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[CCNA 2 \(v5.1 + v6.0\) Chapter 4 Exam Answers Full](#)

How to find: Press “Ctrl + F” in the browser and fill in whatever wording is in the question to find that question/answer.

NOTE: If you have the new question on this test, please comment Question and Multiple-Choice list in form below this article. We will update answers for you in the shortest time. Thank you! We truly value your contribution to the website.

1. A network designer must provide a rationale to a customer for a design which will move an enterprise from a flat network topology to a hierarchical network topology. Which two features of the hierarchical design make it the better choice? (Choose two.)
 - lower bandwidth requirements
 - reduced cost for equipment and user training
 - **easier to provide redundant links to ensure higher availability***
 - less required equipment to provide the same performance levels
 - **simpler deployment for additional switch equipment***

A hierarchical design for switches helps network administrators when planning and deploying a network expansion, performing fault isolation when a problem occurs, and providing resiliency when traffic levels are high. A good hierarchical design has redundancy when it can be afforded so that one switch does not cause all networks to be down.

2. What is a collapsed core in a network design?
 - a combination of the functionality of the access and distribution layers
 - **a combination of the functionality of the distribution and core layers***
 - a combination of the functionality of the access and core layers
 - a combination of the functionality of the access, distribution, and core layers

A collapsed core design is appropriate for a small, single building business. This type of design uses two layers (the collapsed core and distribution layers consolidated into one layer and the access layer). Larger businesses use the traditional three-tier switch design model.

3. What is a definition of a two-tier LAN network design?
 - access and core layers collapsed into one tier, and the distribution layer on a separate tier
 - access and distribution layers collapsed into one tier, and the core layer on a separate tier
 - **distribution and core layers collapsed into one tier, and the access layer on a separate tier***
 - access, distribution, and core layers collapsed into one tier, with a separate backbone layer

Maintaining three separate network tiers is not always required or cost-efficient. All network designs require an access layer, but a two-tier design can collapse the distribution and core layers into one layer to serve the needs of a small location with few users.

4. What is a basic function of the Cisco Borderless Architecture distribution layer?
 - acting as a backbone
 - aggregating all the campus blocks
 - **aggregating Layer 3 routing boundaries***
 - providing access to end user devices

One of the basic functions of the distribution layer of the Cisco Borderless Architecture is to perform routing between different VLANs. Acting as a backbone and aggregating campus blocks are functions of the core layer. Providing access to end user devices is a function of the access layer.

5. Which two previously independent technologies should a network administrator attempt to combine after choosing to upgrade to a converged network infrastructure? (Choose two.)

- **user data traffic***
- **VoIP phone traffic***
- scanners and printers
- mobile cell phone traffic
- electrical system

A converged network provides a single infrastructure that combines voice, video, and data. Analog phones, user data, and point-to-point video traffic are all contained within the single network infrastructure of a converged network.

6. A local law firm is redesigning the company network so that all 20 employees can be connected to a LAN and to the Internet. The law firm would prefer a low cost and easy solution for the project. What type of switch should be selected?

- **fixed configuration***
- modular configuration
- stackable configuration
- StackPower
- StackWise

By looking at the graphic in 1.1.2.2 #2 and #3 and comparing those photos to the graphics used in the Cisco switch design model shown in 1.1.1.5 #2, you can see that the smaller rack unit fixed configuration switch is used as an access layer switch. The modular configuration switch would be used at the distribution and core layers.

7. What are two advantages of modular switches over fixed-configuration switches? (Choose two.)

- lower cost per switch
- **increased scalability***
- lower forwarding rates
- **need for fewer power outlets***
- availability of multiple ports for bandwidth aggregation

Fixed-configuration switches, although lower in price, have a designated number of ports and no ability to add ports. They also typically provide fewer high-speed ports. In order to scale switching on a network that consists of fixed-configuration switches, more switches need to be purchased. This increases the number of power outlets that need to be used. Modular switches can be scaled simply by purchasing additional line cards. Bandwidth aggregation is also easier, because the backplane of the chassis can provide the bandwidth that is needed for the switch port line cards.

8. Which type of address does a switch use to build the MAC address table?

- destination IP address
- source IP address
- destination MAC address
- **source MAC address***

When a switch receives a frame with a source MAC address that is not in the MAC address table, the switch will add that MAC address to the table and map that address to a specific port. Switches do not use IP addressing in the MAC address table.

