100-101 Q&As

CCNA Interconnecting Cisco Networking Devices 1 (ICND1)

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QUESTION 1

This topology contains 3 routers and 1 switch. Complete the topology.

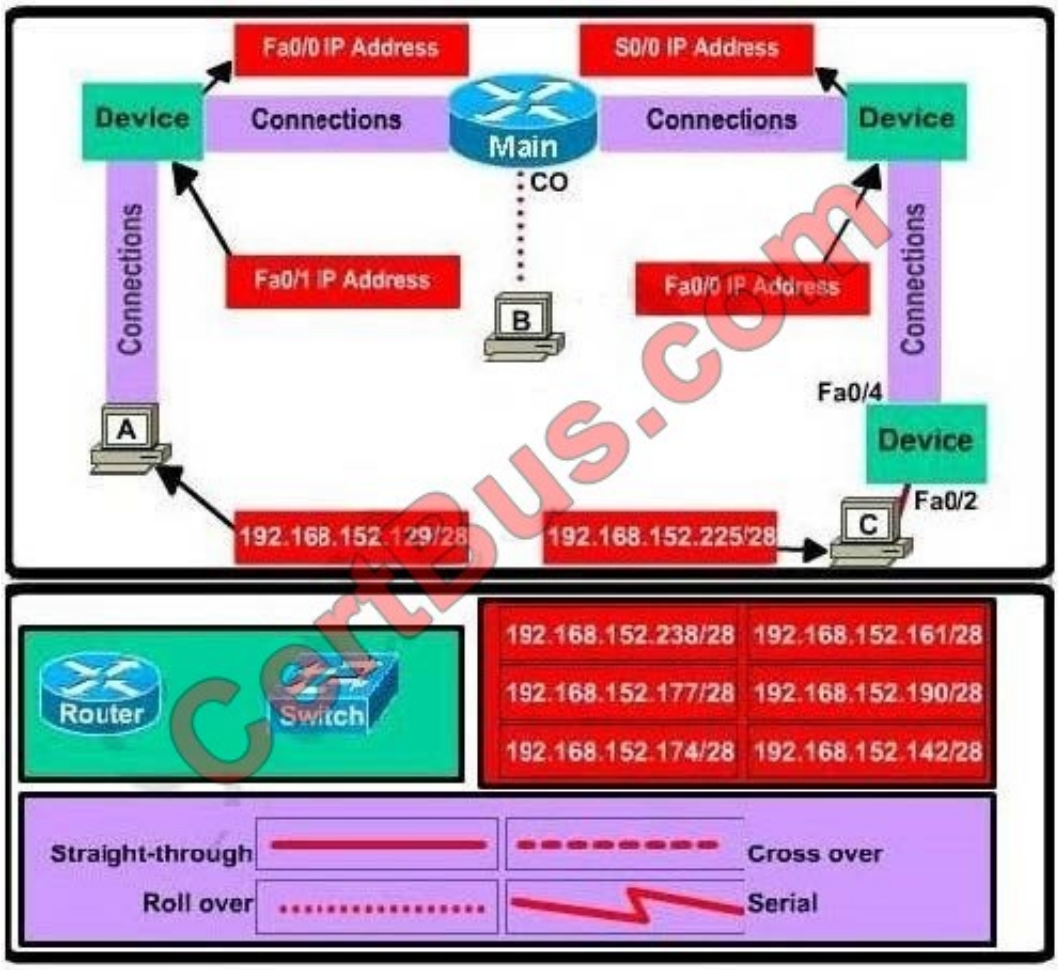
Drag the appropriate device icons to the labeled DeviceDrag the appropriate connections to the locations labeled Connections.Drag the appropriate IP addresses to the locations labeled IP address

(Hint: use the given host addresses and Main router information)

To remove a device or connection, drag it away from the topology.

Use information gathered from the Main router to complete the configuration of any additional routers.

No passwords are required to access the Main router. The config terminal command has been disabled for the HQ router. The router does not require any configuration.



Configure each additional router with the following:

Configure the interfaces with the correct IP address and enable the interfaces.

Set the password to allow console access to consolepw

Set the password to allow telnet access to telnetpw

Set the password to allow privilege mode access to privpw

Note.

Because routes are not being added to the configurations, you will not be able to ping through the internetwork.

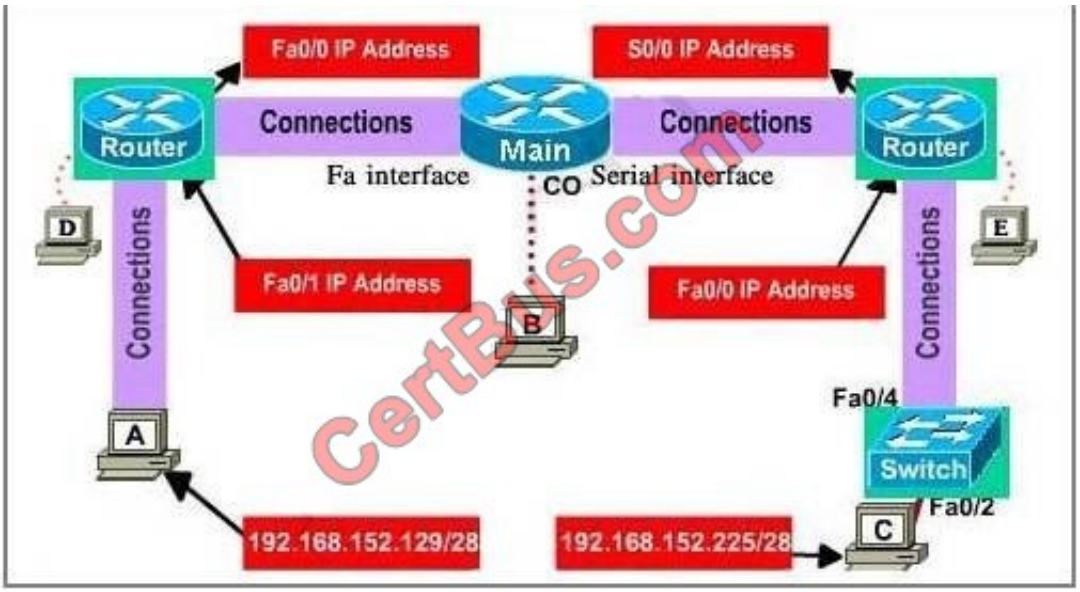
All devices have cable autosensing capabilities disabled.

