

## CCNA 3 Final Exam Answers v5.0 2015 (100%)

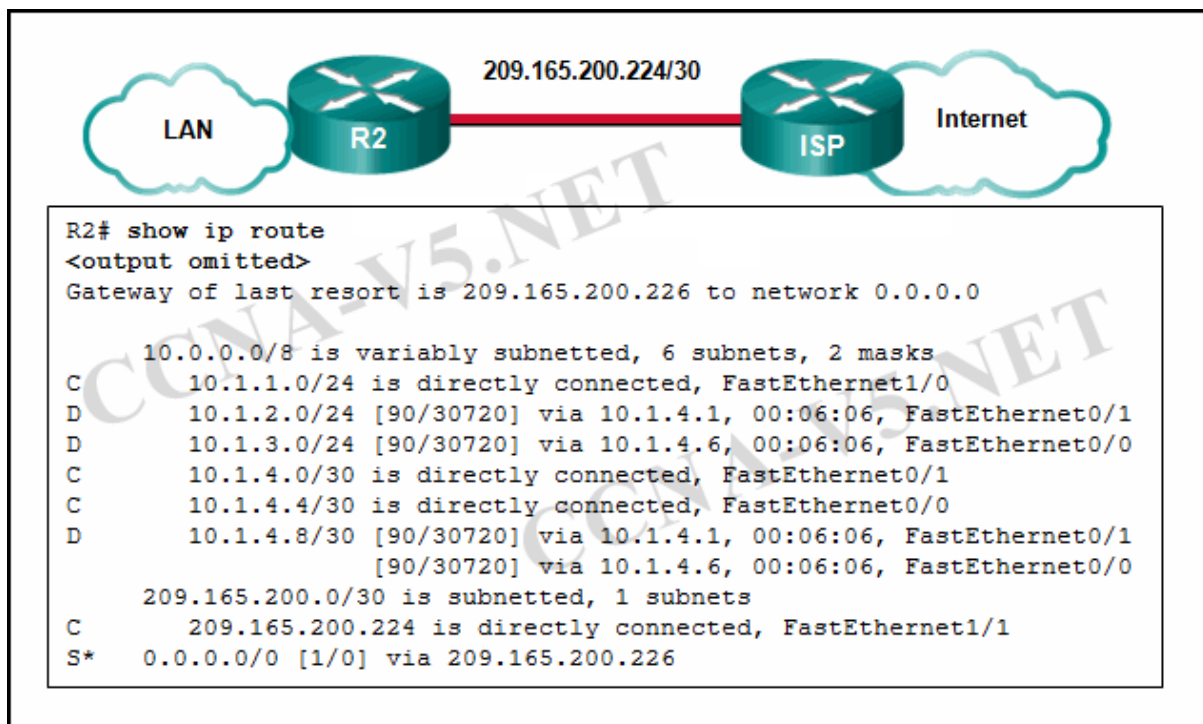
1. Which address is used by an IPv6 EIGRP router as the source for hello messages?
  - the 32-bit router ID
  - the IPv6 global unicast address that is configured on the interface
  - the all-EIGRP-routers multicast address
  - **the interface IPv6 link-local address**
2. Which two statements are correct about EIGRP acknowledgment packets? (Choose two.)
  - The packets are sent in response to hello packets.
  - The packets are used to discover neighbors that are connected on an interface.
  - **The packets are sent as unicast.**
  - The packets require confirmation.
  - **The packets are unreliable.**
3. When are EIGRP update packets sent?
  - **only when necessary**
  - when learned routes age out
  - every 5 seconds via multicast
  - every 30 seconds via broadcast
4. Refer to the exhibit. Which two conclusions can be derived from the output? (Choose two.)

```
R1# show ip eigrp topology
EIGRP-IPv4 Topology Table for AS(1)/ID(2.2.2.2)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply, r - reply
Status, s - ssa Status

P 172.16.3.0/24, 1 successors, FD is 1315
   via Connected, GigabitEthernet0/1
P 192.168.1.8/30, 1 successors, FD is 452141
   via 192.168.11.1 (452141/216956), Serial0/0/1
   via 172.16.6.1 (68024000/216956), Serial0/0/0
P 192.168.1.0/24, 1 successors, FD is 3012096
   via 192.168.11.1 (3012096/28116), Serial0/0/1
   via 172.16.6.1 (41024256/2170112), Serial0/0/0
P 192.168.10.8/30, 1 successors, FD is 3011840
   via Connected, Serial0/0/1
```

- There is one feasible successor to network 192.168.1.8/30.
- The network 192.168.10.8/30 can be reached through 192.168.11.1.
- The reported distance to network 192.168.1.0/24 is 41024256.
- The neighbor 172.16.6.1 meets the feasibility condition to reach the 192.168.1.0/24 network.
- Router R1 has two successors to the 172.16.3.0/24 network.