9. Which network device can be used to eliminate collisions on an Ethernet network?

- firewall
- hub
- router
- **switch***

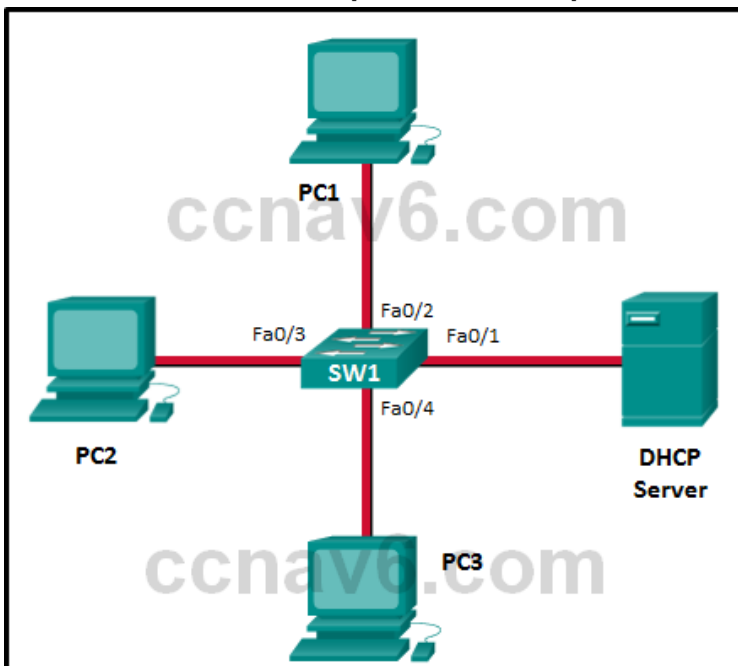
A switch provides microsegmentation so that no other device competes for the same Ethernet network bandwidth.

10. What two criteria are used by a Cisco LAN switch to decide how to forward Ethernet frames? (Choose two.)

- path cost
- egress port
- **ingress port***
- destination IP address
- **destination MAC address***

Cisco LAN switches use the MAC address table to make decisions of traffic forwarding. The decisions are based on the ingress port and the destination MAC address of the frame. The ingress port information is important because it carries the VLAN to which the port belongs.

11. Refer to the exhibit. Consider that the main power has just been restored. PC3 issues a broadcast IPv4 DHCP request. To which port will SW1 forward this request?



- to Fa0/1 only
- to Fa0/1 and Fa0/2 only
- **to Fa0/1, Fa0/2, and Fa0/3 only***
- to Fa0/1, Fa0/2, Fa0/3, and Fa0/4
- to Fa0/1, Fa0/2, and Fa0/4 only

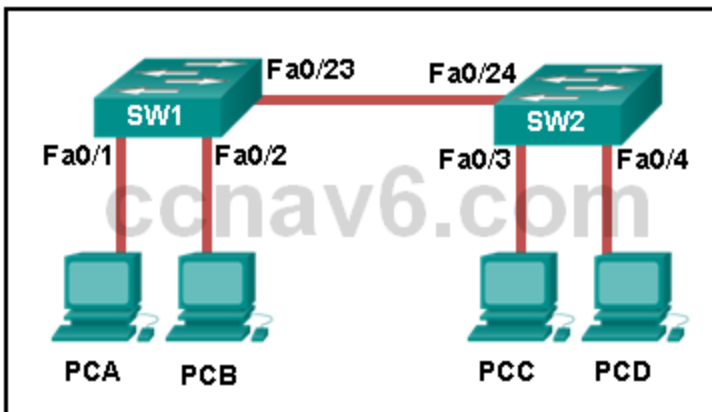
12. What is one function of a Layer 2 switch?

- forwards data based on logical addressing

- duplicates the electrical signal of each frame to every port
- learns the port assigned to a host by examining the destination MAC address
- **determines which interface is used to forward a frame based on the destination MAC address***

A switch builds a MAC address table of MAC addresses and associated port numbers by examining the source MAC address found in inbound frames. To forward a frame onward, the switch examines the destination MAC address, looks in the MAC address for a port number associated with that destination MAC address, and sends it to the specific port. If the destination MAC address is not in the table, the switch forwards the frame out all ports except the inbound port that originated the frame.

13. Refer to the exhibit. How is a frame sent from PCA forwarded to PCC if the MAC address table on switch SW1 is empty?



- SW1 floods the frame on all ports on the switch, excluding the interconnected port to switch SW2 and the port through which the frame entered the switch.
- **SW1 floods the frame on all ports on SW1, excluding the port through which the frame entered the switch.***
- SW1 forwards the frame directly to SW2. SW2 floods the frame to all ports connected to SW2, excluding the port through which the frame entered the switch.
- SW1 drops the frame because it does not know the destination MAC address.

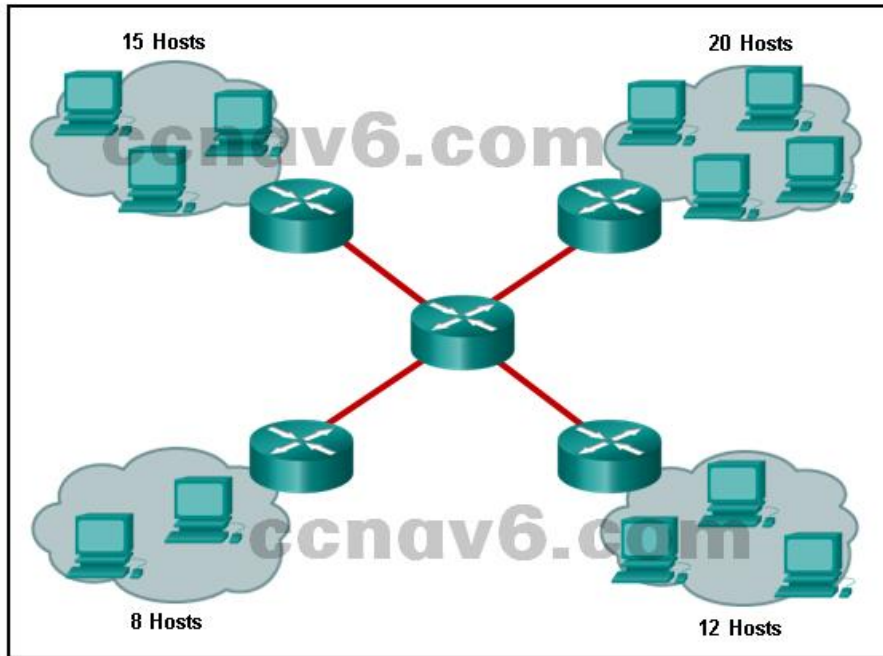
When a switch powers on, the MAC address table is empty. The switch builds the MAC address table by examining the source MAC address of incoming frames. The switch forwards based on the destination MAC address found in the frame header. If a switch has no entries in the MAC address table or if the destination MAC address is not in the switch table, the switch will forward the frame out all ports except the port that brought the frame into the switch.