All hosts are PC

Correct Answer: Specify appropriate devices and drag them on the "Device" boxes For the device at the bottom-right box, we notice that it has 2 interfaces Fa0/2 and Fa0/4; moreover the link connects the PC on the right with the device on

the bottom-right is a straightthrough link -> it is a switch

The question stated that this topology contains 3 routers and 1 switch -> two other devices are routers Place them on appropriate locations as following:



Host D and host E will be automatically added after placing two routers. Click on them to access neighboring routers

Specify appropriate connections between these devices:

+ The router on the left is connected with the Main router through FastEthernet interfaces: use a crossover cable

+ The router on the right is connected with the Main router through Serial interfaces: use a serial cable

+ The router on the right and the Switch: use a straight-through cable

+ The router on the left and the computer: use a crossover cable

To remember which type of cable you should use, follow these tips:

- To connect two serial interfaces of 2 routers we use serial cable

- To specify when we use crossover cable or straight-through cable, we should remember:

Group 1: Router, Host, Server

Group 2: Hub, Switch

One device in group 1 + One device in group 2: use straight-through cable

Two devices in the same group: use crossover cable

For examplE. we use straight-through cable to connect switch to router, switch to host, hub to host, hub to server... and we use crossover cable to connect switch to switch, switch to hub, router to router, host to host...)

Assign appropriate IP addresses for interfaces:

From Main router, use show running-config command.

```
Main#show running-config
interface FastEthernet0/0
  ip address 192.168.152.177 255.255.255.240
!
interface Serial0/0
  ip address 192.168.152.161 255.255.255.240
  clockrate 64000
<output omitted>
```

(Notice that you may see different IP addresses in the real CCNA exam, the ones shown above are just used for demonstration)

From the output we learned that the ip address of Fa0/0 interface of the Main router is 192.168.152.177/28. This address belongs to a subnetwork which has:

Increment: 16 (/28 = 255.255.255.240 or 1111 1111.1111 1111.1111 1111.1111 0000)

Network address: 192.168.152.176 (because 176 = 16 * 11 and 176

Broadcast address: 192.168.152.191 (because 191 = 176 + 16 - 1)

And we can pick up an ip address from the list that belongs to this subnetwork: 192.168.152.190

and assign it to the Fa0/0 interface the router on the left

Use the same method for interface Serial0/0 with an ip address of 192.168.152.161

Increment: 16

Network address: 192.168.152.160 (because 160 = 16 * 10 and 160

Broadcast address: 192.168.152.175 (because 176 = 160 + 16 - 1)

-> and we choose 192.168.152.174 for Serial0/0 interface of the router on the right

Interface Fa0/1 of the router on the left

IP (of the computer on the left) : 192.168.152.129/28

Increment: 16

Network address: 192.168.152.128 (because 128 = 16 * 8 and 128

Broadcast address: 192.168.152.143 (because 143 = 128 + 16 - 1)

