Network Device B is a switch.
- C. Network Device A is a hub.
- D. Network Device B is a hub.
- E. Area 1 contains a Layer 2 device.
- F. Area 2 contains a Layer 2 device.

**Correct Answer:** ADE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Switches use a separate collision domain for each port, so device A must be a switch. Hubs, however, place all ports in the same collision domain so device B is a hub. Switches reside in layer 2 while hubs are layer 1 devices.

#### QUESTION 115

Which two options will help to solve the problem of a network that is suffering a broadcast storm? (Choose two.)

- A. a bridge

- B. a router
- C. a hub
- D. a Layer 3 switch
- E. an access point

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

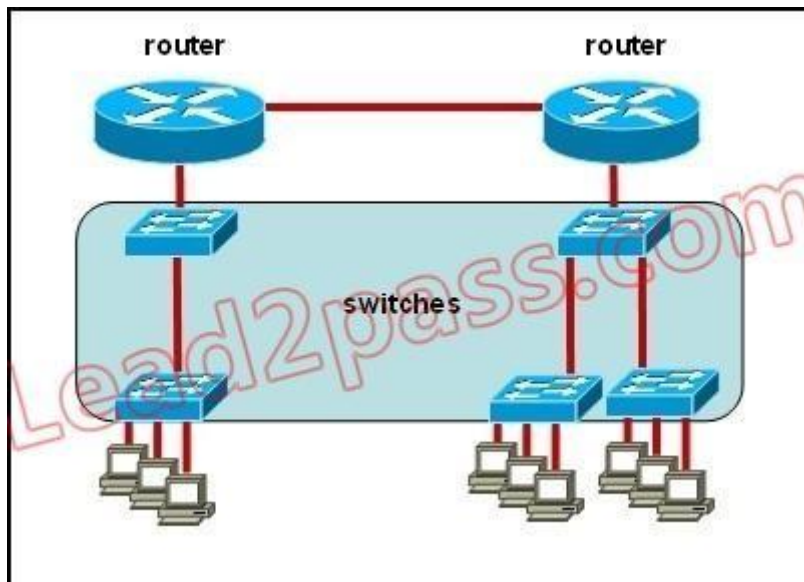
Explanation:

Routers and layer 3 switches will not propagate broadcast traffic beyond the local segment, so the use of these devices is the best method for eliminating broadcast storms.

**QUESTION 116**

Refer to the exhibit. All devices attached to the network are shown. How many collision domains are present in this network?

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- A. 2

- B. 3
- C. 6
- D. 9
- E. 15

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

A switch uses a separate collision domain for each port so there are a total of 9 for each device shown. In addition to this, the switch to switch connections (3) are a separate collision domain. Finally, we add the switch to router connections (2) and the router to router connection (1) for a total of 15.

#### **QUESTION 117**

What does a host on an Ethernet network do when it is creating a frame and it does not have the destination address?

- A. drops the frame
- B. sends out a Layer 3 broadcast message
- C. sends a message to the router requesting the address
- D. sends out an ARP request with the destination IP address

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Understanding this concept is prime for understanding that when switch receives the data frame from the host not having the MAC address already in the MAC table, it will add the MAC address to the source port on the MAC address table and sends the data frame. If the switch already has the MAC address in it's table for the destination, it will forward the frame directly to the destination port. If it was not already in it's MAC table, then they frame would have been flooded out all ports except for the port that it came from.

#### **QUESTION 118**

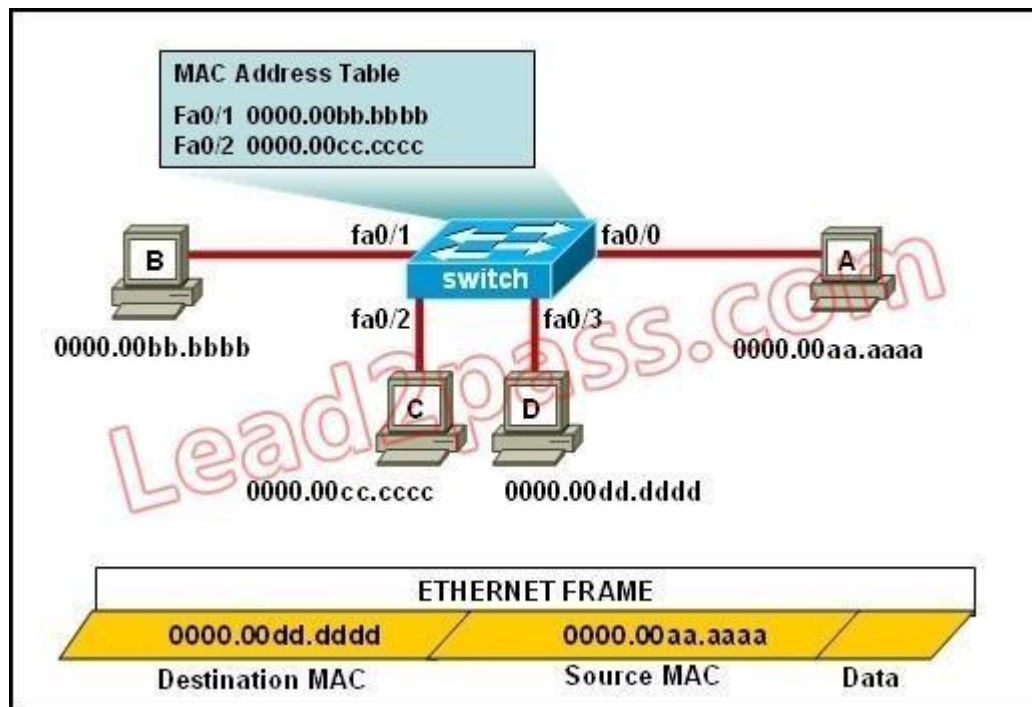
Refer to the exhibit. The ports that are shown are the only active ports on the switch. The MAC

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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 MAC address of 0000.00aa.aaaa will be added to the MAC address table.
- B. The MAC address of 0000.00dd.dddd will be added to the MAC address table.
- C. The frame will be forwarded out port fa0/3 only.
- D. The frame will be forwarded out fa0/1, fa0/2, and fa0/3.
- E. The frame will be forwarded out all the active ports.

**Correct Answer:** AD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

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 the frame would have been flooded out all ports except for the port that it came from. It will also add the MAC address of the source device to its MAC address table.



**QUESTION 119**

A switch has 48 ports and 4 VLANs. How many collision and broadcast domains exist on the switch (collision, broadcast)?

- A. 4, 48
- B. 48, 4
- C. 48, 1
- D. 1, 48
- E. 4, 1

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

A switch uses a separate collision domain for each port, and each VLAN is a separate broadcast

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domain.