14. A small publishing company has a network design such that when a broadcast is sent on the LAN, 200 devices receive the transmitted broadcast. How can the network administrator reduce the number of devices that receive broadcast traffic?
- Add more switches so that fewer devices are on a particular switch.
 - Replace the switches with switches that have more ports per switch. This will allow more devices on a particular switch.
 - **Segment the LAN into smaller LANs and route between them.***
 - Replace at least half of the switches with hubs to reduce the size of the broadcast domain.

By dividing the one big network into two smaller network, the network administrator has created two smaller broadcast domains. When a broadcast is sent on the network now, the

broadcast will only be sent to the devices on the same Ethernet LAN. The other LAN will not receive the broadcast.

15. Refer to the exhibit. How many broadcast domains are displayed?



- 1
- 4
- **8***
- 16
- 55

A router defines a broadcast boundary, so every link between two routers is a broadcast domain. In the exhibit, 4 links between routers make 4 broadcast domains. Also, each LAN that is connected to a router is a broadcast domain. The 4 LANs in the exhibit result in 4 more broadcast domains, so there are 8 broadcast domains in all.

16. Which solution would help a college alleviate network congestion due to collisions?

- a firewall that connects to two Internet providers
- **a high port density switch***
- a router with two Ethernet ports
- a router with three Ethernet ports

Switches provide microsegmentation so that one device does not compete for the same Ethernet network bandwidth with another network device, thus practically eliminating collisions. A high port density switch provides very fast connectivity for many devices.

17. Which network device can serve as a boundary to divide a Layer 2 broadcast domain?

- **router***
- Ethernet bridge
- Ethernet hub
- access point

Layer 1 and 2 devices (LAN switch and Ethernet hub) and access point devices do not filter MAC broadcast frames. Only a Layer 3 device, such as a router, can divide a Layer 2 broadcast domain.

18. What is the destination address in the header of a broadcast frame?

- 0.0.0.0
- 255.255.255.255
- 11-11-11-11-11-11
- **FF-FF-FF-FF-FF-FF***

In a Layer 2 broadcast frame, the destination MAC address (contained in the frame header) is set to all binary ones, therefore, the format of FF-FF-FF-FF-FF-FF. The binary format of 11 in hexadecimal is 00010001. 255.255.255.255 and 0.0.0.0 are IP addresses.

19. Which statement describes a result after multiple Cisco LAN switches are interconnected?

- **The broadcast domain expands to all switches.***
- One collision domain exists per switch.
- Frame collisions increase on the segments connecting the switches.
- There is one broadcast domain and one collision domain per switch.

In Cisco LAN switches, the microsegmentation makes it possible for each port to represent a separate segment and thus each switch port represents a separate collision domain. This fact will not change when multiple switches are interconnected. However, LAN switches do not filter broadcast frames. A broadcast frame is flooded to all ports. Interconnected switches form one big broadcast domain.

20. What does the term “port density” represent for an Ethernet switch?

- the memory space that is allocated to each switch port
- **the number of available ports***
- the numbers of hosts that are connected to each switch port
- the speed of each port

The term port density represents the number of ports available in a switch. A one rack unit access switch can have up to 48 ports. Larger switches may support hundreds of ports.

21. What are two reasons a network administrator would segment a network with a Layer 2 switch? (Choose two.)

- to create fewer collision domains
- **to enhance user bandwidth***
- to create more broadcast domains
- to eliminate virtual circuits
- **to isolate traffic between segments***
- to isolate ARP request messages from the rest of the network

A switch has the ability of creating temporary point-to-point connections between the directly-attached transmitting and receiving network devices. The two devices have full-bandwidth full-duplex connectivity during the transmission.

22. Fill in the blank.

A **converged** network is one that uses the same infrastructure to carry voice, data, and video signals.