5. Refer to the exhibit. Which route or routes will be advertised to the router ISP if autosummarization is enabled?



- 10.0.0.0/8
- 10.1.0.0/16
- 10.1.0.0/28
- 10.1.1.0/24 10.1.2.0/24 10.1.3.0/24 10.1.4.0/28

6. Refer to the exhibit. What can be concluded about network 192.168.1.0 in the R2 routing table?

```

R2# show ip route
<output omitted>

    172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C    172.16.1.0/24 is directly connected, GigabitEthernet0/1
L    172.16.1.1/32 is directly connected, GigabitEthernet0/1
O IA 192.168.1.0/24 [110/2] via 192.168.2.1, 00:07:08, GigabitEthernet0/0
    192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.2.0/24 is directly connected, GigabitEthernet0/0
L    192.168.2.2/32 is directly connected, GigabitEthernet0/0
O    192.168.4.0/24 [110/2] via 172.16.1.2, 00:00:07, GigabitEthernet0/1
    192.168.6.0/32 is subnetted, 1 subnets
O    192.168.6.1/32 [110/2] via 172.16.1.2, 00:00:07, GigabitEthernet0/1
O*E2 0.0.0.0/0 [110/1] via 192.168.2.1, 00:04:53, GigabitEthernet0/0
R2#

```

- This network has been learned from an internal router within the same area.
- **This network was learned through summary LSAs from an ABR.**
- This network is directly connected to the interface GigabitEthernet0/0.
- This network should be used to forward traffic toward external networks.

7. Refer to the exhibit. A company has migrated from single area OSPF to multiarea. However, none of the users from network 192.168.1.0/24 in the new area can be reached by anyone in the Branch1 office. From the output in the exhibit, what is the problem?

```

Branch1# show ip route
<output omitted>

    172.16.0.0/16 is variably subnetted, 6 subnets, 3 masks
C    172.16.1.0/24 is directly connected, GigabitEthernet0/0
L    172.16.1.1/32 is directly connected, GigabitEthernet0/0
O    172.16.2.0/24 [110/65] via 172.16.200.2, 01:09:52, Serial0/0/0
C    172.16.200.0/30 is directly connected, Serial0/0/0
L    172.16.200.1/32 is directly connected, Serial0/0/0
O IA 172.16.200.4/30 [110/128] via 172.16.200.2, 01:09:52, Serial0/0/0

```

- **There are no interarea routes in the routing table for network 192.168.1.0.**
- The OSPF routing process is inactive.
- The link to the new area is down.
- The router has not established any adjacencies with other OSPF routers.

8. When does an OSPF router become an ABR?

- **when the router has interfaces in different areas**
- when the router is configured as an ABR by the network administrator
- when the router has the highest router ID
- when the router has an OSPF priority of 0

9. What is a difference between the Cisco IOS 12 and IOS 15 versions?

- The IOS 12 version has commands that are not available in the 15 version.
- **The IOS version 15 license key is unique to each device, whereas the IOS version 12 license key is not device specific.**
- Every Cisco ISR G2 platform router includes a universal image in the IOS 12 versions, but not the IOS 15 versions.
- IOS version 12.4(20)T1 is a mainline release, whereas IOS version 15.1(1)T1 is a new feature release.

**10. A network administrator issues the command R1(config)# license boot module c1900 technology-package securityk9 on a router. What is the effect of this command?**

- The IOS will prompt the user to reboot the router.
- The features in the Security package are available immediately.
- The IOS will prompt the user to provide a UDI in order to activate the license.
- **The Evaluation Right-To-Use license for the Security technology package is activated.**

**11. A network administrator is troubleshooting slow performance in a Layer 2 switched network. Upon examining the IP header, the administrator notices that the TTL value is not decreasing. Why is the TTL value not decreasing?**

- **This is the normal behavior for a Layer 2 network.**
- The MAC address table is full.
- The VLAN database is corrupt.
- The inbound interface is set for half duplex.

**12. A network administrator enters the spanning-tree portfast bpduguard default command. What is the result of this command being issued on a Cisco switch?**

- Any switch port will be error-disabled if it receives a BPDU.
- Any trunk ports will be allowed to connect to the network immediately, rather than waiting to converge.
- **Any switch port that has been configured with PortFast will be error-disabled if it receives a BPDU.**
- Any switch port that receives a BPDU will ignore the BPDU message.