-> we choose 192.168.152.142 from the list

Interface Fa0/0 of the router on the right

IP (of the computer on the left) : 192.168.152.225/28

Increment: 16

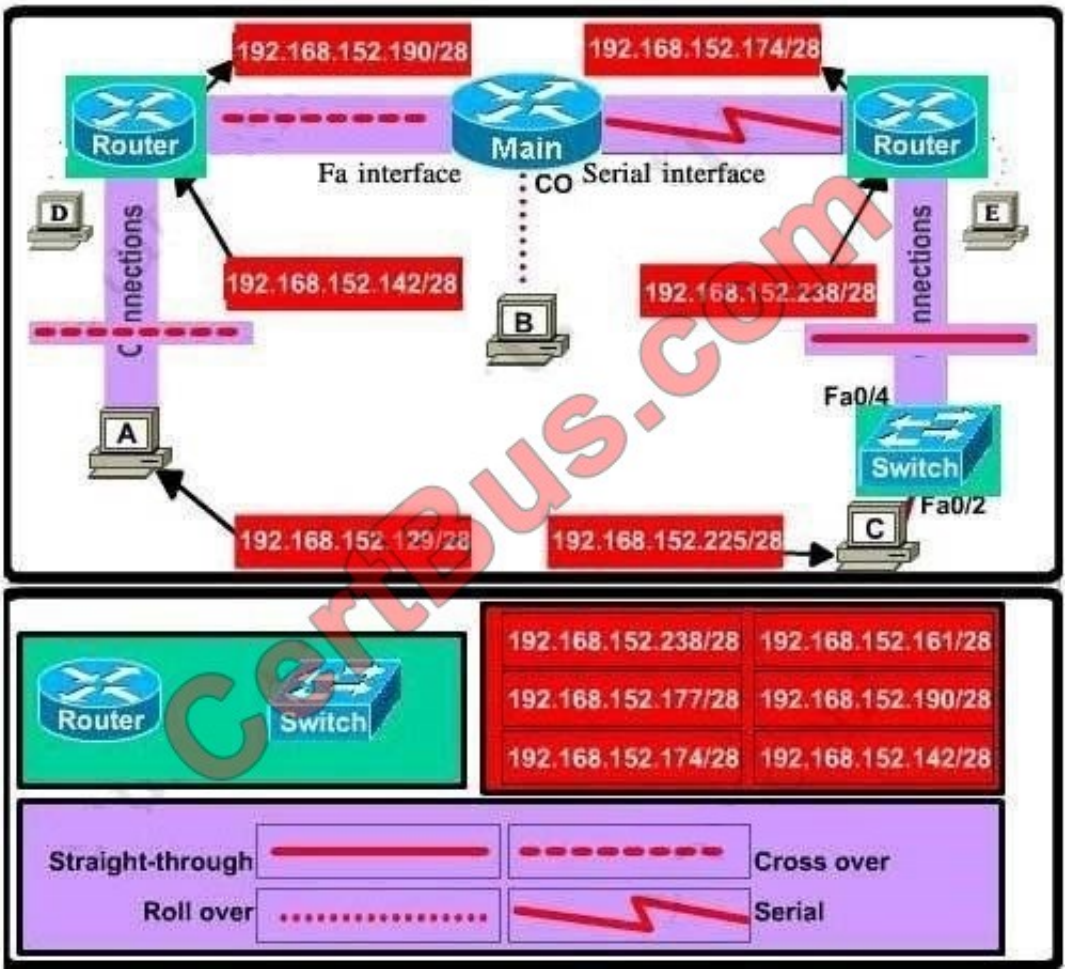
Network address: 192.168.152.224 (because 224 = 16 * 14 and 224

Broadcast address: 192.168.152.239 (because 239 = 224 + 16 - 1)

-> we choose 192.168.152.238 from the list

Let\\'s have a look at the picture below to summarize

Configure two routers on the left and right with these commands:



Router1 = router on the left

Assign appropriate IP addresses to Fa0/0 and Fa0/1 interfaces:

Router1>enable

Router1#configure terminal

Router1(config)#interface fa0/0

Router1(config-if)#ip address 192.168.152.190 255.255.255.240

Router1(config-if)#no shutdown

Router1(config-if)#interface fa0/1

Router1(config-if)#ip address 192.168.152.142 255.255.255.240

Router1(config-if)#no shutdown

Set passwords (configure on two routers)

+ Console password:

Router1(config-if)#exit

Router1(config)#line console 0

Router1(config-line)#password consolepw

Router1(config-line)#login

Router1(config-line)#exit

+ Telnet password:

Router1(config)#line vty 0 4

Router1(config-line)#password telnetpw

Router1(config-line)#login

Router1(config-line)#exit

+ Privilege mode password:

Router1(config)#enable password privpw

Save the configuration:

Router1(config)#exit

Router1#copy running-config startup-config

Configure IP addresses of Router2 (router on the right)

Router2>enable

Router2#configure terminal

Router2(config)#interface fa0/0

Router2(config-if)#ip address 192.168.152.238 255.255.255.240

Router2(config-if)#no shutdown

Router2(config-if)#interface serial0/0

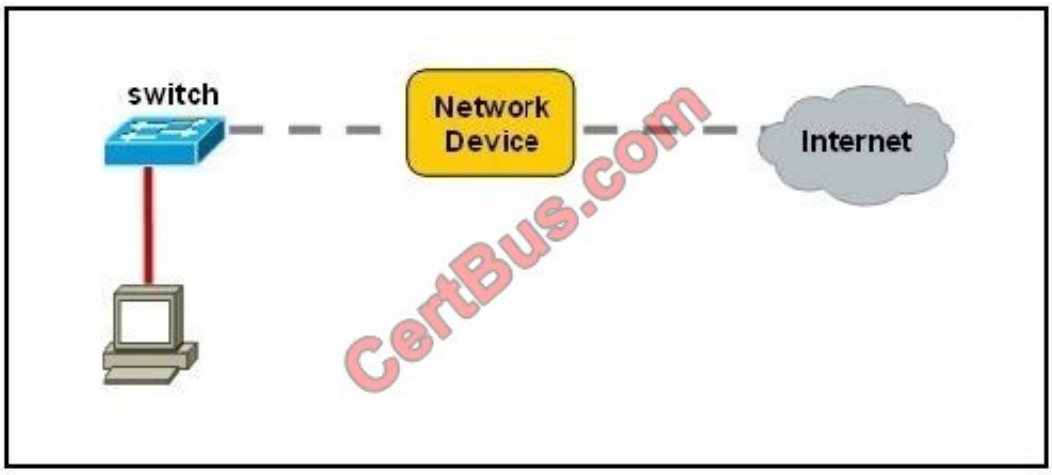
Router2(config-if)#ip address 192.168.152.174 255.255.255.240

Router2(config-if)#no shutdown and set console, telnet and privilege mode passwords for

Router2 as we did for Router1, remember to save the configuration when you finished

QUESTION 2

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

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 3

Which of the following are types of flow control? (Choose three.)