23. Match the borderless switched network guideline description to the principle. (Not all options are used.)

Question as presented:

Match the borderless switched network guideline description to the principle. (Not all options are used.)

allows intelligent traffic load sharing by using all network resources	convergence
allows seamless network expansion and integrated service enablement on an on-demand basis	flexibility
facilitates understanding the role of each device at every tier, simplifies deployment, operation, management, and reduces fault domains at every tier	hierarchical
satisfies user expectations for keeping the network always on	modularity
	resiliency

Place the options in the following order:

- allows intelligent traffic load sharing by using all network resources** -> flexibility
- facilitates understanding the role of each device at every tier, simplifies deployment, operation, management, and reduces fault domains at every tier** -> hierarchical
- allows seamless network expansion and integrated service enablement on an on-demand basis** -> modularity
- satisfies user expectations for keeping the network always on** -> resiliency

24. Match the functions to the corresponding layers. (Not all options are used.)

Question as presented:

Match the functions to the corresponding layers. (Not all options are used.)

provides high-speed backbone connectivity	access layer
implements personal firewalls on the client computers	Target
provides network access to the user	Target
implements network access policy	distribution layer
represents the network edge	Target
establishes Layer 3 routing boundaries	Target
functions as an aggregator for all the campus blocks	core layer
	Target
	Target

Place the options in the following order:

Access layer

- [+] represents the network edge
- [+] provides network access to the user

Distribution layer

- [#] implements network access policy
- [#] establishes Layer 3 routing boundaries

Core layer

[*] provides high-speed backbone connectivity

[*] functions as an aggregator for all the campus blocks

25. Match the forwarding characteristic to its type. (Not all options are used.)

Place the options in the following order:

cut-through:

+appropriate for high performance computing applications

+forwarding process can be begin after receiving the destination address

+may forward invalid frames

store-and-forward:

#error checking before forwarding

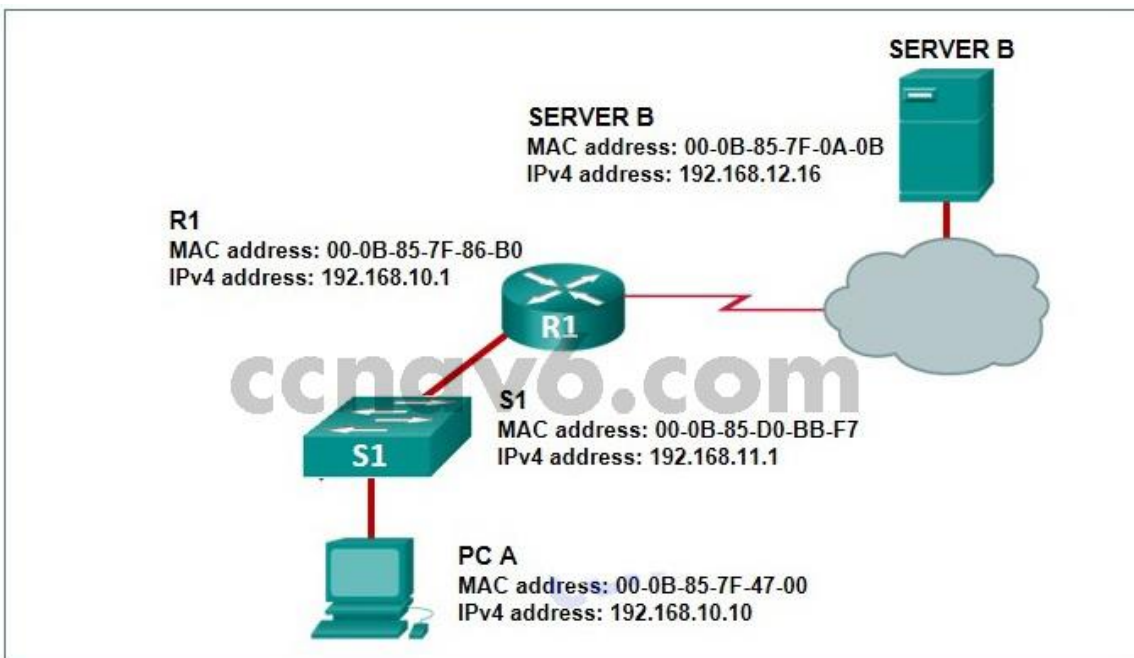
#forwarding process only begins after receiving the entire frame

#only forwards valid frames

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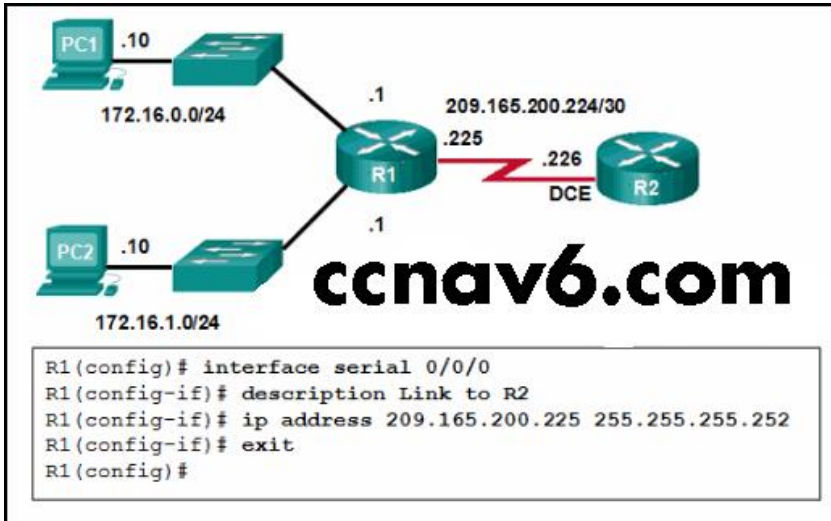
1. **What are two functions of a router? (Choose two.)**
 - **It connects multiple IP networks.***
 - It controls the flow of data via the use of Layer 2 addresses.
 - **It determines the best path to send packets.***
 - It manages the VLAN database.
 - It increases the size of the broadcast domain.
2. **Which two statements correctly describe the concepts of administrative distance and metric? (Choose two.)**
 - **Administrative distance refers to the trustworthiness of a particular route.***
 - A router first installs routes with higher administrative distances.
 - The value of the administrative distance can not be altered by the network administrator.
 - **Routes with the smallest metric to a destination indicate the best path.***
 - The metric is always determined based on hop count.
 - The metric varies depending which Layer 3 protocol is being routed, such as IP.
3. **In order for packets to be sent to a remote destination, what three pieces of information must be configured on a host? (Choose three.)**
 - hostname