**13. An STP instance has failed and frames are flooding the network. What action should be taken by the network administrator?**

- A response from the network administrator is not required because the TTL field will eventually stop the frames from flooding the network.
- Spanning tree should be disabled for that STP instance until the problem is located.

- Broadcast traffic should be investigated and eliminated from the network.
- **Redundant links should be physically removed until the STP instance is repaired.**

**14. A network engineer is configuring a LAN with a redundant first hop to make better use of the available network resources. Which protocol should the engineer implement?**

- FHRP
- **GLBP**
- HSRP
- VRRP

**15. Which mode configuration setting would allow formation of an EtherChannel link between switches SW1 and SW2 without sending negotiation traffic?**

- **SW1: on SW2: on**
- SW1: desirable SW2: desirable
- SW1: auto SW2: auto trunking enabled on both switches
- SW1: auto SW2: auto PortFast enabled on both switches
- SW1: passive SW2: active

**16. What are two requirements to be able to configure an EtherChannel between two switches? (Choose two.)**

- The interfaces that are involved need to be contiguous on the switch.
- **All the interfaces need to work at the same speed.**
- **All the interfaces need to be working in the same duplex mode.**
- All interfaces need to be assigned to different VLANs.
- Different allowed ranges of VLANs must exist on each end.

**17. When should EIGRP automatic summarization be turned off?**

- when a router has not discovered a neighbor within three minutes
- when a router has more than three active interfaces
- **when a network contains discontinuous network addresses**
- when a router has less than five active interfaces
- when a network addressing scheme uses VLSM

**18. What two conditions have to be met in order to form a cluster that includes 5 access points? (Choose two.)**

- **Clustering mode must be enabled on the APs.**
- At least two controllers are needed to form the cluster.
- **The APs have to be connected on the same network segment.**

- The APs must all be configured to use different radio modes.
- The APs must use different cluster names.

**19. A network engineer is troubleshooting a newly deployed wireless network that is using the latest 802.11 standards. When users access high bandwidth services such as streaming video, the wireless network performance is poor. To improve performance the network engineer decides to configure a 5 GHz frequency band SSID and train users to use that SSID for streaming media services. Why might this solution improve the wireless network performance for that type of service?**

- The 5 GHz band has a greater range and is therefore likely to be interference-free.
- Requiring the users to switch to the 5 GHz band for streaming media is inconvenient and will result in fewer users accessing these services.
- **The 5 GHz band has more channels and is less crowded than the 2.4 GHz band, which makes it more suited to streaming multimedia.**
- The only users that can switch to the 5 GHz band will be those with the latest wireless NICs, which will reduce usage.

**20. What method of wireless authentication is dependent on a RADIUS authentication server?**

- WEP
- WPA Personal
- WPA2 Personal
- **WPA2 Enterprise**

**21. Refer to the exhibit. What two pieces of information could be determined by a network administrator from this output? (Choose two.)**

R1# show ip ospf interface brief							
Interface	PID	Area	IP Address/Mask	Cost	State	Nbrs	F/C
Se0/0/0	1	1	10.0.0.2/30	64	P2P	1/1	
Fa0/1	1	1	10.0.0.6/30	1	BDR	0/0	
Se0/0/1	1	0	10.0.0.13/30	64	P2P	1/1	
Fa0/0	1	0	10.0.15.65/26	1	DR	0/0	

- **R1 is participating in multiarea OSPF.**
- The OSPF process number that is being used is 0.
- Interface Fa0/1 is not participating in the OSPF process.
- **R1 is the distribution point for the routers that are attached to the 10.0.0.4 network.**
- The metric that will be installed in the routing table for the 10.0.0.0 route will be 65 (64+1).

**22. A remote classroom can successfully access video-intensive streaming lectures via wired computers. However, when an 802.11n wireless access point is installed and used with 25 wireless laptops to access the same lectures, poor audio and video quality is experienced. Which wireless solution would improve the performance for the laptops?**

- Decrease the power of the wireless transmitter.
- **Add another access point.**
- Upgrade the access point to one that can route.
- Adjust the wireless NICs in the laptops to operate at 10GHz to be compatible with 802.11n.