A. buffering

B. cut-through

C. windowing

D. congestion avoidance

E. load balancing

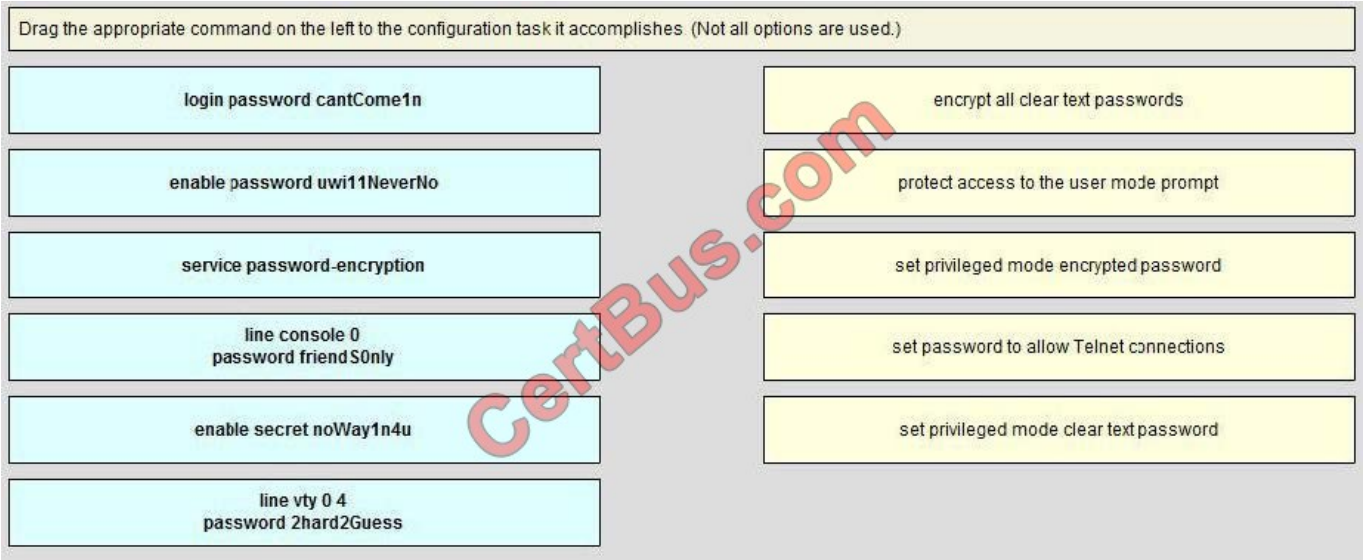
Correct Answer: ACD

http://www.info-it.net/cisco/ccna/exam-tips/flow-control.php During Transfer of data, a high speed computer is generating data traffic a lot faster than the network device can handle in transferring to destination, so single gateway or destination device cannot handle much amount of traffic that is called "Congestion". Buffering The Technie is used to

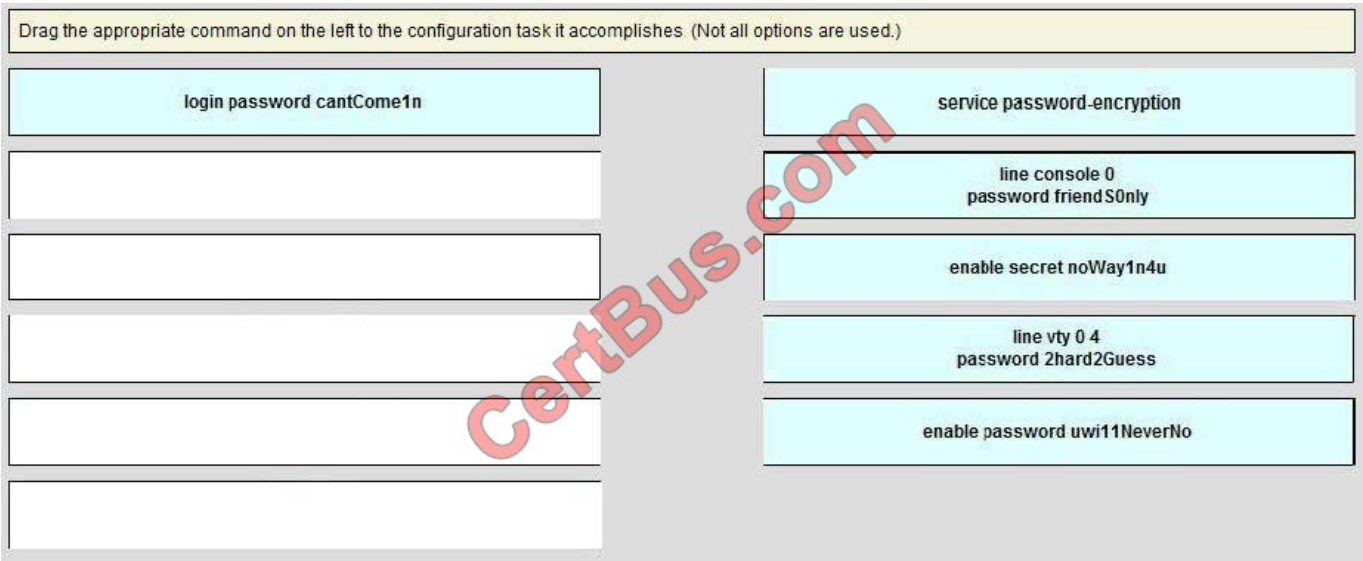
control the data transfer when we have congestion, when a network device receive a data it stores in memory section and then transfer to next destination this process called "Buffering". Windowing Whereas Windowing is used for flow control by the Transport layer. Say the sender device is sending segments and the receiver device can accommodate only a fixed number of segments before it can accept more, the two devices negotiate the window size during the connection setup. This is done so that the sending device doesn\\'t overflow the receiving device\\'s buffer. Also the receiving device can send a single acknowledgement for the segments it has received instead of sending an acknowledgement after every segment received. Also, this window size is dynamic meaning, the devices can negotiate and change the window size in the middle of a session. So if initially the window size is three and the receiving device thinks that it can accept more number of segments in its buffer it can negotiate with the sending device and it increase it to say 5 for example. Windowing is used only by TCP since UDP doesn\\'t use or allow flow control.