- **IP address ***
 - **subnet mask ***
 - **default gateway ***
 - DNS server address
 - DHCP server address
4. Which software is used for a network administrator to make the initial router configuration securely?
- SSH client software
 - Telnet client software
 - HTTPS client software
 - **terminal emulation client software***
5. Refer to the exhibit. PC A sends a request to Server B. What IPv4 address is used in the destination field in the packet as the packet leaves PC A?



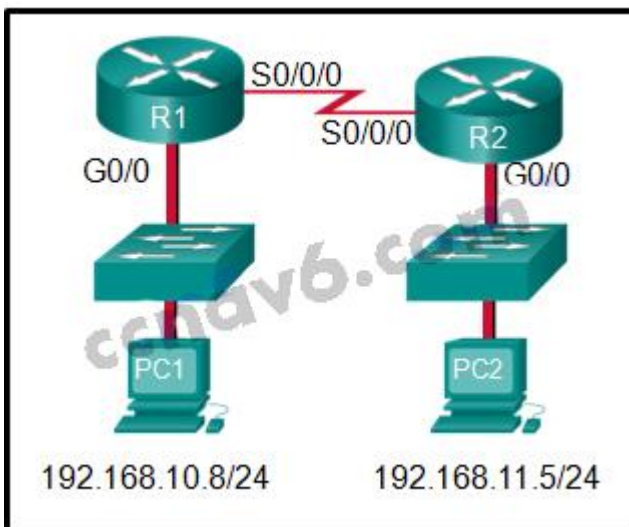
- 192.168.10.10
 - 192.168.11.1
 - 192.168.10.1
 - **192.168.12.16***
6. Refer to the exhibit. A network administrator has configured R1 as shown. When the administrator checks the status of the serial interface, the interface is shown as being administratively down. What additional command must be entered on the serial

interface of R1 to bring the interface up?



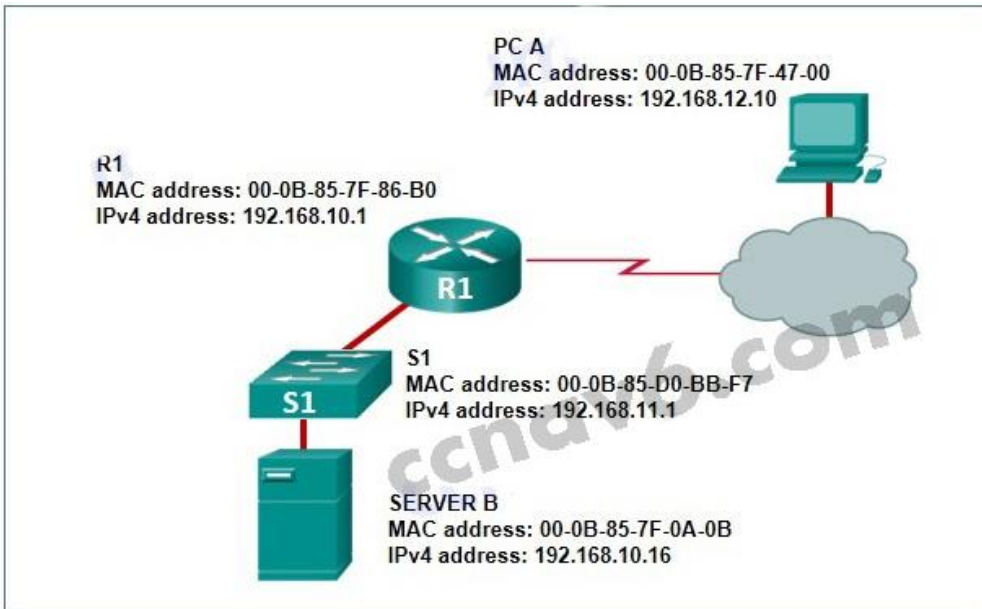
- IPv6 enable
 - clockrate 128000
 - end
 - **no shutdown***
7. What is a characteristic of an IPv4 loopback interface on a Cisco IOS router?
- The no shutdown command is required to place this interface in an UP state.
 - **It is a logical interface internal to the router.***
 - Only one loopback interface can be enabled on a router.
 - It is assigned to a physical port and can be connected to other devices.
8. What two pieces of information are displayed in the output of the show ip interface brief command? (Choose two.)
- **IP addresses***
 - MAC addresses
 - **Layer 1 statuses***
 - next-hop addresses
 - interface descriptions
 - speed and duplex settings
9. What type of network uses one common infrastructure to carry voice, data, and video signals?
- borderless
 - **converged***
 - managed
 - switched
- A converged network has only one physical network to install and manage. This results in substantial savings over the installation and management of separate voice, video, and data networks.
10. A packet moves from a host on one network to a device on a remote network within the same company. If NAT is not performed on the packet, which two items remain unchanged during the transfer of the packet from source to destination? (Choose two.)
- **destination IP address***
 - source ARP table
 - **source IP address***