**23. What are the two methods that are used by a wireless NIC to discover an AP? (Choose two.)**

- sending an ARP request
- delivering a broadcast frame
- **transmitting a probe request**
- initiating a three-way handshake
- **receiving a broadcast beacon frame**

**24. When will a router that is running EIGRP put a destination network in the active state?**

- when the EIGRP domain is converged
- when there is outgoing traffic toward the destination network
- when there is an EIGRP message from the successor of the destination network
- **when the connection to the successor of the destination network fails and there is no feasible successor available**

**25. Which wireless network topology is being configured by a technician who is installing a keyboard, a mouse, and headphones, each of which uses Bluetooth?**

- **ad hoc mode**
- hotspot
- infrastructure mode
- mixed mode

**26. What is a wireless modulation technique used by 802.11 WLAN standards that can implement MIMO?**

- BSS
- DSSS

- FHSS
- OFDM

27. Refer to the exhibit. A network administrator issues the show ipv6 eigrp neighbors command. Which conclusion can be drawn based on the output?

```

R1# show ipv6 eigrp neighbors
IPv6-EIGRP neighbors for process 41000
H   Address                Interface      Hold   Uptime   SRTT   RTO   Q   Seq
   Address                Interface      (sec)  (sec)   (ms)   (ms)  Cnt  Num
0   Link-local address:    Se0/0/0       14     00:09:01  40     1000  0   21
   FE80::3
1   Link-local address:    Se0/0/1       13     00:00:16  40     1000  0   20
   FE80::5

```

- The link-local addresses of neighbor routers interfaces are configured manually.
- R1 has two neighbors. They connect to R1 through their S0/0/0 and S0/0/1 interfaces.
- The neighbor with the link-local address FE80::5 is the first EIGRP neighbor that is learned by R1.
- If R1 does not receive a hello packet from the neighbor with the link-local address FE80::5 in 2 seconds, it will declare the neighbor router is down.

28. A network engineer is troubleshooting a single-area OSPFv3 implementation across routers R1, R2, and R3. During the verification of the implementation, it is noted that the routing tables on R1 and R2 do not include the entry for a remote LAN on R3. Examination of R3 shows the following:

1. that all interfaces have correct addressing
2. that the routing process has been globally configured
3. that correct router adjacencies have formed

What additional action taken on R3 could solve the problem?

- Enable the OSPFv3 routing process on the interface connected to the remote LAN.
- Use the network command to configure the LAN network under the global routing process.
- Force DR/BDR elections to occur where required.
- Restart the OPSFv3 routing process.

29. A network administrator in a branch office is configuring EIGRP authentication between the branch office router and the headquarters office router. Which security credential is needed for the authentication process?



- a randomly generated key with the crypto key generate rsa command
- the username and password configured on the headquarters office router
- the hostname of the headquarters office router and a common password
- **a common key configured with the key-string command inside a key chain**

**30. For troubleshooting missing EIGRP routes on a router, what three types of information can be collected using the show ip protocols command? (Choose three.)**

- any interfaces that are enabled for EIGRP authentication
- **any interfaces on the router that are configured as passive**
- the IP addresses that are configured on adjacent routers
- **any ACLs that are affecting the EIGRP routing process**
- **networks that are unadvertised by the EIGRP routing protocol**
- the local interface that is used to establish an adjacency with EIGRP neighbors

**31. Refer to the exhibit. A network technician is troubleshooting missing OSPFv3 routes on a router. What is the cause of the problem based on the command output?**

```
Branch# show ipv6 ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Interface ID	Interface
4.4.4.4	1	FULL/BDR	00:00:38	3	Serial0/0/0
2.2.2.2	1	EXSTART/	00:00:30	5	Serial0/0/1
1.1.1.1	1	FULL/DR	00:00:44	4	FastEthernet0/0

- **There is a problem with the OSPFv3 adjacency between the local router and the router that is using the neighbor ID 2.2.2.2.**
- The local router has formed complete neighbor adjacencies, but must be in a 2WAY state for the router databases to be fully synchronized.
- The dead time must be higher than 30 for all routers to form neighbor adjacencies.
- The neighbor IDs are incorrect. The interfaces must use only IPv6 addresses to ensure fully synchronized routing databases.

**32. A network engineer is implementing security on all company routers. Which two commands must be issued to force authentication via the password 1C34dE for all OSPF-enabled interfaces in the backbone area of the company network? (Choose two.)**

- **ip ospf message-digest-key 1 md5 1C34dE**
- area 1 authentication message-digest
- username OSPF password 1C34dE
- enable password 1C34dE

- area 0 authentication message-digest

33. Which port role is assigned to the switch port that has the lowest cost to reach the root bridge?

- root port
- non-designated port
- designated port
- disabled port

34. Refer to the exhibit. A network administrator is attempting to upgrade the IOS system image on a Cisco 2901 router. After the new image has been downloaded and copied to the TFTP server, what command should be issued on the router before the IOS system image is upgraded on the router?

The exhibit shows two terminal windows. The top window shows the configuration of interface GigabitEthernet 0/0 on a Cisco router. The bottom window shows the output of the 'ipconfig /all' command on a Windows PC, indicating the IP address is 10.10.10.2 with a subnet mask of 255.255.255.0 and a default gateway of 10.10.10.1.