QUESTION 4

Select and Place:

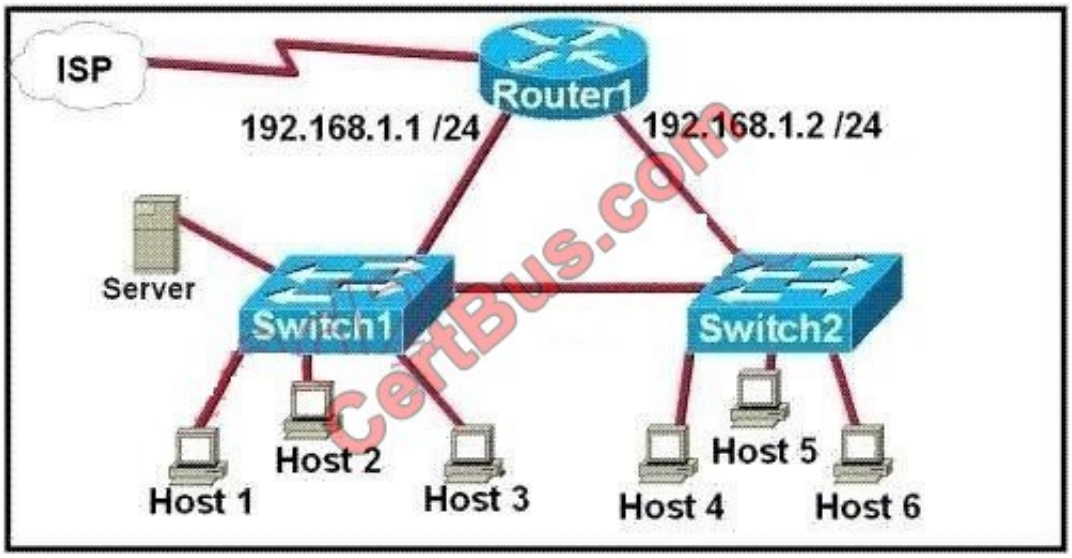


Correct Answer:



QUESTION 5

Refer to the exhibit.



A network technician is asked to design a small network with redundancy. The exhibit represents this design, with all hosts configured in the same VLAN. What conclusions can be made about this design?

A. This design will function as intended.

B. Spanning-tree will need to be used.

C. The router will not accept the addressing scheme.

D. The connection between switches should be a trunk.

E. The router interfaces must be encapsulated with the 802.1Q protocol.

Correct Answer: C

The proposed addressing scheme is on the same network.

QUESTION 6

Identify the four valid IPv6 addresses. (Choose four.)

A. ::

B. ::192:168:0:1

C. 2000::

D. 2001:3452:4952:2837::

E. 2002:c0a8:101::42

F. 2003:dead:beef:4dad:23:46:bb:101

Correct Answer: ABEF

http://www.intermapper.com/ipv6validator http://www.ripe.net/lir-services/new-lir/ipv6_reference_card.pdf

Address	Value	Description
Global	2000::/3	These are assigned by the IANA and used on public networks. They are equivalent to IPv4 global (sometimes called public) addresses. ISPs summarize these to provice scalability in the Internet.
Reserved	(range)	Reserved addresses are used for specific types of anycast as well as for future use. Currently about 1/256th of the IPv6 address space is reserved.
Private	FE80::/10	Like IPv4, IPv6 supports private addressing, which is used by devices that don't need to access a public network. The first two digits are FE, and the third digit can range from 8 to F.
Loopback	::1	Like the 127.0.0.1 address in IPv4, 0:0:0:0:0:0:0:1, or ::1, is used for local testing functions; unlike IPv4, which dedicates a complete A class block of addresses for local testing, only one is used in IPv6.
Unspecified	::	0.0.0.0 in IPv4 means "unknown" address. In IPv6, this is represented by 0:0:0:0:0:0:0:0, or ::, and is typically used in the source address field of the packet when an interface doesn't have an address and is trying to acquire one dynamically.