- source MAC address
 - destination MAC address
 - Layer 2 header
11. Which two items are used by a host device when performing an ANDing operation to determine if a destination address is on the same local network? (Choose two.)
- **destination IP address***
 - destination MAC address
 - source MAC address
 - **subnet mask***
 - network number
12. Refer to the exhibit. If PC1 is sending a packet to PC2 and routing has been configured between the two routers, what will R1 do with the Ethernet frame header attached by PC1?



- nothing, because the router has a route to the destination network
- **remove the Ethernet header and configure a new Layer 2 header before sending it out S0/0/0***
- open the header and replace the destination MAC address with a new one
- open the header and use it to determine whether the data is to be sent out S0/0/0

13. Refer to the exhibit. What does R1 use as the MAC address of the destination when constructing the frame that will go from R1 to Server B?



- **If the destination MAC address that corresponds to the IPv4 address is not in the ARP cache, R1 sends an ARP request.***
- The packet is encapsulated into a PPP frame, and R1 adds the PPP destination address to the frame.
- R1 uses the destination MAC address of S1.
- R1 leaves the field blank and forwards the data to the PC.

14. Refer to the exhibit. What will the router do with a packet that has a destination IP address of 192.168.12.227?

```
Gateway of last resort is 209.165.200.226 to network 0.0.0.0

S*  0.0.0.0/0 [1/0] via 209.165.200.226
    192.168.10.0/24 is variably subnetted, 2 subnets, 2 masks
C   192.168.10.0/24 is directly connected, GigabitEthernet0/0
L   192.168.10.1/32 is directly connected, GigabitEthernet0/0
    192.168.11.0/24 is variably subnetted, 2 subnets, 2 masks
C   192.168.11.0/24 is directly connected, GigabitEthernet0/1
L   192.168.11.1/32 is directly connected, GigabitEthernet0/1
    209.165.200.0/24 is variably subnetted, 2 subnets, 2 masks
C   209.165.200.224/30 is directly connected, Serial0/0/0
L   209.165.200.225/32 is directly connected, Serial0/0/0
```

- Drop the packet.
- **Send the packet out the Serial0/0/0 interface.***
- Send the packet out the GigabitEthernet0/0 interface.
- Send the packet out the GigabitEthernet0/1 interface.

15. Which two parameters are used by EIGRP as metrics to select the best path to reach a network? (Choose two.)

- hop count
- **bandwidth***
- jitter
- resiliency
- **delay***

- confidentiality
16. What route would have the lowest administrative distance?
- **a directly connected network***
 - a static route
 - a route received through the EIGRP routing protocol
 - a route received through the OSPF routing protocol
17. Consider the following routing table entry for R1:
D 10.1.1.0/24 [90/2170112] via 209.165.200.226, 00:00:05, Serial0/0/0
 What is the significance of the Serial0/0/0?
- **It is the interface on R1 used to send data that is destined for 10.1.1.0/24.***
 - It is the R1 interface through which the EIGRP update was learned.
 - It is the interface on the final destination router that is directly connected to the 10.1.1.0/24 network.
 - It is the interface on the next-hop router when the destination IP address is on the 10.1.1.0/24 network.
18. What are two common types of static routes in routing tables? (Choose two)
- **a default static route***
 - a built-in static route by IOS
 - **a static route to a specific network***
 - a static route shared between two neighboring routers
 - a static route converted from a route that is learned through a dynamic routing protocol
19. What command will enable a router to begin sending messages that allow it to configure a link-local address without using an IPv6 DHCP server?
- the ipv6 route ::/0 command
 - a static route
 - the ip routing command
 - **the ipv6 unicast-routing command***
20. Refer to the exhibit. Match the description with the routing table entries. (Not all options are used.)

Question

route source protocol	172.16.2.2
destination network	10.3.0.0
metric	21024000
administrative distance	3
next hop	1
route timestamp	00:22:15
	D
	C

- Answer

next hop
destination network
metric
3
administrative distance
route timestamp
route source protocol
C

21. What is one feature that distinguishes routers from Layer 2 switches?

- Routers can be configured with IP addresses. Switches cannot.
- Switches move packets from one physical interface to another. Routers do not.
- Switches use tables of information to determine how to process data traffic. Routers do not.
- **Routers support a variety of interface types. Switches typically support Ethernet interfaces.***

22. What type of IPv6 address is required as a minimum on IPv6 enabled interfaces?

- loopback
- unique local
- **link-local***
- static
- global unicast

23. When a computer is pinging another computer for the first time, what type of message does it place on the network to determine the MAC address of the other device?