```
Branch(config)# interface GigabitEthernet 0/0
Branch(config-if)# ip address 10.10.10.1 255.255.255.0
Branch (config-if)# no shutdown
```

**TFTP Server Output:**

```
C:\> ipconfig /all
Ethernet adapter Local Area Connection:

Description . . . . . : Realtek PCIe GBE Controller
Physical Address. . . . . : D4-BE-D9-C1-98-94
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : No
Link-local IPv6 Address . . . . . : FE80::FCC9:17FA:E96B:3C6A:EA11
IPv4 Address. . . . . : 10.10.10.2
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 10.10.10.1
```

- dir flash:
- ping 10.10.10.1
- copy tftp: flash0:
- ping 10.10.10.2

35. A set of switches is being connected in a LAN topology. Which STP bridge priority value will make it least likely for the switch to be selected as the root?

- 4096
- 32768
- 61440

- 65535

**36. What are two features of OSPF interarea route summarization? (Choose two.)**

- ASBRs perform all OSPF summarization.
- **Routes within an area are summarized by the ABR.**
- **ABRs advertise the summarized routes into the backbone.**
- Type 3 and type 5 LSAs are used to propagate summarized routes by default.
- Route summarization results in high network traffic and router overhead.

**37. Refer to the exhibit. What are two results of issuing the displayed commands on S1, S2, and S3? (Choose two.)**

```
S3(config)# spanning-tree vlan 1 priority 24576
S3(config)# end

S2(config)# spanning-tree vlan 1 root secondary
S2(config)# end                               CCNA5.NET

S1(config)# spanning-tree vlan 1 root primary
S1(config)# end
```

- **S1 will automatically adjust the priority to be the lowest.**
- S1 will automatically adjust the priority to be the highest.
- S3 can be elected as a secondary bridge.
- S2 can become root bridge if S3 fails.
- **S2 can become root bridge if S1 fails.**

**38. Refer to the exhibit. Which two conclusions can be drawn from the output? (Choose two.)**

```

S1# show etherchannel summary
Flags:  D - down          P - bundled in port-channel
        I - stand-alone  s - suspended
        H - Hot-standby (LACP only)
        R - Layer3       S - Layer2
        U - in use       f - failed to allocate aggregator
        M - not in use, minimum links not met
        u - unsuitable for bundling
        w - waiting to be aggregated
        d - default port

Number of channel-groups in use: 1
Number of aggregators:           1

Group  Port-channel  Protocol    Ports
-----+-----+-----+-----
1      Po2(SD)          -           Fa0/1(D)   Fa0/2(D)

```

- The EtherChannel is down.
- The port channel ID is 2.
- The port channel is a Layer 3 channel.
- The bundle is fully operational.
- The load-balancing method used is source port to destination port.

39. Refer to the exhibit. Interface FastEthernet 0/1 on S1 is connected to Interface FastEthernet 0/1 on S2, and Interface FastEthernet 0/2 on S1 is connected to Interface FastEthernet 0/2 on S2. What are two errors in the present EtherChannel configurations? (Choose two.)

<pre> S1# show running-config &lt;output omitted&gt; interface Port-channel1   switchport mode trunk ! interface FastEthernet0/1   switchport mode trunk   channel-group 1 mode on ! interface FastEthernet0/2   switchport mode trunk   channel-group 1 mode auto </pre>	<pre> S2# show running-config &lt;output omitted&gt; interface Port-channel1   switchport mode trunk ! interface FastEthernet0/1   switchport mode trunk   channel-group 2 mode desirable ! interface FastEthernet0/2   switchport mode trunk   channel-group 1 mode auto </pre>
---	--

- The trunk mode is not allowed for EtherChannel bundles.

- Two auto modes cannot form a bundle.
- Desirable mode is not compatible with on mode.
- The channel group is inconsistent.
- The interface port channel ID should be different in both switches.

40. Which technology is an open protocol standard that allows switches to automatically bundle physical ports into a single logical link?

- Multilink PPP
- DTP
- LACP
- PagP

41. A network administrator has configured an EtherChannel between two switches that are connected via four trunk links. If the physical interface for one of the trunk links changes to a down state, what happens to the EtherChannel?

- The EtherChannel will transition to a down state.
- Spanning Tree Protocol will recalculate the remaining trunk links.
- The EtherChannel will remain functional.
- Spanning Tree Protocol will transition the failed physical interface into forwarding mode.

42. Refer to the exhibit. Based on the command output shown, what is the status of the EtherChannel?