QUESTION 7

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

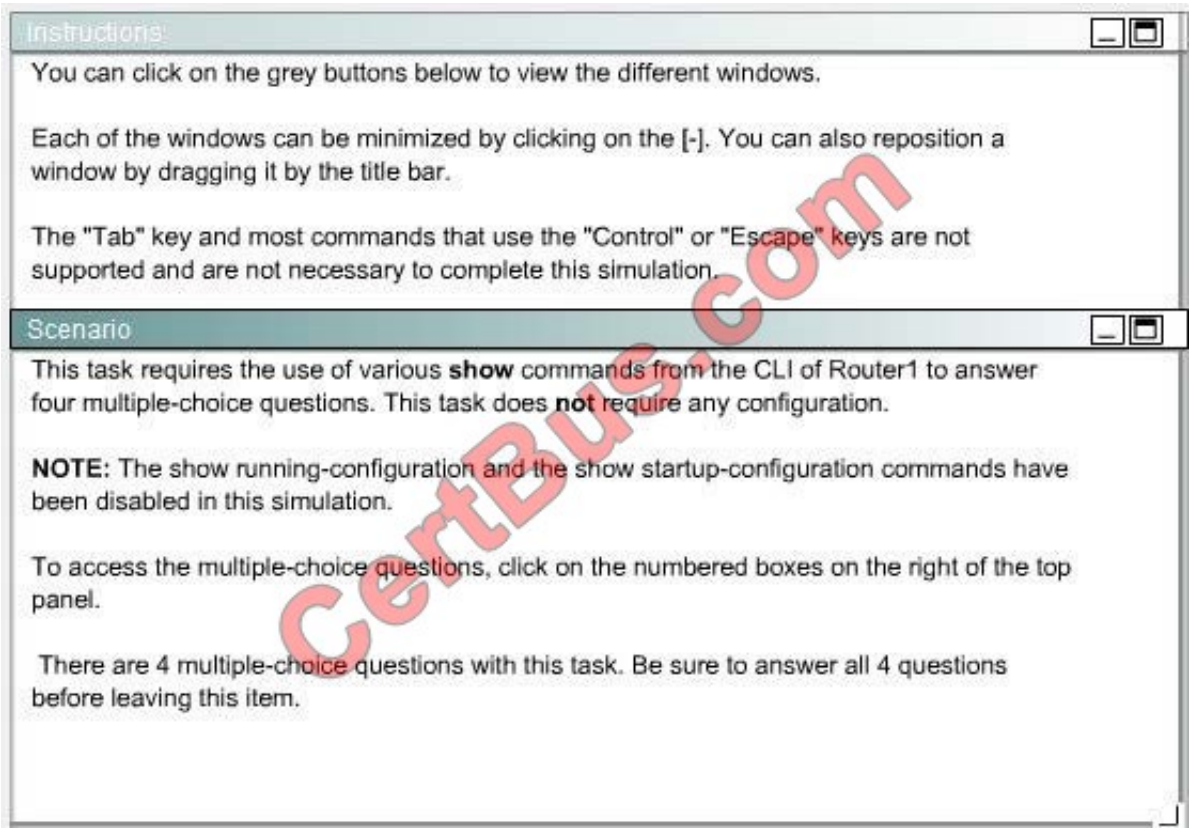
C. network segmentation

D. multicasting

Correct Answer: B

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

QUESTION 8


Instructions
You can click on the grey buttons below to view the different windows.
Each of the windows can be minimized by clicking on the [-]. You can also reposition a window by dragging it by the title bar.
The "Tab" key and most commands that use the "Control" or "Escape" keys are not supported and are not necessary to complete this simulation.
Scenario
This task requires the use of various show commands from the CLI of Router1 to answer four multiple-choice questions. This task does not require any configuration.
NOTE: The show running-configuration and the show startup-configuration commands have been disabled in this simulation.
To access the multiple-choice questions, click on the numbered boxes on the right of the top panel.
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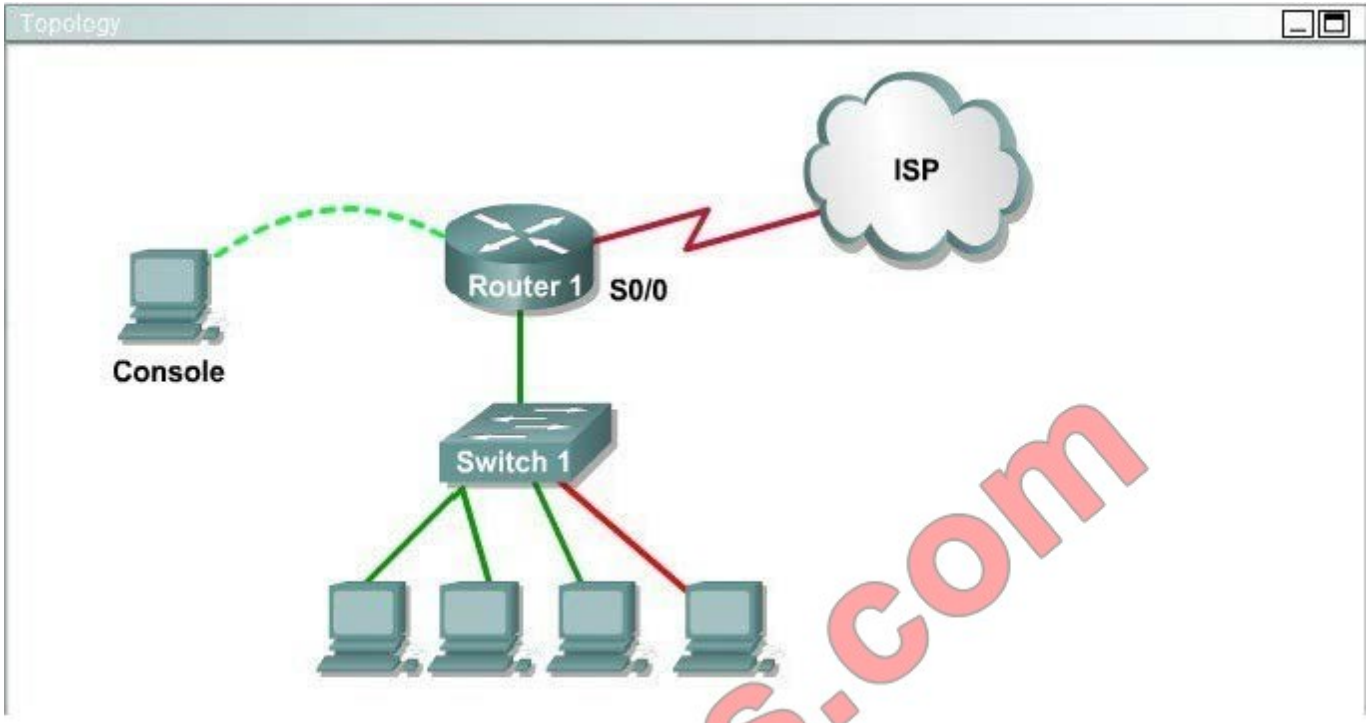