- an ICMP ping
- **an ARP request***
- an RFI (Request for Information) message
- a multicast to any Layer 3 devices that are connected to the local network

24. What address changes as a packet travels across multiple Layer 3 Ethernet hops to its final destination?

- source IP
- destination IP
- **source Layer 2 address***
- destination port

25. Refer to the exhibit. A network administrator issues the show ipv6 route command on R1. What two conclusions can be drawn from the routing table? (Choose two.)

```
R1# show ipv6 route
<output omitted>

C   2001:DB8:ACAD:2::/64 [0/0]
    via ::, FastEthernet0/0
L   2001:DB8:ACAD:2::54/128 [0/0]
    via ::, FastEthernet0/0
C   2001:DB8:ACAD:A::/64 [0/0]
    via ::, FastEthernet0/1
L   2001:DB8:ACAD:A::12/128 [0/0]
    via ::, FastEthernet0/1
L   FF00::/8 [0/0]
    via ::, Null0

R1#
```

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- **static route***
 - local host route *
 - **directly connected network***
 - route that is learned through the OSPF routing protocol
 - route that is learned through the EIGRP routing protocol
26. Refer to the exhibit. A network administrator issues the show ip route command on R2. What two types of routes are installed in the routing table? (Choose two.)

```
R2# show ip route
<output omitted>

Gateway of last resort is 209.165.201.1 to network 0.0.0.0

    172.16.0.0/24 is subnetted, 1 subnets
C       172.16.5.0 is directly connected, FastEthernet0/0
    172.17.0.0/24 is subnetted, 1 subnets
C       172.17.2.0 is directly connected, FastEthernet0/1
S   192.168.0.0/16 is directly connected, Serial0/0/1
    209.165.200.0/30 is subnetted, 1 subnets
C       209.165.200.224 is directly connected, Serial0/0/1
    209.165.201.0/30 is subnetted, 1 subnets
C       209.165.201.0 is directly connected, Serial0/0/0
D*EX 0.0.0.0/0 [170/7289856] via 209.165.201.1, 00:02:59, Serial0/0/0

R2#
```

CCNA 2 Chapter 4 Exam Answer 006 (v5.02, 2015)

- a configured default route
 - **directly connected networks***
 - routes that are learned through the OSPF routing protocol
 - **routes that are learned through the EIGRP routing protocol***
 - a configured static route to the network 209.165.200.224
27. Refer to the exhibit. Match the description with the routing table entries. (Not all options are used.)

```
R3# show ip route

<output omitted>

172.16.0.0/24 is subnetted, 3 subnets
C 172.16.0.0 is directly connected, Serial0/1/0
D 172.16.1.0 [90/21024000] via 172.16.0.1, 00:22:15, Serial0/1/0
C 172.16.2.0 is directly connected, Serial0/1/1
  10.0.0.0/24 is subnetted, 1 subnets
S 10.2.0.0 [1/0] via 172.16.2.2
C 10.3.0.0 is directly connected, FastEthernet0/0
```

next hop
destination network
metric
3
administrative distance
route timestamp
route source protocol
C

28. What type of IPv6 address is required as a minimum on IPv6 enabled interfaces?

- static
- global unicast
- **link-local***
- loopback
- unique local

29. Match the forwarding characteristic to its type. (Not all options are used.)

```
R3# show ip route
<output omitted>

172.16.0.0/24 is subnetted, 3 subnets
C 172.16.0.0 is directly connected, Serial0/1/0
D 172.16.1.0 [90/21024000] via 172.16.0.1, 00:22:15, Serial0/1/0
C 172.16.2.0 is directly connected, Serial0/1/1
  10.0.0.0/24 is subnetted, 1 subnets
S 10.2.0.0 [1/0] via 172.16.2.2
C 10.3.0.0 is directly connected, FastEthernet0/0
```

Refer to the exhibit. Match the description with the routing table entries. (Not all options are used.)

route source protocol	172.16.2.2
destination network	10.3.0.0
metric	21024000
administrative distance	3
next hop	1
route timestamp	00:22:15
	D
	C

- 172.16.2.2 -> **next hop**
- 10.3.0.0 -> **destination network**
- 21024000 -> **metric**
- 1 -> **administrative distance**
- 00:22:15 -> **route timestamp**
- D -> **route source protocol**

30. Refer to the exhibit. A network administrator issues the show ipv6 route command on R1. What two conclusions can be drawn from the routing table? (Choose two.)

```
R1# show ipv6 route
<output omitted>
C 2001:DB8:ACAD:2::/64 [0/0]
  via ::, FastEthernet0/0
L 2001:DB8:ACAD:2::54/128 [0/0]
  via ::, FastEthernet0/0
C 2001:DB8:ACAD:A::/64 [0/0]
  via ::, FastEthernet0/1
L 2001:DB8:ACAD:A::12/128 [0/0]
  via ::, FastEthernet0/1
L FF00::/8 [0/0]
  via ::, Null0
R1#
```