```
S1# show EtherChannel summary

<output omitted>

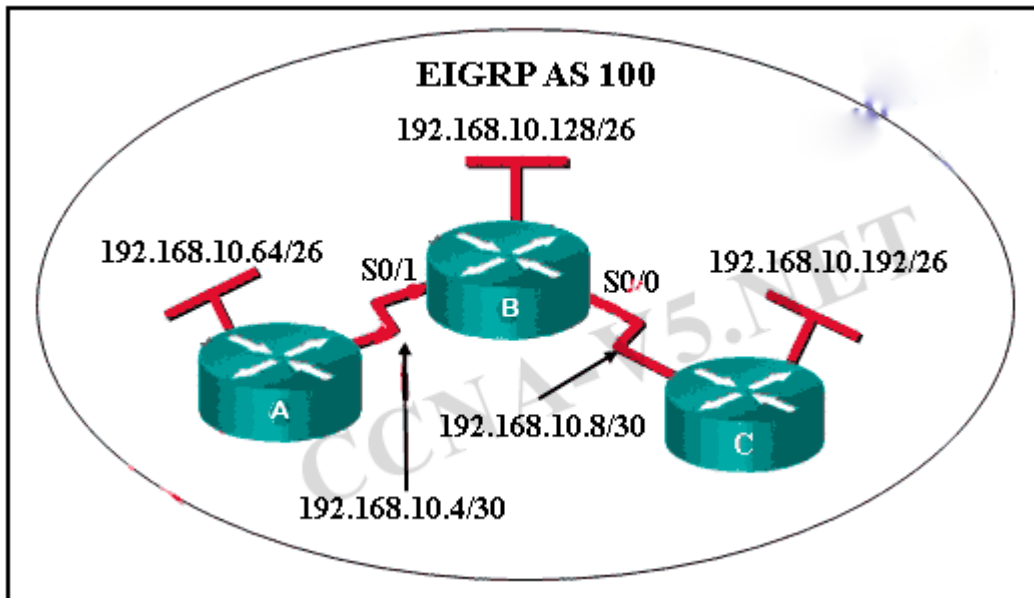
Number of channel-groups in use: 1
Number of aggregators:           1