What is the bandwidth on the WAN interface of Router 1?

A. 16 Kbit/sec

B. 32 Kbit/sec

C. 64 Kbit/sec

D. 128 Kbit/sec

E. 512 Kbit/sec

F. 1544 Kbit/sec

Correct Answer: A

Use the "show interface s0/0" to see the bandwidth set at 16 Kbit/sec. The show interface s0/0 command results will look something like this and the bandwidth will be represented by the "BW" on the fourth line as seen below where BW equals 1544 Kbits/sec. R2#show interface serial 0/0 Serial0/0 is up, line protocol is down Hardware is GT96K Serial Internet address is 10.1.1.5/30 MTU 1500 bytes, BW 1544 Kbit/sec, DLY 20000 uses.

QUESTION 9

If an Ethernet port on a router was assigned an IP address of 172.16.112.1/20, what is the maximum number of hosts allowed on this subnet?

A. 1024

B. 2046

C. 4094

D. 4096

E. 8190

Correct Answer: C

Each octet represents eight bits. The bits, in turn, represent (from left to right): 128, 64, 32 , 16 , 8, 4, 2, 1 Add them up and you get 255. Add one for the all zeros option, and the total is 256. Now take away one of these for the network

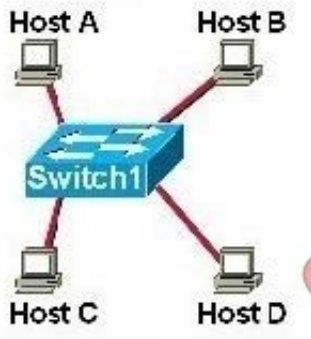
address (all zeros) and another for the broadcast address (all ones). Each octet represents 254 possible hosts. Or 254 possible networks. Unless you have subnet zero set on your network gear, in which case you could conceivably have 255.

The CIDR addressing format (/20) tells us that 20 bits are used for the network portion, so the maximum number of networks are 2^20 minus one if you have subnet zero enabled, or minus 2 if not.

You asked about the number of hosts. That will be 32 minus the number of network bits, minus two. So calculate it as (2^(32-20))-2, or (2^12)-2 = 4094

QUESTION 10

Refer to the topology and switching table shown in the graphic.



Switch 1 switch table

Host	MAC Address	Port
A	00-0A-8A-47-E6-12	0/5
D	01-00-CD-22-03-14	0/9
B	01-1B-25-AB-32-E8	0/2

Host B sends a frame to Host C. What will the switch do with the frame?

A. Drop the frame

B. Send the frame out all ports except port 0/2

C. Return the frame to Host B

D. Send an ARP request for Host C

E. Send an ICMP Host Unreachable message to Host B

F. Record the destination MAC address in the switching table and send the frame directly to Host C

Correct Answer: B

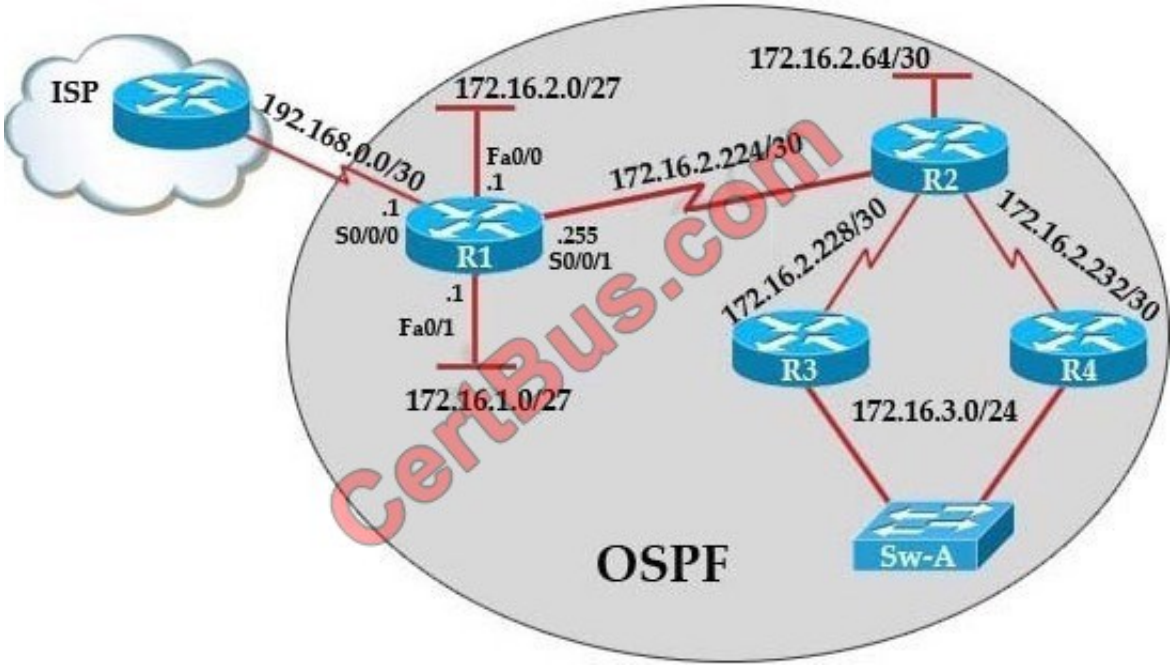
Explanation/Reference:

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 11

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

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

+

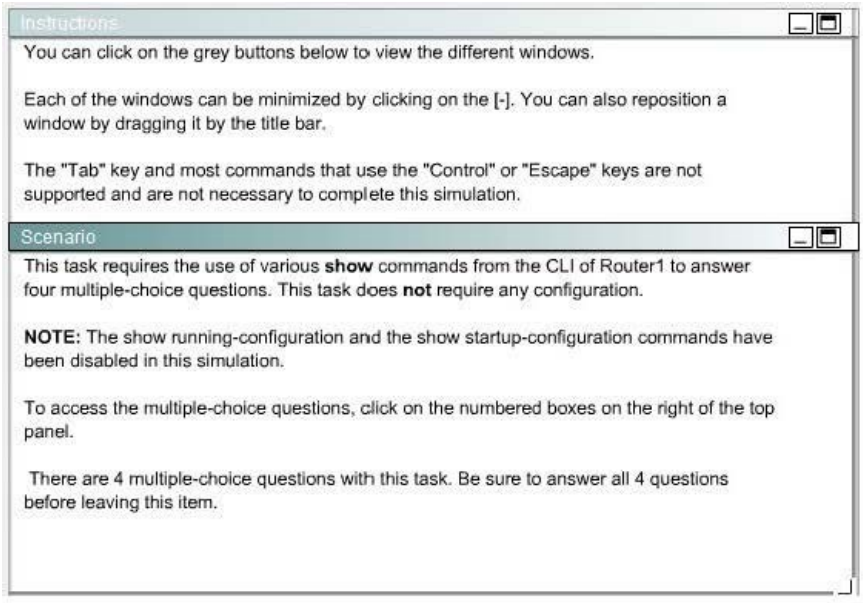
The highest IP address assigned to a loopback (logical) interface. + If a loopback interface is not defined, the highest IP address of all active router\\'s physical interfaces will be chosen.

+

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 12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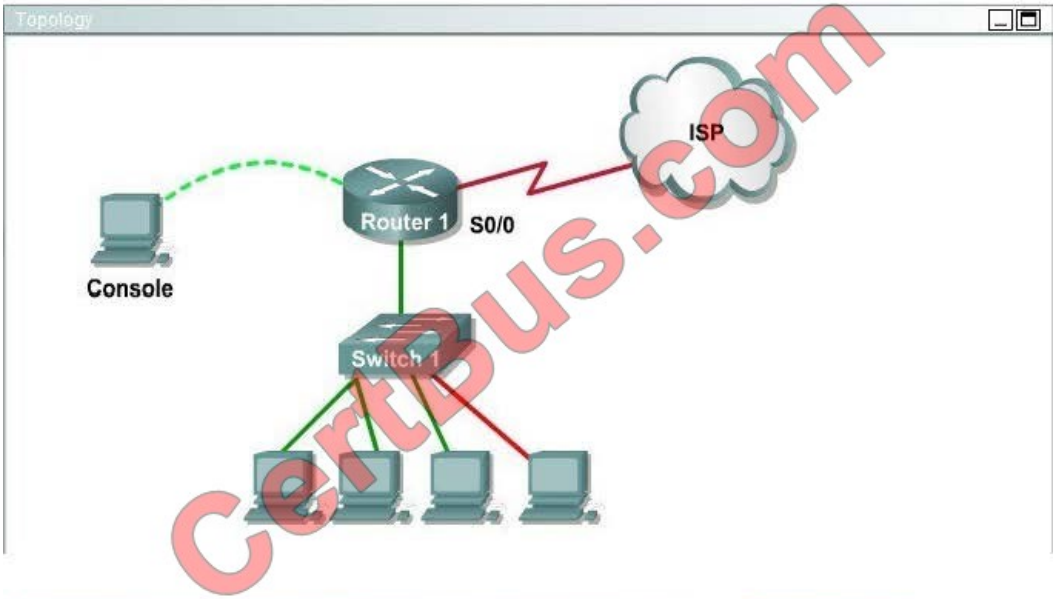
Topology
ISP
Router 1
S0/0
Console
Switch 1


R1
Press RETURN to get started!
Router1>

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

A. 192.168.8.15

B. 192.168.8.31

C. 192.168.8.63

D. 192.168.8.127

Correct Answer: A

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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