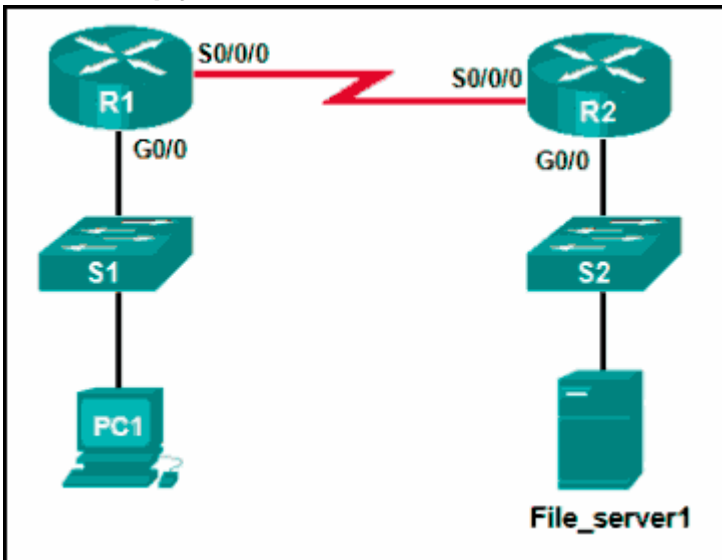
- Packets that are destined for the network 2001:DB8:ACAD:2::/64 will be forwarded through Fa0/1.

- **R1 does not know a route to any remote networks.***
- **The interface Fa0/1 is configured with IPv6 address 2001:DB8:ACAD:A::12.***
- Packets that are destined for the network 2001:DB8:ACAD:2::54/128 will be forwarded through Fa0/0.
- The network FF00::/8 is installed through a static route command.

31. Refer to the exhibit. What is the purpose of the highlighted field in the line that is displayed from the show ip route command?



- It indicates that this is a directly connected route.
 - It indicates that this route has been deleted from the routing table.
 - **It indicates that this route was learned via EIGRP.***
 - It indicates that this is a default route.
32. Refer to the exhibit. PC1 attempts to connect to File_server1 and sends an ARP request to obtain a destination MAC address. Which MAC address will PC1 receive in the ARP reply?



- the MAC address of File_server1
 - the MAC address of S2
 - the MAC address of the G0/0 interface on R2
 - the MAC address of S1
 - **the MAC address of the G0/0 interface on R1***
33. A network administrator configures the interface fa0/0 on the router R1 with the command ip address 172.16.1.254 255.255.255.0. However, when the administrator issues the command show ip route, the routing table does not show the directly connected network. What is the possible cause of the problem?
- **The interface fa0/0 has not been activated.***
 - No packets with a destination network of 172.16.1.0 have been sent to R1.
 - The subnet mask is incorrect for the IPv4 address.
 - The configuration needs to be saved first.

34. Which command is used to configure an IPv6 address on a router interface so that the router will combine a manually specified network prefix with an automatically generated interface identifier?

- ipv6 enable
- **ipv6 address ipv6-address/prefix-length eui-64***
- ipv6 address ipv6-address/prefix-length link-local
- ipv6 address ipv6-address/prefix-length

35. Fill in the blank.

When a router receives a packet, it examines the destination address of the packet and looks in the " **routing** " table to determine the best path to use to forward the packet.

36. A network administrator configures a router by the command `ip route 0.0.0.0 0.0.0.0 209.165.200.226`. What is the purpose of this command?

- **to provide a route to forward packets for which there is no route in the routing table***
- to forward packets destined for the network 0.0.0.0 to the device with IP address 209.165.200.226
- to add a dynamic route for the destination network 0.0.0.0 to the routing table
- to forward all packets to the device with IP address 209.165.200.226

37. Refer to the exhibit. A network administrator issues the `show ipv6 route` command on R1. Which two types of routes are displayed in the routing table? (Choose two.)

```
R1# show ipv6 route
<output omitted>
ccnav6.com
C   2001:DB8:ACAD:5::/64 [0/0]
    via ::, FastEthernet0/1
L   2001:DB8:ACAD:5::B/128 [0/0]
    via ::, FastEthernet0/1
C   2001:DB8:ACAD:A::/64 [0/0]
    via ::, FastEthernet0/0
L   2001:DB8:ACAD:A::2/128 [0/0]
    via ::, FastEthernet0/0
L   FF00::/8 [0/0]
    via ::, Null0
R1#
```

38. A network administrator is implementing dynamic routing protocols for a company. Which command can the administrator issue on a router to display the supported routing protocols?

- **Router(config)# router ?***
- Router(config)# ip forward-protocol ?
- Router(config)# service ?
- Router(config)# ip route ?

39. Which statement describes a route that has been learned dynamically?

- It is identified by the prefix C in the routing table.
- **It is automatically updated and maintained by routing protocols.***

- It is unaffected by changes in the topology of the network.
 - It has an administrative distance of 1.
40. Which two network parameters are used by EIGRP as metrics to select the best path to reach a network? (Choose Two.)
- jitter
 - **bandwidth***
 - resiliency
 - hop count
 - **delay***
 - confidentiality
41. What are two types of static routes in routing tables? (choose two)
- **default static route***
 - built in static route by IOS
 - **static route to specific network***
 - static route converted from a route that is learned through a dynamic routing protocol.
 - static route shared between two neighboring routers.
42. what is a characteristic of an IPv4 interface on a Cisco IOS router?
- it is assigned to a physical port and can be connected to other devices.
 - only one loopback int can be enable on a router
 - **it is a logical int internal to the router***
 - the no shut command is required to place this in UP