Group  Port-channel  Protocol  Ports
-----+-----+-----+-----
-
1      Po1(SU)        -         Fa0/10(P) Fa0/11(P)
```

- The EtherChannel is dynamic and is using ports Fa0/10 and Fa0/11 as passive ports.
- The EtherChannel is down as evidenced by the protocol field being empty.
- The EtherChannel is partially functional as indicated by the P flags for the FastEthernet ports.

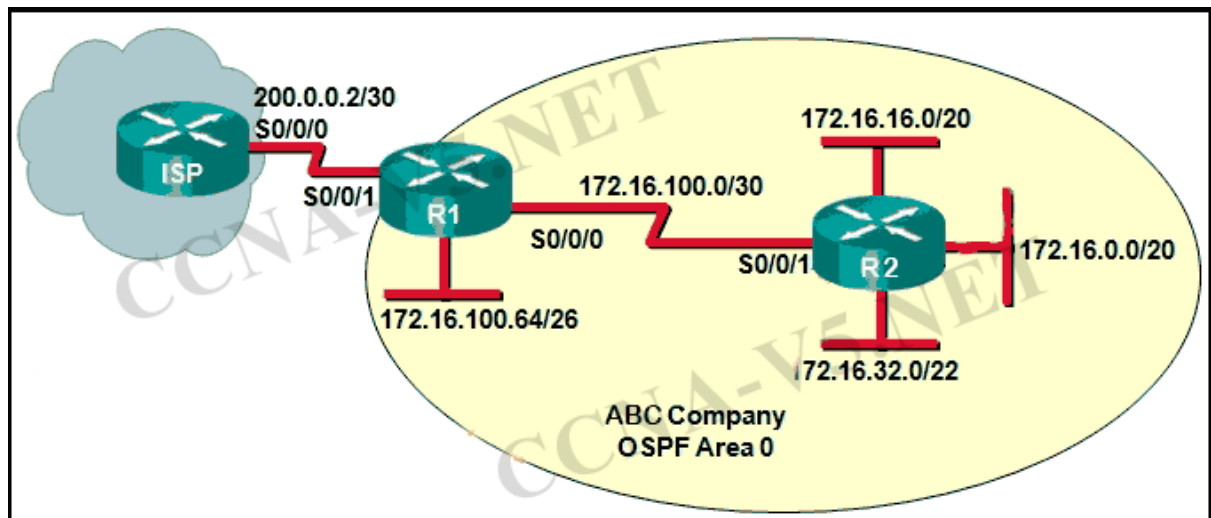
- The EtherChannel is in use and functional as indicated by the SU and P flags in the command output.

43. Refer to the exhibit. If router B is to be configured for EIGRP AS 100, which configuration must be entered?



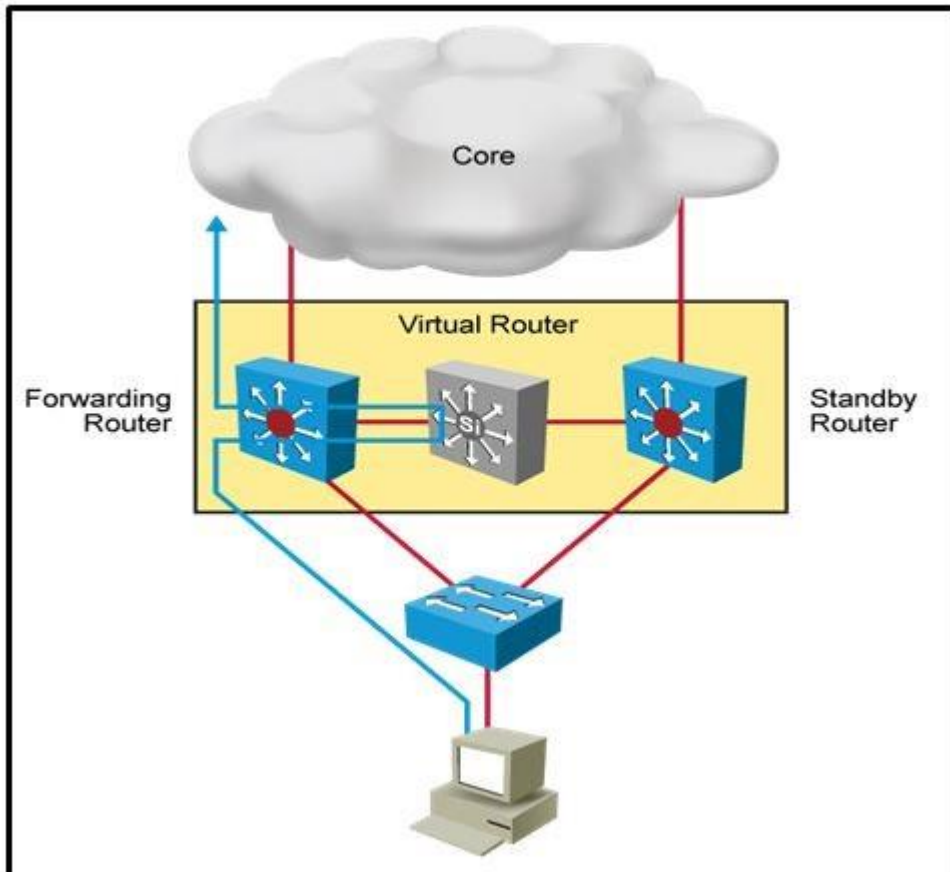
- B(config-router)# network 192.168.10.4 0.0.0.3 B(config-router)# network 192.168.10.8 0.0.0.3
- B(config-router)# network 192.168.10.4 0.0.0.3 B(config-router)# network 192.168.10.8 0.0.0.3 B(config-router)# network 192.168.10.128 0.0.0.63
- B(config-router)# network 192.168.10.4 255.255.255.248 B(config-router)# network 192.168.10.8 255.255.255.248 B(config-router)# network 192.168.10.128 255.255.255.192
- B(config-router)# network 192.168.10.0 255.255.255.0
- B(config-router)# network 192.168.10.4 0.0.0.3 B(config-router)# network 192.168.10.8 0.0.0.3 B(config-router)# network 192.168.10.64 0.0.0.63 B(config-router)# network 192.168.10.128 0.0.0.63 B(config-router)# network 192.168.10.192 0.0.0.63
- B(config-router)# network 192.168.10.0 0.0.0.255

44. Refer to the exhibit. When the show ip ospf neighbor command is given from the R1# prompt, no output is shown. However, when the show ip interface brief command is given, all interfaces are showing up and up. What is the most likely problem?



- R2 has not brought the S0/0/1 interface up yet.
- R1 or R2 does not have a loopback interface that is configured yet.
- The ISP has not configured a static route for the ABC Company yet.
- **R1 or R2 does not have a network statement for the 172.16.100.0 network.**
- R1 has not sent a default route down to R2 by using the default-information originate command.

**45. Refer to the exhibit. Which destination MAC address is used when frames are sent from the workstation to the default gateway?**



- MAC address of the forwarding router
- MAC addresses of both the forwarding and standby routers
- MAC address of the standby router
- **MAC address of the virtual router**

**46. If a company wants to upgrade a Cisco 2800 router from IOS 12.4T, what IOS should be recommended for a stable router platform?**

- 12.5T
- 13.1T
- 14.0
- **15.1M**

**47. What is the purpose of the Cisco PAK?**

- **It is a key for enabling an IOS feature set.**
- It is a proprietary encryption algorithm.
- It is a compression file type used when installing IOS 15 or an IOS upgrade.
- It is a way to compress an existing IOS so that a newer IOS version can be co-installed on a router.



48. What are two reasons to implement passive interfaces in the EIGRP configuration of a Cisco router? (Choose two.)

- to provide increased network security
- to shut down unused interfaces
- to avoid unnecessary update traffic
- to mitigate attacks coming from the interfaces
- to exclude interfaces from load balancing

49. Fill in the blank.

EIGRP keeps feasible successor routes in the **topology** table.

50. Fill in the blank.

The **backbone** area interconnects with all other OSPF area types.

51. Fill in the blank. Use the acronym.

Which encryption protocol is used by the WPA2 shared key authentication technique? **AES**

52. Match each OSPF LSA description with its type. (Not all options are used.)

This type of LSA is flooded only within the area in which it is originated.
This type of LSA only exists in multiaccess and non-broadcast multi-access networks where there is a DR elected.
This type of LSA is used by ABRs to advertise networks from other areas.
LSA type 4
This type of LSA describes routes to networks that are outside the OSPF autonomous system.

53. Match the CLI command prompt with the command or response entered when backing up Release 15 IOS image to an IPv6 TFTP server. (Not all options are used.)

Match the CLI command prompt with the command or response entered when backing up a Release 15 IOS image to an IPv6 TFTP server. (Not all options are used.)

RouterA#	copy tftp: flash0:
Source filename?	2001:DB8:CAFE:100::99
Address or name of remote host?	c1900-universalk9-mz.SPA.152-4.M3.bin
	c2800nm-advipservicesk9-mz.124-6.T.bin
	copy flash0: tftp:
	172.16.2.100

copy tftp: flash0:
Address or name of remote host?
Source filename?
c2800nm-advipservicesk9-mz.124-6.T.bin
RouterA#
172.16.2.100

54. Which characteristic would most influence a network design engineer to select a multilayer switch over a Layer 2 switch?

- ability to build a routing table
- ability to aggregate multiple ports for maximum data throughput
- ability to provide power to directly-attached devices and the switch itself
- ability to have multiple forwarding paths through the switched network based on VLAN number(s)

55. A network designer is considering whether to implement a switch block on the company network. What is the primary advantage of deploying a switch block?

- A single core router provides all the routing between VLANs.
- The failure of a switch block will not impact all end users.
- This is a security feature that is available on all new Catalyst switches.

- This is network application software that prevents the failure of a single network device.

**56. Which action should be taken when planning for redundancy on a hierarchical network design?**

- immediately replace a non-functioning module, service or device on a network
- continually purchase backup equipment for the network
- implement STP portfast between the switches on the network
- **add alternate physical paths for data to traverse the network**

**57. Which technological factor determines the impact of a failure domain?**

- the number of layers of the hierarchical network
- the number of users on the access layer
- **the role of the malfunctioning device**
- the forwarding rate of the switches used on the access layer

**58. What are three access layer switch features that are considered when designing a network? (Choose three.)**

- broadcast traffic containment
- failover capability
- **forwarding rate**
- **port density**
- **Power over Ethernet**
- speed of convergence

**59. What are two requirements when using out-of-band configuration of a Cisco IOS network device? (Choose two.)**

- HTTP access to the device
- **a terminal emulation client**
- Telnet or SSH access to the device
- **a direct connection to the console or AUX port**
- a connection to an operational network interface on the device

**60. In a large enterprise network, which two functions are performed by routers at the distribution layer? (Choose two.)**

- **connect remote networks**
- provide Power over Ethernet to devices
- connect users to the network
- **provide data traffic security**